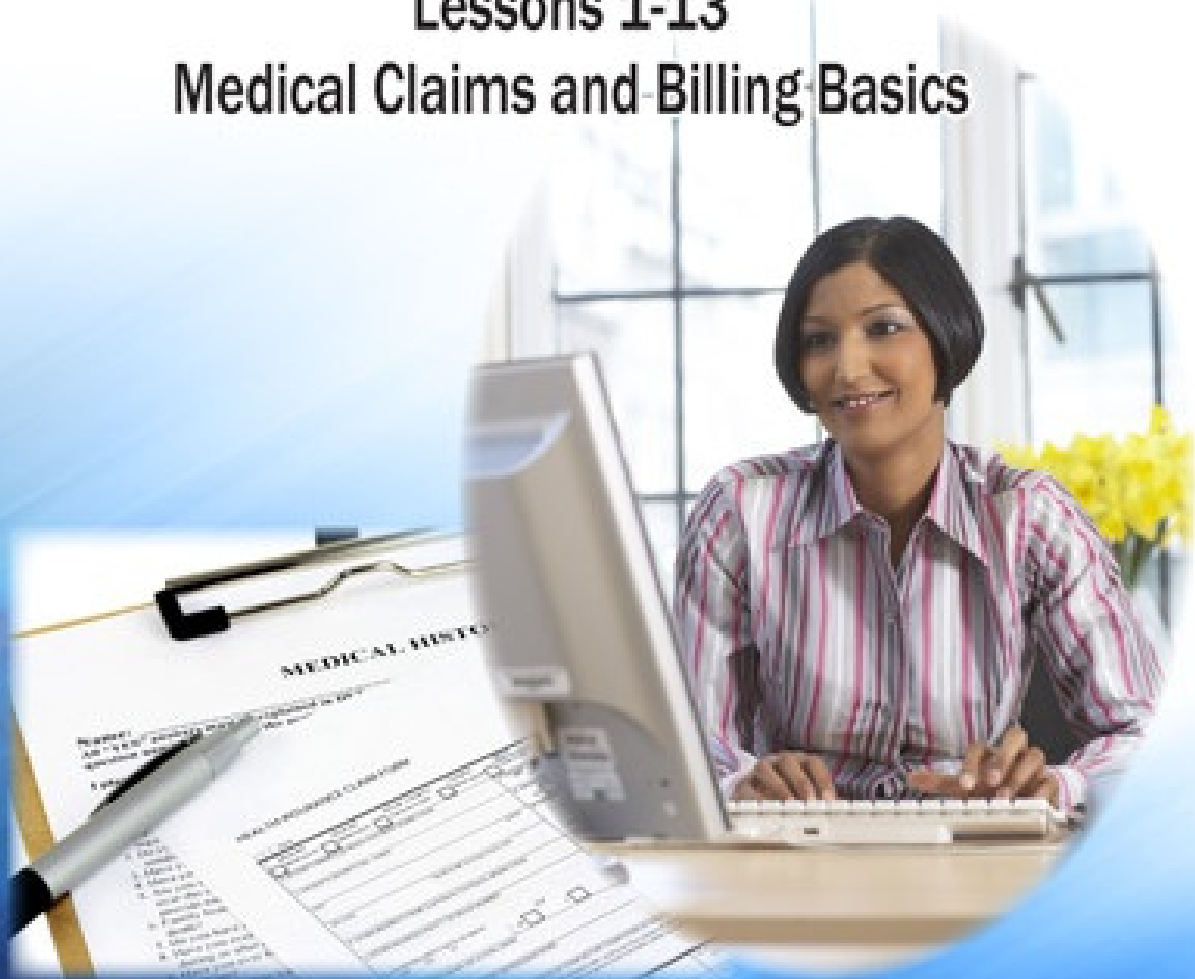




**U.S. Career  
Institute™**  
Dream • Learn • Succeed™

# Medical Claims and Billing Specialist

Lessons 1-13  
Medical Claims and Billing Basics



0201494TB01B-22

# **Medical Claims and Billing Specialist**

**Medical Claims  
and Billing Basics**

Lessons 1-13

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of U.S. Career Institute.

© Copyright 1995-2012, Weston Distance Learning, Inc. All Rights Reserved.  
0201494TB01B-22

# Acknowledgments

## Editorial Staff

Janet Perry

Katy Little

Christine Dunlap

Joyce Jeckewicz

Leslie Ballentine

Lindsay Hansen

Rachel Metzgar

Brenda Blomberg

## Design/Layout

Connie Hunsader

D. Brent Hauseman

Sandy Petersen

**For more information contact:**

U.S. Career Institute  
Fort Collins, CO 1-800-347-7899  
[www.uscareerinstitute.edu](http://www.uscareerinstitute.edu)

# Table of Contents

## Lesson 1—Welcome to the Exciting World of Medicine and Medical Claims

- Step 1 Learning Objectives for Lesson 1
- Step 2 Lesson Preview
- Step 3 Welcome to Your Career as a Medical Claims and Billing Specialist!  
What Does a Medical Claims and Billing Specialist Do?
- Step 4 Everyday Procedures for the Front Office Professional  
A Day in the Life of the Front Office Professional
- Step 5 The Medical Claims and Billing Specialist's Daily Routine
- Step 6 The Responsibilities of the Medical Claims Specialist
- Step 7 Confidentiality
- Step 8 Lesson Summary

## Lesson 2—The Third-party Payer: How Insurance Works

- Step 1 Learning Objectives for Lesson 2
- Step 2 Lesson Preview
- Step 3 Insurance
- Step 4 Common Insurance Terms
  - Provider
  - Claim Form
  - Deductible
  - Co-payment
  - Reasonable and Customary
  - Explanation of Benefits
- Step 5 Types of Health Insurance
  - Government Insurance
  - Private, Traditional Insurance
  - Managed Care
- Step 6 Lesson Summary

## Lesson 3—Handling Claims

- Step 1 Learning Objectives for Lesson 3
- Step 2 Lesson Preview
- Step 3 The Preauthorization Requirement
- Step 4 Diagnostic Codes

- Step 5 Procedure Coding
- Step 6 Claims Follow-up
- Step 7 Lesson Summary

## **Lesson 4—Private Insurance and Managed Care Programs**

- Step 1 Learning Objectives for Lesson 4
- Step 2 Lesson Preview
- Step 3 Private and Group Health Insurance
  - Insurance Contracts
  - Level of Payments
- Step 4 Insurance Basics
  - Identification Cards
  - Time Limits
  - Explanation of Benefits
- Step 5 Managed Care
- Step 6 Health Maintenance Organizations (HMOs)
- Step 7 Preferred Provider Organizations (PPOs)
- Step 8 Point of Service (POS) Plans
- Step 9 Physician Provider Groups (PPGs)
- Step 10 Health Savings Accounts
  - High Deductible Health Plan
- Step 11 Managed Care Concepts
  - Preauthorization
  - Peer Review Organizations
  - Capitation
  - Visitation Limits
- Step 12 Working with Managed Care
  - The Managed Care Quick Reference Card
  - Explanation of Benefits
  - Appealing Benefits
  - Managed Care Programs and Medicare
  - Managed Care Programs and Medicaid
- Step 13 Lesson Summary

## **Lesson 5—Medicaid and Medicare**

- Step 1 Learning Objectives for Lesson 5
- Step 2 Lesson Preview
- Step 3 CMS
- Step 4 Medicaid
  - Who is Eligible for Medicaid?

- Medicaid Identification Cards
- Services that Medicaid Covers
- Step 5 Filing Medicaid Claims
  - Preauthorization
  - Time Limits and Appeals
  - Reciprocity
  - Explanation of Benefits
  - Third Party Liability
- Step 6 Medicare
  - Who is Eligible for Medicare?
  - Medicare Identification Card
- Step 7 Services that Medicare Covers
  - Medicare Part A
  - Medicare Part B
  - Medicare Part D
- Step 8 Filing Medicare Claims
  - Fiscal Agents and Fiscal Intermediaries
  - Participating Physicians
  - National Provider Identifier (NPI)
  - The Claim Form
  - Preauthorization
  - Time Limits and Appeals
  - Explanation of Benefits
  - Advance Beneficiary Notice (ABN)
  - Medicare Preventive Services
  - Medicare Fraud and Abuse
- Step 9 Supplemental Insurance
  - Medigap or Supplemental Insurance
  - Medi-Medi (Medicare/Medicaid)
- Step 10 State Children's Health Insurance Program (SCHIP)
- Step 11 Lesson Summary

## **Lesson 6—Military Insurance, Workers' Compensation and COBRA**

- Step 1 Learning Objectives for Lesson 6
- Step 2 Lesson Preview
- Step 3 TRICARE
  - CHAMPUS
- Step 4 CHAMPVA
- Step 5 Common Words and Terms
  - Authorized Provider
  - Catastrophic Cap
  - Cost-Share

- Deductible
- DEERS
- Medically Necessary
- Network Providers
- Nonavailability Statement
- Participating TRICARE Providers
- TRICARE Standard Supplemental Insurance
- Step 6 TRICARE Options
  - TRICARE Standard
  - TRICARE Extra
  - TRICARE Prime
  - Point-of-Service
- Step 7 Eligibility Requirements for TRICARE and CHAMPVA
  - TRICARE Eligibility Requirements—Who is Eligible?
  - CHAMPVA Eligibility Requirements—Who is Eligible?
- Step 8 Identification Cards
- Step 9 Services Covered
- Step 10 Filing TRICARE and CHAMPVA Claims
  - Nonavailability Statement
  - Filing Claims
    - Claims for Physicians Who Have Accepted Assignment
    - Claims for Physicians Who Have Not Accepted Assignment
    - Which Claim Form to Use?
    - What Documentation to Include With the Claim?
    - Time Limits and Appeals
  - TRICARE or CHAMPVA and Other Insurance
  - Summary Payment Voucher
- Step 11 Workers' Compensation
  - Classification of On-The-Job Injuries
- Step 12 Filing a Workers' Compensation Claim
  - First Report of Injury
  - Progress Reports
  - FECA
  - A Note About Patient Records
- Step 13 Disability Insurance
- Step 14 The Consolidated Omnibus Budget Reconciliation Act (COBRA)
- Step 15 Lesson Summary

## **Lesson 7—Medical Terminology—Word Parts**

- Step 1 Learning Objectives for Lesson 7
- Step 2 Lesson Preview
- Step 3 Word Parts



- Step 4 Root Words and Word Parts
- Step 5 Medical Terms and Word Parts
- Step 6 Root Words
  - The Functions of Root Words
  - Compound Words as Root Words
  - Combining Forms of Root Words
- Step 7 Pronounce Root Words
- Step 8 Write Root Words
- Step 9 Meanings of Root Words
- Step 10 Prefixes
- Step 11 Pronounce Prefixes
- Step 12 Write Prefixes
- Step 13 Meaning of Prefixes
- Step 14 Suffixes
- Step 15 Pronounce Suffixes
- Step 16 Write Suffixes
- Step 17 Meanings of Suffixes
- Step 18 Lesson Summary

## **Lesson 8—Medical Terminology—Dividing and Combining Terms**

- Step 1 Learning Objectives for Lesson 8
- Step 2 Lesson Preview
- Step 3 Dividing Medical Terms
- Step 4 Pronounce Word Parts
- Step 5 Write Word Parts
- Step 6 Meanings of Word Parts
- Step 7 Combining Medical Terms
- Step 8 Pronounce Word Parts
- Step 9 Write Word Parts
- Step 10 Meanings of Word Parts
- Step 11 Lesson Summary

## **Lesson 9—Abbreviations, Symbols and Special Terms**

- Step 1 Learning Objectives for Lesson 9
- Step 2 Lesson Preview
- Step 3 Abbreviations
  - Abbreviations in Hospitals
  - Office Records
  - Doctors
  - Pharmacies

- Step 4 Learn Abbreviations
- Step 5 Meanings of Abbreviations
- Step 6 Slang
  - Medical Slang
  - English Slang
- Step 7 Slang Terms
- Step 8 Meanings of Slang Terms
- Step 9 Symbols
- Step 10 Special Terms
  - Eponyms
  - Brand Names
  - Acronyms
- Step 11 Pronounce Acronyms
- Step 12 Sound-alikes and Opposites
  - Homophones (Sound-alikes)
  - Antonyms (Opposites)
- Step 13 Medical Plurals
  - Medical Rules for Plurals
- Step 14 Lesson Summary
  - Just for Fun

## **Lesson 10—Introduction to Anatomy**

- Step 1 Learning Objectives for Lesson 10
- Step 2 Lesson Preview
- Step 3 Human Biology
  - What is Human Biology?
  - Anatomy
    - Gross Anatomy
    - Microscopic Anatomy
  - Physiology
- Step 4 Pathology
  - How do Anatomy, Physiology and Pathology Relate to One Another?
- Step 5 Beginning Anatomy and Physiology Concepts
  - The Anatomic Position
  - Planes and Sections of the Human Body
    - Transverse Planes and Sections
    - Sagittal Planes and Sections
    - Coronal Planes and Sections
- Step 6 Location Terms
- Step 7 Pronounce New Terms
- Step 8 Write New Terms
- Step 9 Meanings of New Terms

## Lesson 11—The Anatomy of the Human Body

- Step 1 Learning Objectives for Lesson 11
- Step 2 Lesson Preview
- Step 3 Gross Anatomy
  - Landmarks and Divisions
  - Superficial (Surface) Landmarks, Face Up
  - Superficial (Surface) Landmarks, Face Down
- Step 4 Pronounce New Terms
- Step 5 Write New Terms
- Step 6 Meanings of New Terms
- Step 7 Adjective Forms for Landmark Names
- Step 8 Divisions of the Abdomen
- Step 9 Internal Landmarks: The Body Cavities
- Step 10 Membranes That Line the Body Cavities
  - Epithelial Tissue Membranes
  - Connective Tissue Membranes
- Step 11 Retroperitoneal Organs
- Step 12 Pronounce New Terms
- Step 13 Write New Terms
- Step 14 Meanings of New Terms
- Step 15 Organization of the Body
- Step 16 Pronounce New Terms
- Step 17 Write New Terms
- Step 18 Meanings of New Terms
- Step 19 Organs and Organ Systems
  - Respiratory System
  - Circulatory/Cardiovascular System
  - Nervous System
  - Muscular System
  - Skeletal System
  - Integumentary System
  - Endocrine System
  - Digestive System
  - Urinary System
  - Reproductive System
  - The Immune System
- Step 20 Pronounce New Terms
- Step 21 Write New Terms
- Step 22 Meanings Of New Terms
- Step 23 Lesson Summary

## Lesson 12—Organ Systems I

- Step 1 Learning Objectives for Lesson 12
- Step 2 Lesson Preview
- Step 3 Integumentary System
  - Skin
  - The Epidermis
  - Skin Appendages
  - Skin Derivatives
  - Example Claim Form
- Step 4 Pronounce New Terms
- Step 5 Write New Terms
- Step 6 Meanings of New Terms
- Step 7 Musculoskeletal System
  - The Skeletal System
  - Bones of the Axial Skeleton
  - Bones of the Appendicular Skeleton
  - Example Claim Form
  - The Muscular System
  - Example Claim Form
- Step 8 Pronounce New Terms
- Step 9 Write New Terms
- Step 10 Meanings of New Terms
- Step 11 Neurological System
  - Central Nervous System
  - Peripheral Nervous System
  - Example Claim Form
- Step 12 Pronounce New Terms
- Step 13 Write New Terms
- Step 14 Meanings of New Terms
- Step 15 Cardiovascular System
  - Heart
  - Peripheral Vascular System
  - Example Claim Form
- Step 16 Pronounce New Terms
- Step 17 Write New Terms
- Step 18 Meanings of New Terms
- Step 19 Immune System
  - Immunity
  - Example Claim Form
  - Immune System Components
  - Immunodeficiencies
- Step 20 Pronounce New Terms

- Step 21 Write New Terms
- Step 22 Meanings of New Terms
- Step 23 Lesson Summary

## **Lesson 13—Organ Systems II**

- Step 1 Learning Objectives for Lesson 13
- Step 2 Lesson Preview
- Step 3 Respiratory System
  - Gross Anatomy of the Respiratory System
  - Example Claim Form
- Step 4 Pronounce New Terms
- Step 5 Write New Terms
- Step 6 Meanings of New Terms
- Step 7 Gastrointestinal System
  - Example Claim Form
- Step 8 Pronounce New Terms
- Step 9 Write New Terms
- Step 10 Meanings of New Terms
- Step 11 Genitourinary System
  - The Urinary System
  - Male Reproductive System
- Step 12 Pronounce New Terms
- Step 13 Write New Terms
- Step 14 Meanings of New Terms
- Step 15 Female Reproductive System
  - Example Claim Form
- Step 16 Pronounce New Terms
- Step 17 Write New Terms
- Step 18 Meanings of New Terms
- Step 19 Endocrine System
  - Endocrine Glands
  - Other Endocrine Organs and Their Functions
  - Reproductive Endocrine Organs
  - Example Claim Form
- Step 20 Pronounce New Terms
- Step 21 Write New Terms
- Step 22 Meanings of New Terms
- Step 23 Lesson Summary

## **Medical Claims and Billing Specialist Course Objective**

Students who complete the Medical Claims and Billing Specialist Course will gain competency in all aspects of medical billing and claims processing, including medical terminology and human anatomy to medical ethics and problem solving. Students learn how to work with doctors, hospitals and other healthcare providers to ensure that these providers receive fair and accurate compensation for the services they provide. In order to process claims and statements properly, students learn the inner workings of the medical insurance world, including both government and private programs. In addition, students learn how insurance companies interact with medical service providers through forms, follow-up letters and claims processing. Students also learn about electronic claims submissions and basic diagnostic and procedural coding.

# Lesson 1

# Welcome to the Exciting World of Medicine and Medical Claims

---

## Step 1 Learning Objectives for Lesson 1

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Describe a medical bill and its important characteristics.
    - Describe an encounter form, and discuss how it is used.
    - Explain the basic administrative activities in a medical office.
    - Determine the role of the medical claims specialist (you!).
- 

## Step 2 Lesson Preview

---

- ❑ Medical claims is an exciting and expanding medical field. You will work with people who save lives! Currently, employment opportunities in the medical claims and billing field are increasing throughout the country. This course will give you the skills you need to find the job YOU are looking for. And at U.S. Career Institute, we will continue to help you after you graduate. We offer graduate assistance to every student who completes our courses. We will counsel you on marketing yourself, as well as preparing yourself for your new career.

We know you are ready to learn, and be assured that we are ready to teach you. From the very first page until you have completed the course and are working in the field, U.S. Career Institute is dedicated to your success.

Your course is divided into lessons. Each lesson contains skills that you will master on your way to graduation. The lessons are easy-to-follow and offer step-by-step instruction to make learning simple—even fun! As you go through the first few



lessons, you'll notice that they always share the same basic order.



*You selected a booming and lucrative career—medical claims and billing!*

You will always have Learning Objectives and a Lesson Preview first. From there, you will read new material and then take an online Practice Exercise—a self-graded review. This combination of new material followed by a review may repeat two or more times per lesson. This format helps you apply what you learn and retain the information.

Typically, you will take an online graded quiz once you complete a lesson. This quiz highlights what's important in the course. You will know many of the items on the quiz without looking back at the lesson. However, if you don't remember or aren't sure of an answer, you can find the information in your lesson. All of your quizzes are open book! We want you to learn how to find the right answer rather than memorizing the material.

If you have questions about any part of the course, feel free to contact your instructor. We are here to make your trip through this material enjoyable and rewarding.

In this first lesson, you'll explore part of the routine in a medical office—the new patient questionnaire and patient encounter form. Then, you'll learn about many more activities that occur in the medical office every day. You'll look at a typical day in a medical office, so you can see these activities from the points of view of both the front office professional and the medical claims specialist.

This course also provides you with an understanding of the medical biller's role in electronic billing. You will become familiar with common software used to submit insurance claims through an electronic clearinghouse for maximum reimbursement. U.S. Career Institute will guide you through every step of the medical claims and billing process.

Now, remember how we talked about the step-by-step nature of this course? Let's move on to Step 3.

---

### **Step 3 Welcome to Your Career as a Medical Claims and Billing Specialist!**

---

- ❑ You chose a great profession for your career. The healthcare industry is booming, and it needs eager, qualified professionals. This is especially true for medical claims and billing specialists.

Employment in health care is growing rapidly for two reasons. The number of people in older age groups will grow faster than the total population. This increase is due to rising life expectancies and continual advances in medical technology. In addition, healthcare costs continue to climb, which means more doctors want to get paid, which means more job opportunities for you—the medical claims and billing specialist!

Obviously, the medical claims and billing subject interests you—that's why you enrolled in this course. Think of how you will help people—patients, physicians and medical office personnel. As a medical claims specialist, you serve as the liaison between each of these people and the many insurance companies that they work with. You'll perform work that's fun and challenging!

#### **What Does a Medical Claims and Billing Specialist Do?**

As a medical claims specialist, you work with medical bills, which help doctors and other healthcare providers get paid for their services. Medical claims and billing specialists complete insurance forms necessary to collect payment from insurance companies. These specialists know that the doctor doesn't get paid unless the form is completed and filed correctly. Billing specialists have training in medical

terminology, medical records handling and some basic coding. We'll discuss this in greater detail later.

The first portion of this section introduces you to medical bills. You also will learn about charges for medical care, and explore how doctors and insurance companies figure these charges. You'll see how a bill is generated from a patient's first contact all the way through processing and payment. Finally, we'll show you a common document in many doctors' offices, hospitals and other medical care facilities—the patient encounter form. Ready to dive in? Let's go!

## What is a Medical Bill?

Have you seen a medical bill? More than likely, you have seen one at some point. A patient generates a **medical bill** when she receives medical care, which usually begins its life as a questionnaire. Think back to the last time you went to a new doctor—you probably filled out a **new patient questionnaire**. The form asks you about your medical history, insurance coverage and other important facts. Let's look at an example questionnaire.

Patient Data Sheet		Date: _____
<b>Patient Name:</b>		
Last: _____	First: _____	Mi: _____
Street/P.O. _____ City/State _____ Zip Code _____		
Sex: M <input type="checkbox"/> F <input type="checkbox"/>	Birthdate: _____ SS # _____	
Patient Home Phone: _____		Patient Work Phone: _____
Primary Care Physician: _____		
<b>Bill To: (Head of Household If Different From Above Information)</b>		
Last Name: _____ First _____ Mi: _____		
Birthdate: _____ SS # _____		
Street/P.O. _____ City/State _____ Zip Code _____		
Work Phone: _____		Home Phone: _____
Head of Household Place of Employment: _____		
Message Phone: _____		
<b>Primary Insurance Coverage:</b>		
Company: _____		
ID # _____	Group # _____	
2nd Insurance Coverage (If applicable): _____		
ID # _____	Group # _____	
Spouse: (If applicable)		
Last: _____ First: _____ Mi: _____		
Birthdate: _____ SS # _____		
Place of Employment: _____		Work Phone: _____
Children (If a patient or will be a patient at this clinic, please list)		
Last: _____	First: _____	Mi: _____ Sex M <input type="checkbox"/> F <input type="checkbox"/> Birthdate _____
Last: _____	First: _____	Mi: _____ M <input type="checkbox"/> F <input type="checkbox"/> Birthdate _____
Last: _____	First: _____	Mi: _____ M <input type="checkbox"/> F <input type="checkbox"/> Birthdate _____
Last: _____	First: _____	Mi: _____ M <input type="checkbox"/> F <input type="checkbox"/> Birthdate _____
In case of emergency and I am unavailable, you have my permission to treat any of the members of my family as necessary.		
Signature: _____		Date: _____

After you complete this form, the front office professional takes it and any

applicable insurance information. Then, she enters the information into the office's database—usually on a computer—to create your medical file. The **medical file** contains all your medical history related to that doctor and his or her office. For example, if you go to Dr. Johnson for a physical every year, your medical history file at his office contains all the information from all of your previous visits. This information includes your physical condition, any diagnoses made and treatments provided.

How does all of this apply to the medical claims and billing specialist? In order to do a good job, the medical claims and billing specialist needs access to complete and accurate medical files. You'll use these documents in your new career to generate bills and insurance claims. **Medical claims** are invoices that list all procedures performed, any diagnoses made, all medicines administered and any other office charges. The **diagnosis** refers to what the doctor believes is wrong with the patient. The **procedures** refer to the doctor's treatment for the patient. All of these items cost the doctor's office, hospital or clinic money, which is why the medical provider must charge the patient for visits. When all this information is correct on the bill, the patient or insurance company pays all benefits due without worrying about overcharges. In addition, the clinic, office or hospital won't be underpaid, which happens when medical procedures are mistakenly left out of a patient's file.



*Once you complete your questionnaire and return it to the front office professional, she creates your medical file.*

## The Lifecycle of a Medical Bill

Imagine you are a patient at a doctor's office. This is the first time you've been to this particular doctor. This form asks for your name, address, telephone number, medical history and insurance information. After you complete the form, you give it back to the assistant. What you've done is start the life cycle of the **medical bill**. The

assistant at the desk enters your information into the office computer. The computer may then produce a *patient encounter form* for your doctor to use. Usually a patient **encounter form** lists many types of procedures, from office visits to physical exams to x-rays to immunization. Based on the information you provided on the questionnaire, the assistant has the computer print your name, billing address, insurance company and policy number on the encounter form. Then when you go back to the examination room, your encounter form is part of the medical file the doctor works with as she examines you. Please note, in this course, the codes have been removed from the encounter form. Only the codes or information necessary to complete the form appear.

On the encounter form on the following page, you will see different levels listed under the heading *Office Service*. These levels indicate whether you are a new or established patient and the amount of care involved in your office visit—that is, the amount of history-taking, physical examination and decision-making required.

After your examination, the doctor notes the procedures she performed on the encounter form. Usually, there is more than one procedure. For example, she might check the *Level II, Established Patient* procedure and the *Immunizations and Injections—Influenza* procedure if you needed a flu shot. The noted items tell the office assistant what to charge you or your insurance company for your visit.

Now that your medical bill exists, what happens to it next? It's time to process the bill. Let's learn more!

## Processing the Bill

Once the bill exists, it goes through several stops on its way to being paid. There are three common ways a patient and medical facility handle bills for medical care:

1. The insurance company requires the patient to pay the entire bill at the time of service before leaving the medical facility. Then, the patient submits a claim to the insurance company for reimbursement.

or

2. The patient pays a **co-payment** (a flat amount, such as \$20 or \$25) before leaving the medical facility. Then, the doctor's office bills the patient's insurance company by submitting a claim for the remainder of the bill.

or

3. The patient pays nothing up front, and the medical facility submits a claim to the patient's insurance company for the bill. Then, once the insurance company reimburses the doctor's office for the covered charges, the doctor's office sends a bill to the patient for the remaining costs that insurance did not cover.

Processing the bill is slightly different depending on the manner in which the patient pays—either before or after the insurance company pays.

If, as the patient, you have to pay the entire bill on the day of your treatment, then, generally, it is up to you to send the bill to your insurance company. Your doctor's office is not obligated to submit claims to an insurance company unless it has a contract with that company or the federal government requires it—as is the case for Medicare and Medicaid. However, the doctor's office often submits claims as a courtesy to the patient. The insurance company then reimburses you, the patient, for any covered charges. For example, if your bill is \$100 and the insurance pays 80 percent, you receive an \$80 reimbursement. The difference between paying at the time of service and the office billing your insurance company is that when you pay at the time of service, the insurance company pays you directly.

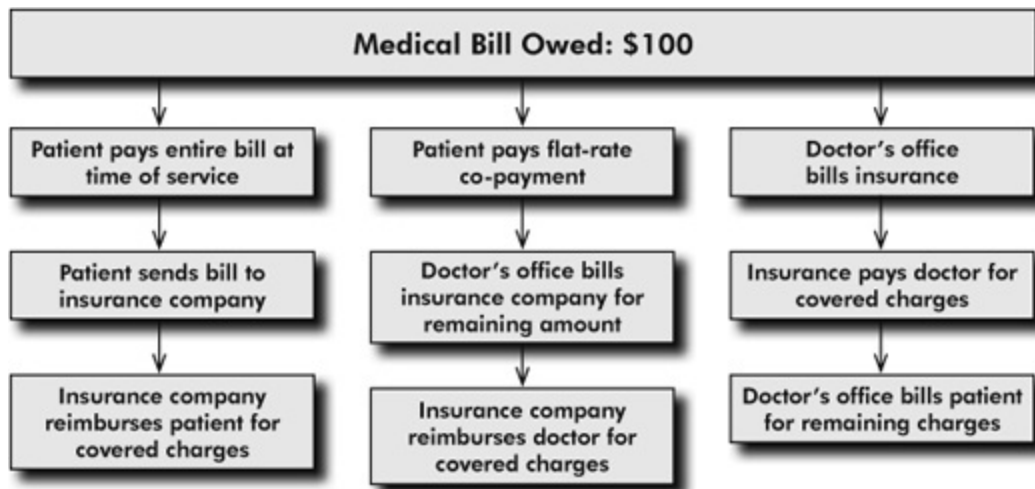


*You'll process bills differently depending on how the patient pays.*

If the doctor's office bills your insurance company first, then usually you leave the office without paying any of the bill. The insurance company receives the doctor's request for payment and pays the covered amount, which varies according to your policy. Then, after the doctor receives the insurance payment, her office bills you, the patient, for any balance due. For example, if your bill was \$100 and your insurance policy covered 80 percent of the bill, the doctor would receive \$80 from the insurance company and bill you the remaining \$20.

When the insurance company pays for services, whether it pays you directly or the

doctor's office, it is *reimbursing* either you or the office. **Reimbursement** is the process of paying someone back for services already performed.



A big part of the medical claims and billing specialist's role is to submit **insurance claims**—the bills to insurance companies that request payment in accordance with the appropriate insurance policies. Some medical claims and billing specialists work in doctors' offices, hospitals or clinics. Others work at home or for outside claims services. This course will give you the knowledge to be accurate and thorough—two essential qualities of a good medical claims and billing specialist—no matter where you decide to work.

## The Importance of Being Accurate and Thorough

When the medical billing specialist correctly fills out and submits claims, payments come quickly, and the doctors are happy.

As a medical claims specialist, you might double-check bills as they come through your service. Usually, this means checking to be sure that the diagnosis matches the treatment or procedure and that all the patient's information (such as name, address and identification number) is correct. When you check this information, you help to ensure timely payments and, most importantly, appropriate payment amounts. Medical billing specialists can increase doctors' collections by as much as 10 percent to 15 percent! That's why medical claims and billing specialists play such an important role in the healthcare industry.

When bills include mistakes, they delay payments a month or more, delay processing and cost the doctor in denied claims, resubmission costs and reduced payments. Doctors need accurate medical claims specialists—like you—which is one of the great

aspects of this career. Medical claims and billing specialists enjoy job security because people will *always* need doctors, and doctors will *always* need to bill and file claims for their services.

The demand for healthcare services is greater every year, and the ever-increasing number of patients, insurance claims and hospital admissions means more work for you!

Let's take a closer look at a typical day in a medical office.

---

## **Step 4 Everyday Procedures for the Front Office Professional**

---

- ❑ To understand how a medical claims specialist gets information to do her job, you need to understand how people gather this material in the medical office. This information includes patient data and insurance company information, as well as doctor's procedures, diagnoses and other actions.

To illustrate the puzzle pieces, let's take a look at a typical day in a medical office. First, we'll examine the point of view of the first person a patient sees when she arrives for an appointment—the front office professional.

### **A Day in the Life of the Front Office Professional**

Barbara is a front office professional for Mountain View Clinic, a busy family medical clinic. This clinic has five doctors—Dr. Hansen, Dr. Yates, Dr. Rivera, Dr. Gregg and Dr. Westlake. Barbara is responsible for tracking patients as they arrive and check in for their appointments. Each doctor sees about 15 patients a day. Barbara's appointment book contains a different page for each doctor's schedule. Barbara arrives at 7:30 a.m. ready to begin her day!

Barbara begins with the 8 a.m. appointments.



8:00 a.m.	Dr. Hansen	Mr. Anderson
	Dr. Yates	Mr. Burgess (new patient)
	Dr. Rivera	Ms. Smith
	Dr. Gregg	Mrs. Jones (new patient)
	Dr. Westlake	Mr. Wood

Each of the five doctors has a bright-and-early patient appointment scheduled. By 7:55 a.m., four of the five patients are in the waiting room. Two are new patients at the clinic, so they fill out the new patient questionnaire for the office. The other two are established patients. One established patient is seeing Dr. Rivera, and the other is seeing Dr. Westlake. Barbara pulls the medical files for each of these established patients. The medical files are manila folders with coded tabs according to the patients' last names. Then Barbara prints an encounter form for each patient and attaches it to each folder. She places these two files in the "Patient to See" stacks for each doctor's nurse.



*Let's meet Barbara—the office manager for a busy family medical clinic.*

After a few minutes, the two new patients bring up their completed questionnaires. Barbara creates the medical files for these two patients. This means she makes a new folder for each of them, codes each appropriately and places a copy of the questionnaire in each new folder. Then she takes the original questionnaire and types the information from it into her computer. So, now there are two files for these patients—one in the computer and one on paper. After she has entered on the computer the information about the two patients, she tells the computer to print out an encounter form for each of them. Barbara clips the encounter forms to the appropriate folders and then distributes them—one goes to Dr. Yates's nurse and the other to Dr. Gregg's nurse.

It is now 8 a.m., but one appointment hasn't arrived yet. At 8:04 a.m., Barbara receives a call from the missing patient, Mr. Anderson. He has car trouble and can't keep his appointment. Barbara assures Mr. Anderson that he can reschedule his appointment. As she talks to him, she opens the appointment book and looks at Dr. Hansen's calendar. Dr. Hansen can see him either the next day at 9 a.m. or the following Wednesday at 8:15 a.m. The man chooses next Wednesday, and Barbara records the appointment.

By 8:06 a.m., all four of the other appointments are back in the examination rooms. The 8:30 a.m. patients start to arrive. The routine is similar, except this time all five arrive. They are all established patients, so Barbara pulls their files, prints out encounter forms and distributes the folders to the correct nurses.

Now it is 8:15 a.m., and Dr. Yates is finished with his 8 a.m. appointment—a man named Jim Burgess. Mr. Burgess walks out of the examination room and hands the encounter form to Barbara. Barbara looks at the procedures on the bill the doctor circled and quickly fills in an amount next to each one. She totals the bill—\$187—and has Mr. Burgess sign it. He has medical insurance, so the medical office will send the bill to the insurance company without him paying an initial co-payment or the entire amount of the bill. Therefore, Mr. Burgess signs the bill to give the insurance company permission to pay the clinic directly and returns it to Barbara. Barbara then rips off the back copy for Mr. Burgess. As Mr. Burgess picks out a free lollipop from the basket on the counter, Barbara quickly files the completed and signed encounter form in her “To Submit, Current” file.

Dr. Yates's nurse has returned Mr. Burgess's file. Barbara retrieves it and places it in the “To Be Updated” basket—the place where files that must have new action recorded are placed. The folders in this basket need the doctors' dictation before a *medical transcriptionist* can transcribe them. A **medical transcriptionist** transcribes doctors' dictated notes into an accessible format. To transcribe this information, the MT calls a phone line that contains a voice record of the doctor's dictation. When the transcriptionist finishes the doctor's dictation from this morning, the transcribed notes for Mr. Burgess will go into his medical file. Then Barbara will file Mr. Burgess's file with the other medical files.

Barbara's day goes on like this from 8 a.m. until she leaves at 5 p.m. During that time, she is continually checking in patients, entering new questionnaires on the computer, creating files, retrieving files, completing encounter forms and scheduling

and rescheduling appointments.

Now, let's look at the same activities from the perspective of the medical claims and billing specialist.

---

## Step 5 The Medical Claims and Billing Specialist's Daily Routine

---

- Joann, the claims specialist for Mountain View, deals mostly with insurance companies and patients who have already received treatment.

Joann starts the day by going through the claims that are still outstanding—that is, bills that haven't been paid yet. For this clinic, most of these outstanding claims are still waiting for insurance payments. The others are due either from patients who don't have insurance or from patients who need to pay the remaining portions of the bills that their insurance policies did not cover.



*Joann starts her day with the claims that need insurance payments.*

A few of the insurance claims are late in being paid, so Joann starts calling the individual insurance companies, trying to track down each claim. It takes two hours for her to work through 10 claims. This type of follow-up is very important for the doctor's office. It prevents any claim from "slipping through the cracks" of the insurance world. After getting a better idea of when to expect payment for the 10 claims, Joann goes to work with the individual claims (those that have a balance due from the patient).

Joann checks the individual claims for the time of notification—how long it has been since each person received his or her bill. She marks those that are 60 or more days past due. These people will soon receive another reminder asking for payment.

Finally, Joann is ready to work on bills received during yesterday's clinic activity. In Mountain View, the billing office is one day behind the reception area—the medical claims specialist works on Tuesday's bills on Wednesday, Wednesday's on Thursday and so on. Joann spends most of the remainder of the day checking encounter forms for correct diagnoses and treatments. She catches one mistake where the doctor diagnosed chest pain but had noted *Blood Sugar* instead of *EKG*. (The two laboratory tests are next to each other on the form). She contacts the physician to make the necessary change. Joann also checks the encounter form for complete patient information—name, address, chart number, insurance company and policy number.

After making sure all the information is correct, Joann arranges the encounter forms according to each patient's insurance company. Medicare goes in one folder, a particular private insurance in another and so on. The claims, which will be based on the encounter forms, must be sent to the correct insurance companies.

Joann first bills the **primary carrier** for each claim. As the name suggests, this is the insurance company that is billed first. It is *primarily* responsible for that patient's charges. There can be secondary and **tertiary**, or third, insurance companies. Joann bills the secondary insurance company after the primary carrier has paid its share of a bill. Finally, Joann bills the tertiary carrier after the secondary carrier has paid.

After sorting through all the encounter forms and dividing them according to primary carriers, Joann goes through each stack and removes the office copy of each encounter form. She files the office copies. Then she transfers the information on each encounter form to an insurance claim form, most commonly a CMS-1500. You will learn how to fill out this form later in the course.

**HEALTH INSURANCE CLAIM FORM**

APPROVED BY NATIONAL UNIFORM CLAIM COMMITTEE 06/05

1. MEDICARE (Medicare #) MEDICAID (Medicaid) TRICARE (Sponsor's SSN) CHAMPVA (Member ID #) (GROUP HEALTH PLAN (SSN or ID) FECA (BLK LUNG (SSN) OTHER (ID)										PICA			
2. PATIENT'S NAME (Last Name, First Name, Middle Initial)										3. PATIENT'S BIRTH DATE		4. INSURED'S NAME (Last Name, First Name, Middle Initial)	
5. PATIENT'S ADDRESS (No., Street)										6. PATIENT RELATIONSHIP TO INSURED		7. INSURED'S ADDRESS (No., Street)	
CITY STATE										8. PATIENT STATUS		CITY STATE	
ZIP CODE TELEPHONE (Include Area Code)										9. OTHER INSURED'S NAME (Last Name, First Name, Middle Initial)		10. IS PATIENT'S CONDITION RELATED TO:	
11. INSURED'S POLICY (GROUP OR FECA NUMBER)										12. INSURED'S DATE OF BIRTH		13. EMPLOYER'S NAME OR SCHOOL NAME	
14. INSURED'S POLICY OR GROUP NUMBER										15. EMPLOYMENT? (Current or Previous)		16. INSURANCE PLAN NAME OR PROGRAM NAME	
17. OTHER INSURED'S DATE OF BIRTH										18. AUTO ACCIDENT?		19. IS THESE ANOTHER HEALTH BENEFIT PLAN?	
20. EMPLOYER'S NAME OR SCHOOL NAME										21. OTHER ACCIDENT?		22. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE	
23. INSURANCE PLAN NAME OR PROGRAM NAME										24. RESERVED FOR LOCAL USE		25. I authorize payment of medical benefits to the undersigned physician or supplier for services described below.	
READ BACK OF FORM BEFORE COMPLETING & SIGNING THIS FORM.										26. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE		27. DATE	
28. DATE OF CURRENT ILLNESS (First symptoms) OR INJURY (Accident) OR PREGNANCY (LMP)										29. IF PATIENT HAS HAD SAME OR SIMILAR ILLNESS, GIVE FIRST DATE		30. DATES PATIENT UNABLE TO WORK IN CURRENT OCCUPATION	
31. NAME OF REFERRING PROVIDER OR OTHER SOURCE										32a. NPI		33. HOSPITALIZATION DATES RELATED TO CURRENT SERVICES	
32. RESERVED FOR LOCAL USE										32b. NPI		34. OUTSIDE LAB?	
33. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate items 1, 2, 3, or 4 to item 24E by Line.)										35. MEDICAD RESUBMISSION CODE		36. ORIGINAL REF. NO.	
1. 2. 3. 4.										37. PRIOR AUTHORIZATION NUMBER		38. CHARGES	
34. A. FROM TO B. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)										39. CHARGES		40. DAYS UNPAID	
35. FEDERAL TAX I.D. NUMBER SSN TIN										41. PATIENT'S ACCOUNT NO.		42. ACCEPT ASSIGNMENT?	
36. SIGNATURE OF PHYSICIAN OR SUPPLIER INCLUDING DEGREES OR CREDENTIALS (I certify that the statements on the reverse apply to this bill and are made a part thereof.)										43. SERVICE FACILITY LOCATION INFORMATION		44. TOTAL CHARGE	
37. SIGNATURE										45. DATE		46. AMOUNT PAID	
38. SIGNATURE										47. DATE		48. BALANCE DUE	

*CMS-1500 form is the most commonly used insurance claim form.*

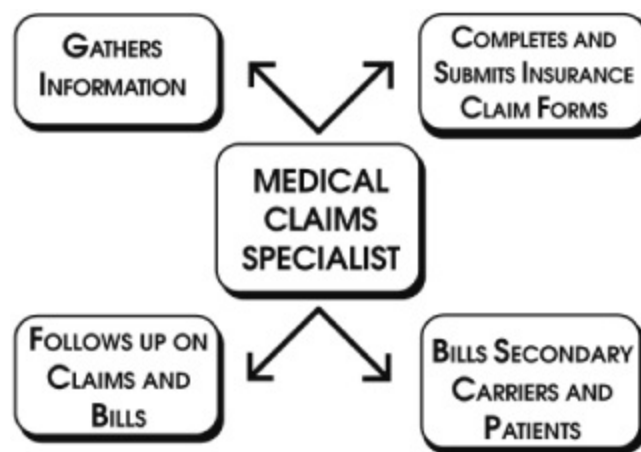
By 4:30 p.m., Joann has organized, processed and packaged the claims she has gone through today. They go out to their respective insurance companies, and the clinic waits for payment.

Now that you have an idea of what a medical claims and billing specialist does every day, let's review some general responsibilities.

## Step 6 The Responsibilities of the Medical Claims Specialist

□ As a medical claims specialist, you have four basic responsibilities:

- 1. Gather Information.** As a medical claims specialist, you will gather all pertinent information. Usually, this means using the encounter form (or other type of medical bill) to find out everything you need to fill out an insurance claim form.
- 2. Complete and Submit the Insurance Claim Form.** After checking the encounter form for accuracy, you then will use the bill to complete and submit the appropriate insurance claim form.
- 3. Follow Up With Insurance Companies and Patients.** After you submit the insurance form, you might need to contact the company regarding the claim. As a result, it is important you keep a copy of the claim so you can track down answers to any questions the insurance company might have. You might also have to follow up with patients to secure payments.
- 4. Secondary Insurance Claims and Patient Billing.** After the primary carrier has paid its share of the bill, if the patient has secondary insurance, you need to bill that secondary carrier. If the patient does not have secondary insurance, then the patient may be responsible for paying whatever remains after the primary carrier has paid.



Now that you've learned more about the medical claims and billing specialist's responsibilities, let's look at another aspect of your job—confidentiality.

---

## Step 7 Confidentiality

---

- Do you remember the last time that you went to the doctor? Even if it was just a regular check up, you wouldn't want your doctor to discuss your appointment at dinner with his friends, would you? As a medical claims specialist, you have access to

many people's medical records. The records might be in the form of encounter forms, billing statements, claims or even complete medical files. It is essential that you understand that these records are confidential.

What does *confidential* mean? **Confidential** means *secret*. The term originated from a Latin word meaning *with trust*. Your client entrusts you with someone's medical records. This means that unless your client gave you authorization, you cannot reveal information from those records to anyone under any circumstances. You can release the required information to complete the insurance claim form for the insurance company because the patient authorizes you to do so. However, you cannot release any information that doesn't normally appear on the insurance form unless you are given permission. You cannot "volunteer" information to the insurance company.



*You'll keep medical records confidential as a medical claims and billing specialist.*

You must not break this confidentiality requirement. This means you can't tell your best friend about someone's medical records. You can't tell your neighbor. You can't tell another doctor. A person's medical records are the property of that person and the attending physician (the examining doctor) *only*. Claims specialists who violate this confidential arrangement quickly lose credibility and clients. You'll learn more about confidentiality later in the course when we discuss HIPAA—the Health Insurance Portability and Accountability Act (HIPAA), which protects patients' privacy of personal health information.

Our discussion of confidentiality may sound harsh. However, confidentiality is such an important subject that we want to clarify it early in the course. Now that you have this information, you can prepare yourself ahead of time for this crucial requirement.

As you can see, the medical claims and billing specialist occupies an important position in the medical field, and the field provides many opportunities for you. By understanding and fulfilling your responsibilities, you are acting professionally and gaining valuable credibility. With these professional qualities and your accredited training, you'll develop the ultimate in job security!



**Please pause and complete online Practice Exercise 1-1.**

---

## Step 8 Lesson Summary

---

- ❑ As you now know, the medical claims and billing profession is an integral part of the medical field. Without an accurate medical claims and billing specialist, doctors can face delayed and denied claims from insurance companies.



*The medical office is a busy place, and it's a place where you can make a difference as a medical claims and billing specialist!*

That's why good medical claims and billing specialists enjoy job security and earn the kind of money that they do. Doctors earn more money when they have an effective medical claims and billing specialist!

Medical facilities often use a document called a patient encounter form to easily record procedures they perform on patients. The encounter form is a list of the most common procedures a doctor performs. The doctor notes the name of the procedure



performed, and this enables office staff to determine the correct cost for that patient's treatment. For the medical claims specialist, the encounter form provides an easy-to-read bill to process quickly for submission of payment.

There are three common ways a patient and medical facility handle bills for medical care. First, the insurance company may require the patient to pay the entire bill at the time of service before leaving the medical facility. Then, the patient submits a claim to the insurance company for reimbursement. Second, the patient may pay a co-payment (a flat amount, such as \$20 or \$25) before leaving the medical facility. Then, the doctor's office submits a claim to the patient's insurance company for the remainder of the bill. Third, the patient may pay nothing at the time of service, and the medical facility submits a claim to the patient's insurance company for the bill. Then, once the insurance company reimburses the doctor's office for covered charges, the doctor's office sends a bill to the patient for the remaining balance.

Whenever a medical facility works with medical bills, it is essential that those bills are accurate. A good medical claims specialist double-checks to make sure that all patient and doctor information is correct. This helps ensure timely payments in the appropriate amounts for all procedures.

The medical office is a busy place! Many activities go on every day in healthcare facilities in addition to direct medical care. Patients check in, schedule appointments and pay bills. The medical claims and billing specialist files insurance claims for the medical facility. A claims specialist must deal with insurance companies, correctly fill out insurance forms and effectively follow up with insurance carriers and individuals.

Because of the sensitive nature of medical records, they are confidential. The medical claims and billing specialist must respect the confidentiality rule and never give out information without first getting proper permission. There is no greater violation in the medical records field than giving out confidential information to someone not authorized to receive it.

This lesson introduced you to some important aspects of medical claims and billing. You'll explore each of these concepts in detail in later lessons. Every lesson prepares you for the next. Remember, your course explains concepts in easy-to-understand language with plenty of examples to show you exactly what to do and how to do it. Nothing is left to chance! And remember, if you ever need help, just contact your

U.S. Career Institute instructor, who will give you the guidance you need. We can't wait to see you succeed as a medical claims and billing specialist! Congratulations on taking the first step!



**Please pause and complete an online Quiz. Good luck!**

## Lesson 2

# The Third-party Payer: How Insurance Works

---

## Step 1 Learning Objectives for Lesson 2

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Explain what insurance is.
    - Define the terms common to most insurance carriers.
    - Determine the types of insurance programs available today.
- 

## Step 2 Lesson Preview

---

- ❑ Did you know that most people in America qualify for some sort of medical insurance? This explains why the career you've chosen—medical claims and billing specialist—continues to grow...and why the pay is so good! In fact, billers who work with physicians can expect more than 16 percent growth in this field over the next several years according to the Bureau of Labor and Statistics. Imagine the job opportunities you'll have in this exciting profession!

Let's take a look at some of the types of medical insurance you'll work with. In addition to the various government programs available, hundreds of private companies provide medical insurance. Fortunately, a few common threads tie all insurance companies together, for example, the terminology used and the forms required. These common threads will make your job as a medical claims specialist easier. In Lesson 2, we will introduce you to the language of the insurance world. You will find out about providers and payers. You'll learn about deductibles, co-payments, premiums and schedules of benefits.



*Most people in America qualify for some sort of medical insurance, and billers who work with physicians can expect more than 16 percent growth in this field during the next several years.*

After that, we'll move into the different programs available. You'll be introduced to the various insurance programs, from government insurance programs such as Medicare and Medicaid to the managed care approaches of the HMOs and PPOs. Chances are you've heard of many of these terms and programs. If you haven't, fear not! We'll cover them here and also in more detail in later lessons.

---

### Step 3 Insurance

---

- ❑ The terms *medical insurance* and *health insurance* and *healthcare coverage* or some other similar phrase all refer to the same thing. **Medical insurance** is a contract between an insurance company (carrier) and an individual or a group—the **insured**. This contract (the policy) states that in the case of certain injuries or illnesses, the insurance carrier will pay some or all of the medical bills of the insured. In exchange for this coverage, the insurance carrier collects payments from the insured. These payments are called **premiums**. Premiums are paid in advance—they are paid monthly, quarterly, semi-annually or annually, depending on the contract between the carrier and the insured. When an insurance carrier pays for medical treatment based on a policy, it is paying **benefits**.

The insurance carrier collects premiums from many people and only has to pay benefits to relatively few. That is how insurance companies make money and are able to provide their services. Every insurance company requires an itemized list of procedures, pharmaceuticals and other materials before they pay benefits. Every procedure has its own code, and different insurance companies and plans all have

their own forms and specific requirements. This is where you, as a medical claims and billing specialist, enter the picture. When you've completed this course, you can prepare medical claims for doctors' and hospital bills in the form necessary to meet the standards of insurance companies and government agencies.

But first, you need to know the language insurance carriers and medical claims specialists use to communicate. In the next section, you will learn some of this language.

---

## Step 4 Common Insurance Terms

---

□ Liz is a receptionist for Dr. Grant. She is great at making appointments and keeping track of patients. Yesterday, Dr. Grant's claims specialist was out sick, and the doctor asked Liz to check on some insurance information for him. He asked her to compare the explanation of benefits for three different patients and see how much each patient needed to pay. Then he asked if any of the three had a co-payment that hadn't been made yet. Finally, he asked Liz to check the explanation of benefits to see if any of the three patients had met their deductibles yet.

Liz knows English very well, but this all sounded like another language. She dug through some insurance forms, but she didn't have a clue about any of the items Dr. Grant had asked about. Finally, she gave up and asked Dr. Grant to wait until the next day when the claims specialist returned.



*Would you be able to ask someone from an insurance company questions and understand the answers?*

Imagine you were Liz. Could you ask someone from an insurance company questions

(and understand the answers)? In this section, we will cover some basic insurance concepts that will help you function intelligently when you run across insurance terminology.

## **Provider**

The **provider** is the person or organization that provides medical services. For example, doctors are providers.

## **Claim Form**

The **claim form** is the document that the medical claims specialist fills out in order to submit an insurance claim to an insurance carrier. The most common insurance forms are the CMS-1500 and CMS-1450 forms. The CMS-1450 is also referred to as the UB-04.

## **Deductible**

The amount of money an individual must pay before insurance benefits begin is called the **deductible**. Usually a policy will pay nothing of the first \$250, \$500 or \$1,000 of medical charges and then will pay a percentage of everything above that amount every year.

On the explanation of benefits, any amount that is “applied to deductible” is a covered charge that is subtracted from your total deductible amount. The insurance carrier does not pay any money on “applied to deductible” charges. For example, imagine that you, a patient, have a medical policy that has a \$250 deductible and, after the deductible is paid, 80 percent coverage. So far this year, you have spent \$200 of your own money on medical care, and that medical care has been defined as covered under your insurance policy. For the insurance company to begin to pay 80 percent of your covered medical care costs, you must still pay out \$50 more for covered charges. After you have met the \$250 deductible, your medical insurance benefits will begin, and the carrier will pay 80 percent of each claim you submit for covered charges for the rest of the year.

## **Co-payment**

A **co-payment** is a flat amount of money paid by the patient. For example, many policies have a co-payment for prescription drugs or office visits to a doctor. That means every time a person fills a prescription or visits the doctor, it costs her no more than her co-payment, but she must pay that co-payment every time she fills a prescription or goes to the doctor. Some policies require co-payments even after the deductible has been met. Other policies have no deductible, but a co-payment is required every time any type of medical care is received. Co-payments are paid immediately at the time of service.

## Reasonable and Customary

The phrase **reasonable and customary (R&C)** refers to price guidelines used by insurance carriers for different procedures. Usually a carrier will only pay up to the maximum on its reasonable and customary fee, regardless of the actual cost of a procedure to the patient. For example, if a patient has knee surgery and the doctor charges \$1,000, the insurance company compares that fee to its reasonable and customary scale. If the R&C scale gives a \$900 limit for that particular procedure, then the patient may be responsible for the extra \$100 depending on the agreement the physician has with the insurance company. The physician may accept the R&C scale amount. Fees that exceed the reasonable and customary scale are *disallowed* by the carrier.

Many private insurance carriers have adopted the reasonable and customary guidelines for their coverage. Many government insurance programs also use reasonable and customary guidelines.

## Explanation of Benefits

The **explanation of benefits (EOB)** is a document that explains how much the insurance company paid and how much it disallowed (charges that exceed reasonable and customary charges are disallowed). Let's look at two samples of EOBs.

Provider Name: Dr. Neda Dayoff				Dates of Service: 01/03/20XX		
Type of Service	Submitted Charge	Disallowed Charge	Allowable Charge	Applied to Deductible	Balance Due	Amount Due From Carrier
Office Visit	100.00	9.00	91.00	20.00	71.00	80%-56.80



The insurance company sends an explanation of benefits every time you submit a claim. Even if the carrier is paying nothing on the claim, it will still send this form explaining why. In the example above, the insurance carrier is paying \$56.80 of a \$100.00 charge. That means the patient is responsible for \$20.00 to meet the deductible and \$14.20 for the 20 percent due from the insured. The patient may also be responsible for the \$9.00 disallowed charge, depending on the insurance policy. As a medical claims specialist, you can see how valuable the explanation of benefits is.

Let's look at a line-by-line explanation of this EOB:

Bill from Dr. Neda Dayoff:	\$100.00	<b>Amount due to the doctor for medical care and services.</b>
Disallowed charge:	- 9.00	<b>Amount that exceeds the reasonable and customary price scale; the patient may be responsible for this amount.</b>
Allowable charge:	91.00	<b>Maximum amount that the insurance carrier will cover for the services.</b>
Applied to deductible:	- 20.00	<b>Amount of the charges that was applied to the patient's deductible. If the patient's deductible has been met, this item will be blank or read "zero." In this case, the deductible is met after this last \$20 payment.</b>
Amount due from carrier:	\$ 56.80	<b>Amount paid by the insurance carrier to the doctor. In this case, the insurance company agreed to pay 80 percent of the remaining charges.</b>

Provider Name: Dr. Neda Dayoff				Dates of Service: 01/03/20XX		
Type of Service	Submitted Charge	Disallowed Charge	Allowable Charge	Co-payment	Balance Due	Amount Due From Carrier
Office Visit	100.00	9.00	91.00	20.00	71.00	71.00

In this second example, the insurance carrier will pay \$71.00 of the \$100.00 charge. That means the patient is responsible for the \$20.00 co-payment. A co-payment is a flat amount paid by the patient for a doctor visit, usually made at the time of the visit. As in the first example, the patient may be responsible for the disallowed charge, depending on the insurance policy.

Don't worry about the specifics of the EOB. Remember, these first lessons serve as a general introduction to the basic areas of the medical claims and billing field. You will learn about each of these concepts in greater detail later in the course.



**Please pause and complete online Practice Exercise 2-1.**

---

## **Step 5 Types of Health Insurance**

---

- Hundreds of private insurance companies provide medical coverage for individuals and groups. These private insurance companies generally follow standards similar to the government programs we will cover here. This next part of the lesson is designed to introduce you to the many types of government-sponsored insurance programs and each program's requirements for coverage, along with the basic types of private insurance.

### **Government Insurance**

Unless otherwise noted, these programs are administered by the federal government.

### **Medicare**

**Medicare** is a federal health plan covering people age 65 and older and people with disabilities.

### **Medicaid**

**Medicaid** is a state-sponsored insurance program for low-income people who

otherwise wouldn't be able to afford health insurance.

**HCFA** (Health Care Financing Association) was established in 1977 to administer the Medicare and Medicaid programs. It is part of the Department of Health and Human Services of the federal government. HCFA has in recent years changed its name to CMS (Centers for Medicare & Medicaid Services) and should now be referred to as CMS.

## **TRICARE**

**TRICARE** provides medical coverage for families of the various "uniformed" government services. It also covers retired military personnel and their families and the families of military personnel killed in active duty. TRICARE has three options, which offer different levels of care: TRICARE Standard, TRICARE Extra and TRICARE Prime. TRICARE Standard was once known as CHAMPUS (Civilian Health and Medical Program of the Uniformed Services). You will still occasionally see references to this older name in your work as a claims specialist.

## **CHAMPVA**

**CHAMPVA** (Civilian Health and Medical Program of the Veterans Administration) is the program that covers veterans with permanent, service-related disabilities. It also covers their dependents, and in the event the service member dies from a service-related disability, CHAMPVA covers the family.

## **Workers' Compensation (Workers' Comp)**

**Workers' comp**, a *state-run program*, pays the medical bills for people with job-related illnesses or injuries.

In addition to the preceding government programs, there are also many private insurance companies. These private insurance companies can be divided into two categories: traditional and managed care.

## **Private, Traditional Insurance**

Twenty-five years ago, the traditional insurance concept was the only one around. The traditional insurance concept basically could be described as the following.

The insurance company contracted with an individual to pay her medical bills based on a **fee-for-service** concept—that is, whatever the physician or medical provider charged was the amount on which the insurance company based its reimbursement.

Private insurance companies are in business to earn profits. They pay out benefits, but also take in much more in premiums.

## Managed Care

As healthcare costs skyrocketed, many businesses that held group insurance policies for their employees began looking for ways to save money while still providing excellent healthcare coverage. The solution was *managed care*.

Born in the 1980s, managed care introduced the concepts of **Health Maintenance Organizations (HMOs)** and **Preferred Provider Organizations (PPOs)**. In both HMOs and PPOs, there are groups of doctors who contract with the organization to charge set amounts for procedures. The patient cannot be charged an additional fee (beyond a co-payment that might be in the patient's policy).

In HMOs, patients pay a fixed periodic rate (monthly, quarterly or annually). The patients then receive whatever health care they need, but they must see a physician or medical provider who is part of that HMO. HMOs encourage their members to practice preventive health care, often paying for routine physicals and tests designed to catch signs of illness before the person actually becomes sick. The patient is assigned a *primary physician* when she joins the HMO. This primary physician then oversees that patient.

PPOs contract with many doctors who agree to charge rates according to the PPO scale. These doctors are not “employed” by the PPO. Instead, they are independent offices, hospitals and clinics that have joined the PPO. When policy holders in a PPO go to a medical provider who is not part of the PPO network, that policy holder will see a large reduction in benefits.

- Just as the medical claims and billing specialist is an integral part of the medical world, medical insurance is a necessary part of America's health care. Insurance coverage comes from both government and private sources. Regardless of what company provides the coverage, all insurance companies use a specific language to refer to different insurance concepts. You've already become familiar with some of these terms; and you'll continue to learn more as you progress through your course.

The different insurance programs available fall into three categories: government, traditional and managed care. Government programs such as Medicare, TRICARE and CHAMPVA are managed by the federal government. Medicaid and workers' comp are managed by state governments. In managed care, HMOs and PPOs contract with groups of doctors to provide care at certain set amounts. These types of healthcare programs were developed to help control the rising cost of medical care in America.

Keep in mind that this lesson was a brief overview of insurance programs and how insurance works. You'll learn the details of each concept in later lessons. You also will see the important role you'll play in the filing of insurance claims. Your employer will depend on you to submit the proper documentation to insurance companies and federal agencies for reimbursement so that he or she can benefit financially and avoid fraud charges. The specialized training you get in these lessons will make you and those for whom you work successful!



**Please pause and complete an online Quiz. Good luck!**

# Lesson 3

# Handling Claims

---

## Step 1 Learning Objectives for Lesson 3

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Describe the preauthorization requirement many insurance companies have.
    - Explain how diagnostic and procedure codes apply to insurance.
    - Handle the follow-up claims procedures.
- 

## Step 2 Lesson Preview

---

- ❑ As you know, insurance knowledge is a critical part of your new career as a medical claims and billing specialist. In such a short time, you've built an insurance foundation of knowledge; it won't be long before you're an insurance guru! In this lesson, we'll cover a few more factors that affect coverage and reimbursement: preauthorization, diagnostic coding and procedure coding.

As a medical claims and billing specialist, you'll support physicians, clinics, hospitals and patients. You've timed your new career perfectly, too! The demand for medical claims and billing specialists continues to grow as our population ages and the number of health practitioners increases. Search on the Internet or thumb through your local phone book to get an idea of just how many physicians work in your area. Then figure that each physician sees from 10 to 20 patients per day, most of whom will need a claim processed. As you can see, you'll have endless opportunities as a medical claims and billing specialist!



*The demand for medical claims and billing specialists continues to grow.*

Let's move on to learn a bit about preauthorization requirements and how they affect you, the claims and billing specialist.

---

### Step 3 The Preauthorization Requirement

---

□ John has to go into the hospital. He knows it. His doctor knows it. According to his insurance policy, John must make sure his insurance company knows it. If he doesn't notify his insurance company *before* he enters the hospital, the company will reduce his benefits. In addition to hospitalization, many insurance companies require notification before surgery or certain tests are performed. This process of notifying an insurance company before hospitalization, surgery or tests is called **preauthorization**. The insured must call the insurance company (or the company's designated agent, which is sometimes a third-party oversight company) and explain what is planned and why. A third-party oversight company might be contracted with the insurance company to review all hospitalizations and surgeries and certain other tests and procedures to make sure these procedures are medically necessary.

The preauthorization requirement helps reduce fraud by enabling the insurance company to review a patient's case history before major costs occur. Usually the insurance company approves the procedures, but the company might call the doctor handling the case to discuss the procedures.

The insurance company might extend or reduce the proposed hospital stay. For example, if John's doctor wanted him to stay in the hospital for four days after knee surgery, the insurance company might only authorize three days. This authorization



is based on an average stay for that particular procedure. If no complications from the surgery arise and John stays four days, the insurance company would pay for only three days. John becomes responsible for the fourth.



*The insurance company might extend or reduce the proposed hospital stay.*

In many cases, preauthorization is required even in the event of an emergency. When a patient is admitted to a hospital because of an accident or other emergency, the insurance company requires someone, usually a loved one or even the hospital, to notify the insurance company within 24 hours of hospitalization.

Although the insurance company sometimes denies a claim just because preauthorization was not received, usually the company simply reduces the amount it will pay for that claim.

---

## Step 4 Diagnostic Codes

---

- ❑ After a hospital stay, tests and other procedures, the medical claims specialist needs to fill out a claim form. These forms, which you will fill out later in this course, require special codes. These codes are based on the diagnosis made and procedures performed. They are called *diagnostic codes* and *procedure codes*. When you write a code on an insurance form (or bill or patient's chart), you are **coding** that entry.

When you look at the CMS-1500 form, you can see that there are many **fields** (sections) to be filled in. One of the most important fields is Field 21—*Diagnosis or Nature of Illness or Injury*. In this field, you must enter some crucial information. But what information? Do you write in the doctor's diagnosis? No. You must use a

diagnostic code.

**Diagnostic codes** are numbers that identify the physician's opinion about what's wrong with the patient (his diagnosis). These codes are not random numbers. There is a system to them. That system is called the **International Classification of Diseases (ICD)**. ICD codes are used by hospitals, doctors, offices and medical claims specialists. Whether the patient has a viral infection, a broken leg, food poisoning or any other illness or injury, you can properly code the condition. Insurance companies require a proper diagnostic code to identify the doctor's diagnosis.

Often a patient is suffering from more than one symptom. In this case, multiple diagnoses may apply. The doctor will determine a primary diagnosis—usually the main cause of the symptoms or the main health problem. When you code, you always enter the **primary diagnosis** code first.

When there is more than one diagnosis made, the ones that aren't primary are called **concurrent conditions**. That means these conditions happen at the same time as the primary diagnosis and might affect how the patient recovers.

## HEALTH INSURANCE CLAIM FORM

APPROVED BY NATIONAL UNIFORM CLAIM COMMITTEE 03/85

Field 21 is filled in with crucial information—the doctor's diagnosis.

1. MEDICARE										PACA									
MEDICARE		MEDICARE		MEDICARE		CHAMPVA		GROUP HEALTH PLAN		FECA (BLU LUNG)		OTHER		INSURED'S ID NUMBER (For Program in Item 1)		PACA		PACA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. PATIENT'S NAME (Last Name, First Name, Middle Initial)										3. PATIENT'S BIRTH DATE									
5. PATIENT'S ADDRESS (No. Street)										6. PATIENT RELATIONSHIP TO INSURED									
CITY										7. INSURED'S ADDRESS (No. Street)									
STATE										CITY									
TELEPHONE (Include Area Code)										TELEPHONE (Include Area Code)									
8. OTHER INSURED'S NAME (Last Name, First Name, Middle Initial)										9. OTHER INSURED'S DATE OF BIRTH									
10. IS PATIENT'S CONDITION RELATED TO										11. INSURED'S POLICY GROUP OR FECA NUMBER									
12. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE										13. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE									
14. DATE OF CURRENT ILLNESS (For symptoms OR INJURY (ACCIDENT OR PREGNANCY (CMP)										15. IF PATIENT HAS HAD SAME OR SIMILAR ILLNESS, GIVE FIRST DATE									
16. NAME OF REFERRING PROVIDER OR OTHER SOURCE										17. HOSPITALIZATION DATES RELATED TO CURRENT SERVICES									
18. RESERVED FOR LOCAL USE										19. OUTSIDE LAB? SWARDES									
20. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 20 by Line.)										21. MEDICARE RE submission CODE ORIGINAL REF. NO.									
22. PRIOR AUTHORIZATION NUMBER										23. PRIOR AUTHORIZATION NUMBER									
24. A. FROM DD YY MM DD YY B. HAD P C. D. PROCEDURE, SERVICE, OR SUPPLY (Explain Unusual Circumstances) E. F. G. H. I. J. RENDERING PROVIDER ID #										25. FEDERAL TAX ID NUMBER SSN EIN 26. PATIENT'S ACCOUNT NO. 27. ACCEPT ASSIGNMENT? 28. TOTAL CHARGE 29. AMOUNT PAID 30. BALANCE DUE									
31. SIGNATURE OF PHYSICIAN OR SUPPLIER INCLUDING DEGREES OR CREDENTIALS (If carrier that the statements on the reverse apply to this bill and are made a part thereof.)										32. SERVICE FACILITY LOCATION INFORMATION									
33. BILLING PROVIDER INFO & PIR#										34. BILLING PROVIDER INFO & PIR#									
SIGNED DATE										SIGNED DATE									

We will cover diagnostic coding concepts later in the course. Now, let's look at procedure coding.

## Step 5 Procedure Coding

- Diagnosis coding is not the only kind of coding you will do. If you look at the portion of the CMS-1500 form below, you will see Field 24D—a column for *Procedures, Services or Supplies*. This column is divided into two halves. The first half is labeled *CPT/HCPCS* and the second is labeled *Modifier*. This is where you write down the code for the **procedures** (and modifiers of those procedures, if any), or treatments and tests, the doctor performed.

Procedures and modifiers are listed in Field 24D. The procedure codes given here indicate that an established patient made an office visit and was given an influenza immunization.

24	A. DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. ICD-10-CM CODE	D. PROCEDURES, SERVICES, OR SUPPLIES		E. DRUGS AND SUPPLIES	F. CHARGES	G. DAYS UNITS	H. UNIT PRICE	I. ID QUAL	J. RENDERING PROVIDER ID #
	FROM	TO							EXPLAIN CIRCUMSTANCES	MODIFIER						
	MM	DD	YY	MM	DD	YY		CPT/HCPCS								
1								99212								NP
2								90658								NP
3								90460								NP
4																NP
5																NP
6																NP

Remember, you might be called upon to double-check bills as they come through your service. Usually double-checking means making sure the diagnosis matches the procedures. Insurance companies use box 24D to check the procedures and make sure they are consistent with the diagnosis. If they aren't consistent, reimbursement from the insurance company will be delayed or may be reduced.

Like diagnoses, procedures have their own numerical language. The language of procedure codes is either the *Current Procedural Terminology* (CPT) or the *Healthcare Common Procedure Coding System* (HCPCS—pronounced “Hick-Picks”). CPT codes are the first level of HCPCS codes. CPT coding is the most commonly used set of procedure codes. The CPT codes, produced annually by the American Medical Association, are divided into six sections.

## CPT Procedure Code Divisions

**Evaluation and Management**

**Anesthesiology**

**Surgery**

**Radiology**

**Pathology and Laboratory**

**Medicine**

Most procedures the doctor performs will have a code. You will enter the correct code in the correct column of the CMS-1500 form. We'll show you exactly how to find this code later on. For now, all you need to know are the fields in which codes appear on the CMS-1500 form.



Please pause and complete online Practice Exercise 3-1.

---

## Step 6 Claims Follow-up

---

- ❑ As a medical claims specialist, you will often work with insurance companies.

Whether you are in your home, a medical office, clinic or hospital, or work for an insurance review company, you will communicate with insurance companies every day. This communication includes filling out and filing claim forms, providing necessary additional information, recording payments and, often, following up with letters and telephone calls.

Through this course you will gain the excellent customer service skills necessary when dealing with insurance companies as well as clients and patients. You will learn how to explain charges, handle criticism, give and receive feedback, be assertive and communicate effectively without becoming confused as someone asks you questions.

So let's look at some tips to help you be an efficient medical claims specialist as you interact with insurance companies.

### **Communicating Effectively with Insurance Companies**

- ✓ The two ways to contact an insurance company are: (1) directly or (2) through a field representative.
- ✓ When you contact an insurance company regarding a claim, be sure to include a copy of the claim or at least the patient's name, chart number, date of service, policy number, and the doctor's provider ID.
- ✓ When you call an insurance company about a problem, be polite and courteous and try to solve the problem. If you need questions answered, ask them!
- ✓ When you write to an insurance company, be concise—get to the point. The faster the insurance company knows what you need, the faster it can process your request.

- ✓ When you inquire about a claim that has not been paid within the 30-day payment period, you can bring this to the insurance company's attention by: (1) sending a short letter to the company; (2) calling on the telephone; or (3) rebilling the company by submitting a copy of the original bill and writing "SECOND BILLING" on the top.

There are many reasons an insurance company might not pay on a claim within the 30-day payment period. There might be errors on the CMS-1500 form. The insurance company might have paid the patient (expecting the patient to pay the doctor). Regardless of the reason, if you notify the insurance company, then it can relay the reason for nonpayment to you. At the very least, you should receive an explanation of benefits (EOB) form.



*The information that you track down on an insurance claim will be useful to the insurance company as it traces the claim.*

If this process fails to solve the problem, you can trace an insurance claim. To **trace**, or track down, a claim, you send a memo to the insurance company with this information on it:

1. Name of Insured
2. Chart Number
3. Policy Number
4. Date of Service
5. Procedures Performed

This information lets the insurance company trace a particular claim. Traces are useful when you are trying to locate an individual claim.

What do you do if you receive an explanation of benefits that you believe is wrong?

Perhaps the insurance company denied coverage for an individual based on a pre-existing condition, for example.

The **appeal** is a letter from the provider to the insurance company explaining why the EOB is incorrect and asking the company to review it again.

If the insurance company decides that a procedure is experimental or investigational and therefore not covered by a policy, the doctor can also appeal that decision. The doctor can request a peer review. A **peer review** is a review of the procedures done by that doctor. The review is done by a group of unbiased, objective doctors who determine if the procedure was appropriate and, if so, the amount of reasonable compensation for the procedure.

---

## Step 7 Lesson Summary

---

❑ You now have a foundation to stand on in the world of insurance and coding.

Insurance is very important in the medical field. Insurance companies have many regulations, including preauthorization requirements, follow-up procedures and an appeals process. It is essential that you, as a medical claims specialist, keep up to date with these procedures and requirements.

Keep up the good work! In the next lesson, you'll get a taste of private and group healthcare programs.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 4



# Private Insurance and Managed Care Programs

---

## Step 1 Learning Objectives for Lesson 4

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
  - Explain characteristics of private and group healthcare insurance programs.
  - Describe the concept of the prepaid insurance provider.
  - Explain the histories of several managed care programs.
  - Describe managed care terms such as *co-payment*, *capitation* and *fee schedule*.
  - Understand the different managed care programs, including HMOs, PPOs, point of service (POS) plans and physician provider groups (PPGs).

---

## Step 2 Lesson Preview

---

- ❑ Americans have many health insurance options. Some people purchase health insurance individually, while many employers offer health care as a benefit. Managed care programs, like HMOs and PPOs, are becoming a very popular alternative to the once-traditional fee-for-service approach to health care. This lesson will discuss private insurance concepts and expand on the basics of managed care programs by covering the history of HMOs (health maintenance organizations) and PPOs (preferred provider organizations), as well as introducing you to several other managed care programs. These other managed care programs operate in ways similar to HMOs or PPOs. Overall, you will review co-payments, fee schedules and many other concepts in the managed care world.



*People have many health insurance options.*

---

## Step 3 Private and Group Health Insurance

---

- According to CMS's data, our nation's health expenditures equal more than \$1.1 trillion per year! That's quite a sum. Two of the reasons for this is that people are living longer and the population continues to increase. As a result, more people need health care, whether it's preventive care, such as annual physical exams, or intervention care, such as cancer or illness treatments.

These days, consumers have many options for healthcare insurance, as you'll learn in this lesson. One of those choices is to purchase a private commercial health insurance policy. A **private insurance carrier** offers a variety of healthcare plans that require the subscriber to pay premiums. They operate for profit, meaning they have stockholders who benefit from the profits. Private insurance companies can raise their rates when they need or want to, and they can more easily deny coverage at will.

### Facts About Private Insurance Carriers

There are a few inherent facts about private insurance carriers:

- ✓ Private insurance carriers operate for profit, and they have stockholders who benefit from those profits.
- ✓ Private insurance carriers can deny coverage at will. This means that they can determine whether to accept a potential subscriber as a customer.

- ✓ Private carriers can raise rates almost at will. States do have some regulations that private carriers must adhere to regarding raising rates.

The concept of prepayment is the basis of many private insurance carriers. When you **prepay** premiums, you pay in advance for coverage of specified services should the need for those services arise. You are paying a small fee *in case* the need for health care arises. The **subscriber** is the person who prepays the fee for insurance coverage.

When a subscriber purchases insurance coverage, he purchases a *policy*. An insurance **policy** describes the subscriber's benefits and details of coverage.

Many larger employers offer **group health insurance**. Companies purchase a group health plan that they can offer as a benefit to their employees. Sometimes the employer pays the entire monthly premium for each employee, but most employers pay a percentage of each employee's premium, leaving the employee to pay the remaining percentage of the insurance premium.

Group health insurance works similarly to private healthcare insurance because a private healthcare insurance company purchases a group policy. One difference with a group policy is that the insurance carrier cannot deny coverage to any of the company's employees, regardless of any pre-existing conditions.

## Insurance Contracts

Physicians often sign contracts with certain insurance companies. When they enter into contracts with specific companies, they are called **participating physicians**.

There are two types of contracts: service benefit contracts and indemnity benefit contracts. **Service benefit contracts** are plans that have participating physicians—physicians who have agreed to participate in the programs. This contract covers the services themselves, reimbursing the participating physician rather than the subscriber. Subscribers usually receive better benefits by utilizing a participating physician listed in their benefits package or preferred provider directory.

**Indemnity benefit contracts** cover the actual expenses for providing a service. This

type of contract sometimes allows the physician to bill the subscriber for any amount not covered by the insurance company. You will need to check with the insurance company's administrator for contractual details.

## Level of Payments

Participating physicians agree to accept a level of payment determined by the insurance company. Review the following three levels of payment.

### **Facts About Participating Physicians**

The following three categories classify payments to participating physicians:

1. **Usual, customary and reasonable** is the amount a physician would normally charge the majority of patients, the fee most physicians in the geographic area charge, and the amount determined to be appropriate for the service or procedure.
2. **Customary maximum** is the fee charged by most physicians in the community.
3. **Fixed fee schedule** is the maximum fee allowed by the insurance company for a specific medical service or procedure.

When a subscriber sees a nonparticipating physician, sometimes insurance companies will pay minimal benefits. However, usually the subscriber receives payment for benefits directly. Therefore, as a medical claims and billing specialist, you need to know which of your doctors are participating physicians for which insurance companies. If a doctor is not a participating physician, the patient must pay the bill and may need to file his own claims to his insurance company.

---

## **Step 4 Insurance Basics**

---

When you file an insurance claim, you will usually use the CMS-1500 claim form. In

some cases, individual programs might have its own forms, although they are all similar to the CMS-1500 form.

**1500**

**HEALTH INSURANCE CLAIM FORM**  
APPROVED BY NATIONAL UNIFORM CLAIMS COMMITTEE 09/95

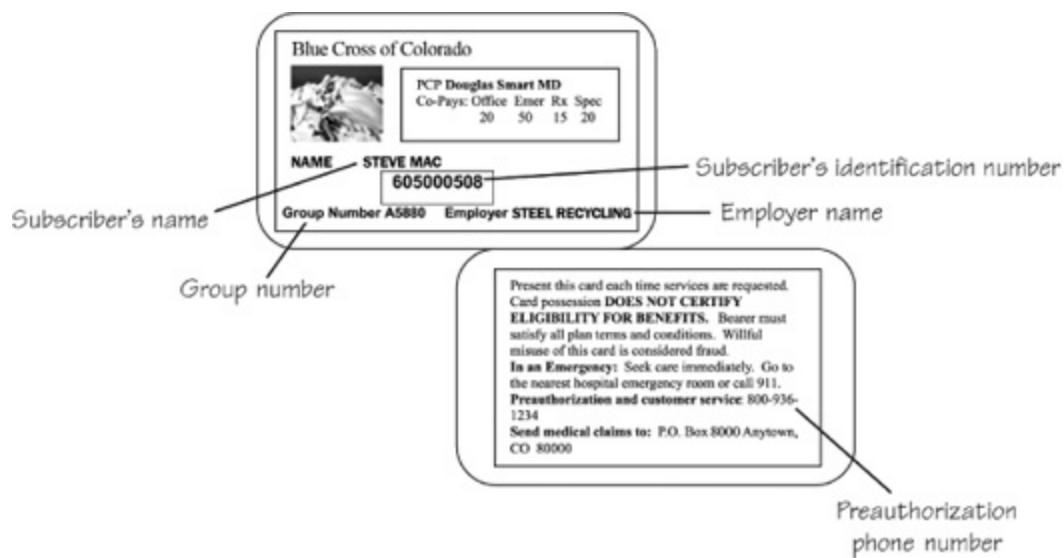
PICA										PICA							
1. MEDICARE (Medicare #) MEDICAID (Medicaid #) TRICARE (Tricare's SSN) CHAMPVA (Member ID #) GROUP HEALTH PLAN (SSN or ID) FECA (FECA BLK LUNG) OTHER (ID)										14. INSURED'S I.D. NUMBER (For Program in Item 1)							
2. PATIENT'S NAME (Last Name, First Name, Middle Initial)					3. PATIENT'S BIRTH DATE			SEX (M) (F)		4. INSURED'S NAME (Last Name, First Name, Middle Initial)							
5. PATIENT'S ADDRESS (No. Street) CITY STATE ZIP CODE TELEPHONE (include Area Code)					6. PATIENT RELATIONSHIP TO INSURED (Self) (Spouse) (Child) (Other)			7. INSURED'S ADDRESS (No. Street) CITY STATE ZIP CODE TELEPHONE (include Area Code)									
9. OTHER INSURED'S NAME (Last Name, First Name, Middle Initial)					10. IS PATIENT'S CONDITION RELATED TO:			11. INSURED'S POLICY GROUP OR FECA NUMBER									
8. OTHER INSURED'S POLICY OR GROUP NUMBER					8. EMPLOYMENT? (Current or Previous) YES NO			8. INSURED'S DATE OF BIRTH		SEX (M) (F)							
9. OTHER INSURED'S DATE OF BIRTH					9. AUTO ACCIDENT? YES NO			9. EMPLOYER'S NAME OR SCHOOL NAME		6. INSURANCE PLAN NAME OR PROGRAM NAME							
6. EMPLOYER'S NAME OR SCHOOL NAME					6. OTHER ACCIDENT? YES NO			5. IS THERE ANOTHER HEALTH BENEFIT PLAN? YES NO		13. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE (I authorize payment of medical benefits to the undersigned physician or supplier for services described below.)							
6. INSURANCE PLAN NAME OR PROGRAM NAME					10S. RESERVED FOR LOCAL USE			5. IS THERE ANOTHER HEALTH BENEFIT PLAN? YES NO		13. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE (I authorize payment of medical benefits to the undersigned physician or supplier for services described below.)							
<b>READ BACK OF FORM BEFORE COMPLETING &amp; SIGNING THIS FORM.</b>																	
12. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE (I authorize the release of any medical or other information necessary to process this claim. I also request payment of government benefits other to report it to the party who accepts assignment below.)																	
SIGNED _____ DATE _____																	
14. DATE OF CURRENT ILLNESS (First symptoms) OR INJURY (Accident) OR PREGNANCY (M/P)				15. IF PATIENT HAS HAD SAME OR SIMILAR ILLNESS, GIVE FIRST DATE				16. DATES PATIENT UNABLE TO WORK IN CURRENT OCCUPATION FROM TO									
17. NAME OF REFERRING PROVIDER OR OTHER SOURCE				17a. _____ 17b. NPI _____				18. HOSPITALIZATION DATES RELATED TO CURRENT SERVICES FROM TO									
19. RESERVED FOR LOCAL USE																	
21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Replete items 1, 2, 3, or 4 to Item 24E by Line.)						20. OUTSIDE LAST CHARGES YES NO											
1. _____ 3. _____						22. MEDICARE RESUBMISSION CODE ORIGINAL REF. NO.											
2. _____ 4. _____						23. PRIOR AUTHORIZATION NUMBER											
24. A. FROM DATE(S) OF SERVICE TO		B. CLASS OF SERVICE		C. D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E. (Diagnosis) (Procedure)		F. CHARGES		G. DAYS UNITS		H. (UNIT) ID		I. QUAL		J. RENDERING PROVIDER ID #	
1. _____		_____		_____		_____		_____		_____		_____		_____		_____	
2. _____		_____		_____		_____		_____		_____		_____		_____		_____	
3. _____		_____		_____		_____		_____		_____		_____		_____		_____	
4. _____		_____		_____		_____		_____		_____		_____		_____		_____	
5. _____		_____		_____		_____		_____		_____		_____		_____		_____	
6. _____		_____		_____		_____		_____		_____		_____		_____		_____	
25. FEDERAL TAX ID NUMBER (SSN) (FIN)				26. PATIENT'S ACCOUNT NO.		27. ACCEPT ASSIGNMENT? YES NO		28. TOTAL CHARGE \$		29. AMOUNT PAID \$		30. BALANCE DUE \$					
31. SIGNATURE OF PHYSICIAN OR SUPPLIER (INCLUDING DEGREES OR CREDENTIALS (I certify that the statements on the reverse apply to this bill and are made a part thereof.)				32. SERVICE FACILITY LOCATION INFORMATION				33. BILLING PROVIDER INFO & PIA# ( )									
SIGNED _____ DATE _____				_____				_____				_____					

A CMS-1500 claim form

## Identification Cards

Every person subscribing to a private insurance carrier has an insurance identification card. Cards vary in appearance depending on the carrier, but all cards list vital information that allow you to complete the claim form correctly.

Offices keep a photocopy of the front and back of each subscriber's ID card on file.



Sample ID Card

As you can see from the sample card, the identification card includes the following information:

- Subscriber's name
- Subscriber's identification number
- Group name
- Group number
- Preauthorization phone number

The back of the card lists the address where you'll send all claims, inquiries and hospital admission information. Also, the back of the card lists important phone numbers that the subscriber and the medical staff may need.

## Time Limits

After you have filled out the claim, you need to file it before the deadline established by individual insurance companies. This deadline varies from carrier to carrier, but for many, you must file the claim within a 30-day deadline. Whatever the time limit, the **timely filing guideline** is the deadline for filing a claim. Each carrier has its own timely filing guideline.

Filing a claim within the timely filing guideline is essential. If you do not file in time and the claim is late, then the carrier may not pay anything on the claim. In addition, the physician cannot bill the patient for the services. You can see that if you miss the deadline, the carrier usually denies the claim altogether, which results

in no payment for the physician (and many headaches for you!). There can be some exceptions to this rule, but the circumstances must be extremely unusual for a carrier to consider waiving the timely filing guideline.

### **Explanation of Benefits**

After you have submitted a claim to an insurance carrier and it is processed, the physician will receive an explanation of benefits. The EOB may include payment for one patient or several patients. Always check each patient's name, dates of service, procedures billed for and the amounts billed, the amount allowed, deductibles, co-payment amounts and the amount paid on each individual claim.

The physician bills the patient for amounts applied to the patient's deductible, any co-payment amounts and noncovered procedures, depending on the contract. Often, a service benefit contract stipulates a maximum charge per service. The insurance company will disallow the difference if a doctor submits a claim for an amount that exceeds that maximum charge.

# EXPLANATION OF BENEFITS

THIS IS NOT A BILL

BLUE CROSS OF COLORADO

Date: 04/10/XX

If you have any questions regarding this notice, please write or call our Customer Service Department at:

Policy: STEEL RECYCLING

MEMBER SERVICE  
P.O. BOX 1234  
ANYTOWN, CO 80000  
(612) 936-1234 OR 1-800-936-1234  
TDD (612) 936-1234 OR 1-800-936-1234

STEVE MAC  
1823 KERRY COURT  
YOURTOWN, CO 80000

Patient: FRAN MAC  
Number: 605000508

Explanation of Payments:

Claim Number	Provider/Type of Service	Date of Service From – Through	Billed Charges	Disallowed Amount	Deductible	Co-pay/Co-ins	Total Reimbursement Amount
66355912	Douglas Smart MD*	03/17/XX-03/17/XX	50.00	6.48	9	20.00	23.52
66355912	84550	03/17/XX-03/17/XX	33.00	9.00	9		24.00
<b>Totals</b>			<b>83.00</b>	<b>15.48</b>		<b>20.00</b>	<b>47.52</b>

Payment has been made to:	Amount	Deductible and out of pocket expenses for 03/17/XX-03/17/XX Co-payment \$20.00 <b>Non-covered amount \$15.48</b>
<b>Front Range Family Care</b>	<b>47.52</b>	<b>Total Patient Responsibility \$20.00</b>

\* Message 9: This amount is above the maximum allowable reimbursement for this procedure.

Sample EOB for Fran Mac. Notice that the insurance company disallowed \$15.48.

In the next section, we'll examine managed care.



**Please pause and complete online Practice Exercise 4-1.**

## Step 5 Managed Care

Previously, you learned how managed care came about to help combat the rising costs of health care. The early managed care systems covered a few people at specific work sites or factories. In fact, one of the first managed care systems covered



construction workers building the Grand Coulee Dam in Washington in 1938. Since that time, managed care has evolved into a huge insurance industry that boasts coverage for millions of people. How did this all come about? Basically, managed care has boomed because of skyrocketing healthcare costs. Health insurance providers constantly seek ways to hold down costs, but also to predict healthcare costs. Managed care gives insurance companies a basis for predicting these costs by establishing set fees and costs for healthcare services.



*Managed care gives insurance companies a basis for predicting healthcare costs.*

The managed care philosophy has grown at the expense of the fee-for-service philosophy that insurance carriers typically held. **Fee-for-service coverage** allows people the most freedom in choosing services and doctors. However, it also creates the largest amount of uncertainty for insurance companies. They find it much more difficult to accurately budget for costs when they offer fee-for-service insurance plans.

As insurance companies and employers searched for ways to budget for healthcare costs, several managed care programs evolved: HMOs and PPOs, as well as point of service (POS) plans and physician provider groups (PPGs).

---

## **Step 6 Health Maintenance Organizations (HMOs)**

---

- ❑ HMOs represent the most popular choice in managed care. The **health maintenance organization** or **HMO** is a prepaid health plan in which individuals receive medical

services from participating physicians. Patients cannot see just any physician. Instead, they must see a physician within the HMO. HMOs have their own specialists and general practitioners. Generally, a general practitioner refers a patient to a specialist. A **referral** is an authorization by one physician for a patient to see another physician for a specific health problem.

A patient's insurance benefits diminish or denied if a nonparticipating physician treats an HMO participant.

There are HMO networks, which encompass many organizations. Each network has a company sponsor. Regardless of the company that sponsors the HMO, the HMO's basic operating principles are not affected. HMO participants pay a set fee (usually monthly or annually) and then receive the medical service they need. However, all HMO participants are restricted in their choice of doctors.

In order to facilitate treatment, each HMO participant must work through the participant's primary physician. The **primary physician** is a doctor who is in charge of a particular patient. This physician oversees all facets of the patient's care. This includes routine treatment and referrals to specialists within the HMO, as well as hospitalization. If the primary physician doesn't authorize a procedure or a specialist, the HMO patient may not receive that procedure or see that specialist.

---

## Step 7 Preferred Provider Organizations (PPOs)

---

- Although PPOs are similar to HMOs, there are some key differences. Members of **preferred provider organizations** or **PPOs** can choose their own doctors and treatment facilities. However, there is some motivation for members to choose PPO participating medical care providers. When a member seeks care from a PPO participant, the member's benefits increase. Likewise, when a nonparticipating physician or a nonparticipating facility treats that same member, the benefits are less than they would be through a participating provider.

PPOs operate much like fee-for-service plans when it comes to co-payments. Usually, the member must pay between 15 and 25 percent of each bill until the member reaches a *threshold limit*. The **threshold limit** is the amount at which the co-payment

drops. This amount is the total amount paid to that point. For example, if Bill belongs to a PPO with a 20 percent co-insurance up to a \$5,000 threshold limit, then Bill must pay the first 20 percent of every bill until his total of bills is \$5,000. After that, the PPO pays 100 percent of covered charges.

Although HMOs and PPOs are the most common types of managed care plans, there are others, including point of service plans and physician provider groups.

---

## Step 8 Point of Service (POS) Plans

---

❑ **Point of service (POS)** plans strive to combine the best elements of both HMOs and PPOs. POS plans consist of participating physicians and hospitals. These participating healthcare providers give POS plan members (who are employers or insurance companies) discounted health care for plan participants. This makes POS plans similar to HMOs. However, POS plans also allow covered persons to receive health care from nonparticipating hospitals and doctors. As is the case with PPOs, when a nonparticipating doctor or a nonparticipating facility treats a patient in a POS plan, the patient's benefits are decreased.

The cost management of the HMO combined with the freedom of choice afforded by PPOs and integrated into POS plans, make them a nice compromise in managed care.

---

## Step 9 Physician Provider Groups (PPGs)

---

❑ The final type of managed care we will discuss in this lesson is the physician provider group. The physicians in the group own **PPGs**, or **physician provider groups**. These groups negotiate individual contracts with employers, insurance companies and other entities in order to provide healthcare coverage. Because its member physicians own and operate the PPG, a PPG is able to imitate, or act like, HMOs, PPOs, POS plans and other managed care groups. PPGs are more flexible than the other managed care systems.

The PPG does all the billing and collection for the member doctors. This enables the physicians to cut costs while still providing a high level of health care. Specialists are attracted to PPGs because it's cost effective, which enables them to compete with other physicians.

---

## **Step 10 Health Savings Accounts**

---

- ❑ The Medicare bill of 2003 put Health Savings Accounts (HSAs) into effect. The bill's creators designed it to help individuals save for future medical expenses on a tax-free basis.

Participants need insurance with high deductible health plans (HDHP) to enroll in Health Savings Accounts (HSA). The participant cannot enroll in any other primary health insurance program including Medicare. Enrollment in dental, optical, disability, and long-term healthcare plans is acceptable. The participant cannot be a dependent on someone else's tax return.

HSA contributions are made on a yearly basis. Individual contributions are \$3,050 and family contributions are \$6,150. The HSA gives the insured the ability to save for their medical expenses on a tax-free basis. The contributions are tax free, the earnings on the savings are tax free, as well as the withdrawals used to pay medical expenses.

The HSA can pay "qualified medical expenses," which include most medical care and services, including optical and dental. HSA funds also cover co-payments, co-insurance and deductibles. Once a person is qualified for Medicare, the HSA can pay Medicare premiums.

### **High Deductible Health Plan**

In order to set up an HSA, enrollment in a high deductible health plan (HDHP) is required. An HDHP is a health insurance plan where the insured anticipates paying the first dollar medical expenses, or in other words, the plan includes a very high deductible. For an insurance plan to qualify as a HDHP it must have a deductible of \$1,200 for an individual, or \$2,400 deductible for a family. In general, this

deductible applies to all medical expenses including dental, optical, and prescriptions. Some plans continue to cover preventive medicine such as prenatal care, well-child care, immunizations, annual physicals, mammograms, pap smears, etc. For the most part, however, the insured can anticipate paying for his medical care until he meets the deductible.

### **Billing for an HSA**

Health savings accounts are becoming a more popular choice amongst employers because the high deductible health plans can decrease the costs associated with health insurance. The plans are also popular with individuals because of the tax savings involved. As a medical billing professional it will be important for you to know how to bill for these situations.

A person who participates in an HSA receives a debit card. The participant uses the debit card to pay for medical services. Then, the HSA withdraws the expenses.

It will be difficult for you as the medical billing professional to keep track of the patient's deductible status because the deductible applies to so many services and suppliers. Instead, the physician's office collects payment for services in full. You will then submit a CMS-1500 claim to the appropriate insurance, or submit the claim electronically. This insures that the services apply to the patient's deductible. At some point, you may receive an EOB showing that the patient met her deductible. You will then need to notify the office of the patient's status and if there is an over-payment, the office will need to issue a refund. From the point when the patient meets his deductible, you will continue to submit claim forms as you would for any other insurance.



**Please pause and complete online Practice Exercise 4-2.**

---

## **Step 11 Managed Care Concepts**

---

- At this point, we have covered a few of the more common managed care programs in the United States. Regardless of which managed care programs you deal with as a

medical claims specialist, there are some concepts you will run into. These concepts include preauthorization, peer review organizations, utilization review, capitation and visitation limits.

Imagine that you're starting your first day on the job (or with a new client), and you aren't familiar with the basic concepts of managed care. Your colleague, John, comes up and hands you a stack of files, saying, "Be sure to call these companies and check on preauthorization requirements and PROs." What would you do? If you hadn't taken this course, you could easily mistake what John is saying. For someone unfamiliar with managed care, John might as well be speaking in a foreign language. But, thanks to this course and your diligent work, you probably won't hear terms unfamiliar to you. Consequently, your colleagues and clients won't seem to be speaking in some obscure dialect.



*If you understand the concepts of managed care, your colleagues won't seem to be speaking a foreign language.*

## **Preauthorization**

In some cases, managed care providers (as well as some fee-for-service plans) require preauthorization. **Preauthorization** is the approval of the managed care provider for certain procedures. Usually, a patient's insurance identification card or managed care membership card will list preauthorization requirements, as well as a telephone number to call for preauthorization. Before the carrier will issue a **preauthorization certificate**, also known as *precertification* or *prior authorization*, it will review the patient's individual case, including the proposed procedure, and then determine if circumstances warrant the procedure. Some examples of situations requiring preauthorization are surgery, magnetic resonance imaging, CAT scans and other expensive diagnostic tests.

It is essential to know whether preauthorization is required in any case. If a patient fails to get the proper preauthorization, the patient's benefits are dramatically reduced or denied.

## Peer Review Organizations

Peer review organizations examine and ensure quality health care in managed care situations. **Peer review organizations**, also called *professional review organizations*, consist of physicians who evaluate the physicians in managed care situations to make sure their patients are receiving proper care. Hospitals, insurance companies and even the government health insurance programs use peer review organizations.

Peer review organizations are necessary to oversee physicians in managed care situations because, if you think about how managed care is structured, you see that the managed care provider pays the physicians. And, as we learned earlier, the managed care provider is very concerned with healthcare costs. The peer review organizations intend to eliminate any questions of impropriety in managed care.

Another way to ensure proper treatment is the *utilization review program*. The **utilization review program** safeguards against unnecessary and inappropriate medical care.

## Capitation

An alternative to a fee schedule for services is a fee schedule per patient. Sometimes physicians receive payment according to the number of members of a managed care program the physicians have in their practices. **Capitation** means that a participating physician's reimbursement is based on how many patients the physician sees rather than which services the physician performs.

## Visitation Limits

No, the term *visitation limits* doesn't refer to how many visitors a patient can have. It refers to visits to specialists. Many managed care programs set a **visitation limit** on the number of visits to specialists a patient may make or the number of special treatments, such as physical therapy, a patient may have.

---

## Step 12 Working with Managed Care

---

- ❑ As a medical claims and billing specialist, you will work closely with managed care providers to ensure that they properly reimburse the doctors you work for or have as clients.

### The Managed Care Quick Reference Card

You will need to set up a system for yourself that helps you keep track of each program's requirements. A simple way to do this is to make a managed care quick reference card for each program. You can keep the "cards" on a computer or in a manual card file.

The **managed care quick reference card** contains vital information for each managed care program used by patients of the doctors you work with. Create a card like the one in the following illustration. Then fill out one card with the name, address and telephone numbers for each plan. In addition to this information, each card should also have the name of your contact person for the plan, co-payment information, preauthorization requirements and a list of participating facilities.

Managed Care Quick Reference Card	
Name	
Address	
Telephone	
Contact Person	
Co-Payment and Deductible Information	
Preauthorization Requirements	
Participating Facilities	
Claim Form	



By keeping a managed care quick reference card handy, you will be able to quickly access essential information for each managed care program you deal with. These cards can save you time and help you tremendously.

To find the information you need to have on each card, contact the managed care plans that the doctors you work with use. Some may offer many plans with different information. For these, write “See patient plan” in the co-payment and deductible line. This immediately tells you that the managed care program has different coverage plans.

Use the managed care quick reference card to fill out important information when filing a claim. You also can use it to contact the program if a billing question comes up.

### **Explanation of Benefits**

We covered the explanation of benefits (EOB) earlier in this course. Every claim you submit will result in an EOB, which explains the benefits provided and why benefits weren't provided. Remember to look carefully at the EOB you receive from the managed care program. Everyone makes mistakes, and by reviewing the EOB carefully, you can catch any mistakes that appear.



*Review the managed care program's EOB carefully to catch mistakes.*

Be sure to look for such terms as *Not Eligible for Payment* and *Noncovered Charges* or other similar terms. These all indicate a denied claim. If you see a denied claim, be

sure to review the situation to make sure the denial is correct. If you have a question, or believe the denial is wrong, then you can appeal the decision.

## Appealing Benefits

Situations may come up that require you to appeal a benefit decision. The managed care program might have mistakenly denied coverage for a covered procedure. On the other hand, perhaps extenuating circumstances prevented a patient from getting preauthorization. In cases such as these, you may have to write a letter of appeal to the program. You should become familiar with the contact person for each program because you usually start the appeals process by contacting that individual.

Western Plains Insurance										
Explanation of Benefits THIS IS NOT A BILL										
#BWNCQXF #9999999990000LF3# ZACHARY S. SMITH 1234 Main Street Fort Collins, CO 80526					<b>For Inquiries:</b> Western Plains Insurance P.O. BOX 1999 PLAINS, NEVADA 84448-0541 1-800-111-2222					
					CLAIM NUMBER: 010234XXXXX		DATE RECEIVED: 01/21/20XX			DATE PROCESSED: 01/27/20XX
					PATIENT NAME: Emma Smith		ID NUMBER: R12345678		PATIENT ACCT NO: 390XXXX	
SUMMARY OF STANDARD OPTION BENEFITS ON THIS CLAIM					BENEFIT CHECK SENT TO CITY YOUTH CLINIC					
PROVIDER NAME: SANDERS					DATES OF SERVICE: 01/10/20XX - 01/10/20XX					
Type Of Service	Submitted Charges	Negotiated Savings	Noncovered Charges	Exp *	Allowable Charges	Deduct	Coins Copyay	Other Coverage	What We Owe	What You Owe
WEL CHILD	65.00	1.95		610	63.05				63.05	
WEL CHILD	33.00	13.81		610	19.19				19.19	
WEL CHILD	12.00	4.94		610	7.06				7.06	
<b>TOTALS</b>	<b>\$110.00</b>	<b>20.70</b>			<b>89.30</b>				<b>\$89.30</b>	
* EXPLANATION OF CODES/REMARKS										
610 - - THE COVERED CHARGES EXCEED THE ALLOWABLE CHARGES PROVIDED UNDER THE SERVICE BENEFIT PLAN FOR THESE SERVICES. COVERED CHARGES ARE SUBMITTED CHARGES LESS ANY NONCOVERED CHARGES. BECAUSE THIS PROVIDER IS A PREFERRED OR PARTICIPATING PROVIDER WITH THE LOCAL PLAN, YOU ARE NOT RESPONSIBLE FOR THE DIFFERENCE BETWEEN THE COVERED CHARGES AND THE ALLOWABLE CHARGES. THE DIFFERENCE EQUALS THE NEGOTIATED SAVINGS BETWEEN THE PROVIDER AND THE LOCAL PLAN.										
Any resubmission of eligible expenses on this claim must be received no later than December 31 of the calendar year following the date of service or 90 days from the date of the form, whichever is later.										

## Managed Care Programs and Medicare

An HMO that has a Medicare Part B contract may cover a patient. There are two different Part B Contracts: HMO risk plans and HMO cost plans. Submit claims for HMO risk plans to the HMO plan or the regular Medicare carrier.

Contact the Medicare Managed Care department at your Medicare Regional CMS Operations office for guidelines on submitting claims for Medicare/HMO patients. These guidelines may vary from region to region.

## Managed Care Programs and Medicaid

If a Medicaid patient is also enrolled in an HMO or PPO managed care program, submit the claim to the managed care program and not to the Medicaid fiscal agent or intermediary. The capitation method for services to eligible members determines payment.

---

### **Step 13 Lesson Summary**

---

- ❑ Many Americans purchase private health insurance policies from private insurance carriers who operate for profit and can be selective as to who they choose to have as subscribers. Place a copy of the subscribers' insurance identification cards in their medical files. From this copy, you, the medical claims specialist, will find the information you need to file patients' claims.

As healthcare costs increased, insurance companies looked for ways to predict and control costs. One answer they came up with is managed care. Managed care can take many different forms—HMOs, PPOs, POS plans and PPGs are all examples of managed care programs. As a medical claims specialist, you need to become familiar with the requirements of the managed care programs you deal with. In order to do this, you should contact each program and get essential information. Then write this information down on a quick reference card that you can keep handy, whether in a computer file or nearby in a file cabinet. This card will help you as you work through claims for managed care.

Congratulations, you're doing great! In the next lesson, you'll continue to build your foundation of knowledge by exploring Medicaid and Medicare.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 5

# Medicaid and Medicare

---

## Step 1 Learning Objectives for Lesson 5

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Describe the Centers for Medicare and Medicaid (CMS).
    - Distinguish between Medicaid and Medicare.
    - Discuss Medicaid and some general guidelines for submitting Medicaid claims.
    - Explain the federal Medicare program.
    - Discuss the two-level HCPCS coding system.
    - Differentiate among Medicaid, Medicare, Medigap and Medi-Medi coverage and procedures.
- 

## Step 2 Lesson Preview

---

- ❑ Although many people have private insurance, a large group of Americans receive some of their health care benefits through government programs. These programs include Medicaid, Medicare, TRICARE and CHAMPVA, as well as workers' compensation and disability. In this lesson, you'll explore Medicaid and Medicare. We will explain how the two programs work and how you will deal with their requirements.



*Lesson 5 introduces you to government healthcare programs.*

You'll learn about Medicaid, a federal program run by individual states, in the first sections of this lesson, while later sections teach you about Medicare. Medicare is a federally funded program. Each of these government insurance programs has specific requirements regarding claims, eligibility and reimbursement. We will show you those requirements throughout this lesson and explain how to follow them. Ready to get started? Let's go!

---

### **Step 3 CMS**

---

- ❑ In 1977, the Department of Health and Human Services in 1977 established the Centers for Medicare and Medicaid Services (CMS), an agency of the federal government, to administer the Medicaid and Medicare programs. In the past, CMS was HCFA (Health Care Financing Administration). Although the name has changed, you may still see references to HCFA.

The headquarters for CMS is in Baltimore, Maryland, with ten regional offices nationwide. The headquarters is responsible for the two national health care programs, Medicaid and Medicare, which provide benefits to more than 75 million beneficiaries. CMS, in conjunction with the Health Resources and Services Administration, also runs the State Children's Health Insurance Program (SCHIP), which covers a large quantity of the almost 10 million uninsured children of the United States.

CMS mainly acts as a purchaser of healthcare services for the Medicaid and Medicare programs. The agency also assures that contractors and state agencies properly administer Medicaid and Medicare, assesses the quality of healthcare services and establishes policies for reimbursement to healthcare providers.

The 10 regional offices of CMS provide quality customer service and rights to affordable healthcare services. A list of the regional offices, along with the states and territories in each region, appears in the following chart.

<b>CMS Regional Offices</b>		
<b>Region I</b>	Boston CMS Regional Office John F. Kennedy Federal Building Room 2325 Boston, Massachusetts 02203-0003	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont
<b>Region II</b>	New York Regional Office 26 Federal Plaza, Room 3811 New York, New York 10278-0063	New Jersey, New York, Puerto Rico and Virgin Islands
<b>Region III</b>	Philadelphia Regional Office The Public Ledger Building 150 South Independence Mall West, Suite 216 Philadelphia, Pennsylvania 19106	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia and West Virginia
<b>Region IV</b>	Atlanta Regional Office Atlanta Federal Center 61 Forsyth Street, S.W. Suite 4T20 Atlanta, Georgia 30303-8909	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee
<b>Region V</b>	Chicago Regional Office 233 North Michigan Avenue Suite 600 Chicago, Illinois 60601	Indiana, Illinois, Michigan, Minnesota, Ohio and Wisconsin
<b>Region VI</b>	Dallas Regional Office 1301 Young Street, 8 <sup>th</sup> Floor Dallas, Texas 75202	Arkansas, Louisiana, Oklahoma, New Mexico and Texas
<b>Region VII</b>	Kansas City Regional Office Richard Bolling Federal Building 601 East 12 <sup>th</sup> Street, Room 235 Kansas City, Missouri 64106-2808	Iowa, Kansas, Missouri and Nebraska
<b>Region VIII</b>	Denver Regional Office 1961 Stout Street, Room 522 Denver, Colorado 80294-3538	Colorado, Montana, North Dakota, South Dakota, Wyoming and Utah
<b>Region IX</b>	San Francisco Regional Office 75 Hawthorne Street 4 <sup>th</sup> and 5 <sup>th</sup> Floors San Francisco, California 94105	California, Hawaii, Nevada, Arizona, American Samoa, Commonwealth of Northern Marianas Islands and Guam
<b>Region X</b>	Seattle Regional Office 2201 Sixth Avenue MS/RX-40 Seattle, Washington 98121-2500	Alaska, Idaho, Oregon and Washington



## Step 4 Medicaid

---

□ In 1965, Title XIX of the Social Security Act became federal law to establish Medicaid officially. Although Medicaid is a federally mandated program, each state runs its own Medicaid program. Federal and state governments jointly fund the Medicaid programs to assist states in providing adequate medical care to eligible needy persons. Medicaid is the largest government program providing medical and health-related services to those who cannot afford them.

Within the federal government guidelines, each state establishes its own eligibility standards; determines the type, amount, duration and scope of services; sets the rate of payment for services; and administers its own program.

Currently, 49 states have some form of Medicaid. In California, Medicaid is called *Medi-Cal*. Only Arizona does not have a true Medicaid program. Arizona has an alternative, prepaid medical assistance program for low-income persons. Arizona has special permission from the federal government for its unique health care program, which is called the *Arizona Health Care Cost Containment System (AHCCCS)*. This program meets the minimum federal standards, but is based on a different philosophy than traditional Medicaid.

Because Medicaid programs are run by individual states, the requirements for billing vary from state to state. As a medical claims and billing specialist, you will need to contact your state Medicaid administration to get your state's requirements. You can find additional information on your state's program at [www.cms.gov](http://www.cms.gov).

Although states administer Medicaid, the states don't financially support it entirely. Each state must provide a certain level of care for eligible participants in the Medicaid program due to the federal government's funding contribution to Medicaid and because Medicaid was established by the federal government. These levels are **minimum standards**, which mean that each participant in Medicaid must receive certain aspects of care. The federal government mandates the minimum standards, but states are free to exceed those standards and provide more care. This is the main reason Medicaid programs vary widely from state to state.

### Who is Eligible for Medicaid?

Although each state has some discretion in determining eligibility requirements for Medicaid recipients, states are required to provide Medicaid coverage to certain **categorically needy** groups of people, such as these:

- Low-income families with children
- Supplemental Social Security Income (SSI) recipients
- Infants born to Medicaid-eligible pregnant women
- Children under age six and pregnant women whose family income is at or below 133 percent of the federal poverty level
- Recipients of adoption assistance and foster care

In addition to the mandatory Medicaid eligibility requirements, states have the option to offer two additional categories of Medicaid recipients: “other” categorically needy recipients and medically needy recipients.

### **Additional Categorically Needy Groups**

The optional **categorically needy** groups share characteristics of the mandatory eligibility groups, but the eligibility criteria are more liberally defined. A few examples of these additional categorically needy groups include the following:

- Certain low-income children who would not otherwise qualify for mandatory Medicaid coverage
- Aged, blind or disabled adults whose incomes are above those requiring mandatory coverage, but are below the federal poverty level
- Low-income, uninsured women who need treatment for breast or cervical cancer

### **Medically Needy Groups**

Another optional group of Medicaid recipients is the *medically needy* or *medically indigent* group. **Medically needy** Medicaid recipients have too much income to qualify for the mandatory or optional categorically needy groups. These people earn enough money to pay for basic living expenses, but they cannot afford medical expenses. Medicaid helps these individuals meet medical costs. Some Medicaid recipients are required to pay a co-payment and/or coinsurance before they can

receive state benefits. A **co-payment** is a flat amount, such as \$10, that the insurance policy designates a patient must pay before the patient leaves the doctor's office. **Coinsurance** is a condition under some health insurance programs that requires the insured to assume a percentage of cost for covered charges. Some Medicaid recipients must pay a co-payment each month before receiving Medicaid benefits. It is important to obtain the co-payment when the patient is in for medical care.

Once Medicaid eligibility is determined, the state authorizes coverage for one month at a time, or up to six months. Eligibility may vary month to month, depending on the amount the recipient receives for income. All recipients receive a Medicaid identification card.

### **Medicaid Identification Cards**

For everyone eligible for Medicaid, the state issues either an identification card or coupon, which notes the person's classification of eligibility. States issue cards on the first and fifteenth of each month, every two months, every three months or every six months.

If you are working directly with patients, be sure to check the expiration dates on these cards before the patients receive any medical services. Cards or coupons should indicate whether patients have any other insurance, co-payment requirements, or restrictions on the types of services they are eligible to receive. Photocopy the front and the back of each card or coupon for each visit.

### **Services that Medicaid Covers**

According to federal guidelines, all Medicaid programs are required to pay for basic services. The following boxes show the services.

**Facts About Medicaid—  
Required Services for Categorically Needy Recipients**

Medicaid programs for the categorically needy must provide the following

basic services:

1. Laboratory and x-ray services
2. Inpatient hospital care
3. Outpatient hospital care
4. Physician's care, pediatric and nurse practitioner services, and where legal, midwife services
5. Medical and surgical dental services
6. Family planning services and supplies
7. Home health care
8. Care in a nursing facility
9. Rural health clinic services
10. Health center services
11. EPSDT (Early and periodic screening, diagnosis and treatment)

Number 11 above, *early and periodic screening, diagnosis and treatment* (EPSDT), benefits children. This program is designed to provide preventive services, early detection and treatment of children whose families receive Temporary Assistance for Needy Families ("TANF," formerly known as welfare). Services include medical history, physical examination, assessment of development and immunization status, screening of anemia, lead absorption, tuberculosis, sickle cell trait and disease and dental, hearing and vision problems.

**STATE OF COLORADO DEPARTMENT OF HEALTH CARE POLICY AND FINANCING**

INVOICING/ACCT NUMBER

**EPSDT CLAIM**

1. CLIENT NAME (LAST, FIRST, MI.) \_\_\_\_\_ 2. CLIENT ID NUMBER \_\_\_\_\_ 3. DATE OF BIRTH \_\_\_\_\_ 4. SEX  M  F

MO \_\_\_\_\_ DAY \_\_\_\_\_ YR \_\_\_\_\_

**5. SCREENING**

N = PERFORMED, NORMAL      R = PERFORMED, REFERRED  
A = PERFORMED, ABNORMAL      LEAVE (BLANK IF NOT PERFORMED).  
T = PERFORMED, TREATED

ITEM NO.	SCREENING ITEMS	RESULTS
01	MEDICAL HISTORY OBTAINED?	
02	PHYSICAL EXAMINATION?	
<b>ASSESSMENTS PERFORMED</b>		
03	VISION	
04	HEARING	
05	DENTAL	
06	DEVELOPMENTAL (PHYS. GROWTH/EMOTIONAL DEV./LEARNING)	
07	NUTRITIONAL/GASTROINTESTINAL	
08	CARDIOVASCULAR/RESPIRATORY	
09	GENITAL/URINARY TRACT	
10	DIABETES	
11	IMMUNIZATION	
12	EDUCATION	
13	OTHER SCREEN	
<b>LAB TESTS PERFORMED</b>		
01	HGB/HCT	
02	URINALYSIS	
03	SICKLE CELL	
04	BLOOD LEAD	
05	TB	
06	OTHER LAB	

**6. OTHER INSURANCE**

OTHER INSURANCE?  YES  NO  
INSURANCE PAID/DENIED  PAID  DENIED  
DATE INSURANCE PAID/DENIED \_\_\_\_\_  
INSURANCE COMPANY NAME/ADDRESS \_\_\_\_\_  
INSURANCE POLICY NUMBER \_\_\_\_\_  
INSURANCE GROUP NUMBER \_\_\_\_\_  
POLICYHOLDER NAME / ADDRESS \_\_\_\_\_  
EMPLOYER NAME \_\_\_\_\_

**7. DIAGNOSIS ICD-9-CM**      DESCRIPTION

1		_____
2		_____
3		_____
4		_____

IN COLUMN 13, RELATE DIAGNOSIS TO PROCEDURE BY REFERENCE NUMBERS 1, 2, 3, OR 4

8. LINE NO.	9. DATE OF SERVICE			10. PLACE OF SERVICE	11. PROCEDURE CODES	12. MODIFIER		13. DIAGNOSIS RELATED			14. UNITS OF SERVICE	15. CHARGES	16. COMMENTS
	MO	DAY	YR			1	2	P	S	T			
01													
02													
03													
04													
05													
06													
07													
08													
09													
10													

17. NAME PHYSICIAN OR AGENCY	DIAGNOSIS RELATED: RELATE DIAGNOSIS IN FIELD 7 TO PROCEDURE BY REFERRING TO NUMBERS 1, 2, 3, OR 4	21. TOTAL CHARGES	24. REFERRING PROVIDER ID
	18. BILLING PROVIDER ID	22. INS AMOUNT PAID	25. REFERRING PROVIDER ID
19. SIGNATURE (SUBJECT TO CERTIFICATION ON REVERSE SIDE)	20. DATE SIGNED	23. NET CHARGE	26. SUPERVISING PROVIDER ID

FORM # 1001B (REV. 5/98)

*In the State of Colorado, providers must file a special EPSDT claim.*

## Facts About Medicaid—Required Services for Medically Needy Recipients

Medicaid programs for the medically needy must provide these minimum services:

1. Prenatal care and delivery services for pregnant women
2. Outpatient services for children under age 18
3. Home health care

#### 4. Certain services for the mentally retarded

States may choose to increase benefits and cover more services, but they are not required to do so. Additional medical services that may be covered by Medicaid include the following.

#### **Facts About Medicaid—Some Additional Services**

Some states cover nonrequired services, such as:

- ✓ Ambulance service
- ✓ Dental care
- ✓ Prescription drugs
- ✓ Chiropractic care
- ✓ Emergency room care
- ✓ Optometric service, eyeglasses and eye refractions
- ✓ Prosthetic devices
- ✓ Mental health care
- ✓ Allergy care
- ✓ Clinic services
- ✓ Dermatologic care
- ✓ Podiatry care
- ✓ Diagnostic, screening, preventive and rehabilitative services (physical therapy)
- ✓ Psychiatric care
- ✓ Private duty nursing

---

### **Step 5 Filing Medicaid Claims**

---

As we stated earlier in this lesson, Medicaid is a state-administered program.

Therefore, there are many different sets of regulations for Medicaid claims. In order to ensure you follow the correct set, be sure to get and use the Medicaid Handbook for your particular state. This section presents some general guidelines for submitting Medicaid claims.

Physicians who choose to participate in the Medicaid program agree to participate in the entire program of their particular state. Physicians agree to accept as payment in full Medicaid reimbursements for covered services. The physician usually writes off the difference between the fees normally charged by the physician and the amount reimbursed by Medicaid as a loss. If Medicaid does not cover services, however, physicians are within their legal rights to bill patients for payment.

Most Medicaid claims are required to be processed using the CMS-1500 form. You've already seen the CMS-1500 form in previous lessons, and in later lessons you'll learn how to fill it out.

Although the CMS-1500 form is the standard, a few states use a slightly different form. For example, Colorado uses a Medicaid form called the Colorado 1500. All claim forms must conform to very strict standards and will appear very similar to the CMS-1500 claim form. Since Medicaid is a state-administered program, each state's requirements will vary. Be sure to contact your local Medicaid office for guidelines.

## **Preauthorization**

Some states require preauthorization for specific services. **Preauthorization** is the review of proposed treatment by Medicaid in order to determine whether the treatment is appropriate. The process varies from state to state. Some states require telephone preauthorization while others require a written preauthorization form. Some benefits are denied or reduced if you don't obtain preauthorization for a procedure that requires it.

When it is not possible to obtain prior authorization for the medical care and services needed, obtain immediate approval through a telephone call to your local Medicaid office. Be sure to make a note of the date the authorization was given, the name of the person with whom you spoke and any verbal authorization number given to you by the Medicaid office.

Your state Medicaid office can give you a complete list of services and procedures

that require preauthorization, but here are a few of the procedures commonly requiring preauthorization.

### **Facts About Medicaid—Preauthorization**

Some of the services and procedures that require preauthorization are:

- ✓ Medications
- ✓ Medical supplies
- ✓ Home health care
- ✓ Hemodialysis
- ✓ Hearing aids
- ✓ Some vision care
- ✓ Surgical procedures
- ✓ Inpatient hospital care
- ✓ Durable medical equipment
- ✓ Long-term care facility services
- ✓ Prosthetic appliances
- ✓ Transportation

### **Time Limits and Appeals**

Whether you are filing a claim or appealing an action taken by Medicaid, you have a limited time to do so. Each state has its own time limit for the submission of a claim. Depending on the state in which you live, the time limit varies from two months to one year from the date that the patient received medical services and/or care. For example, in Colorado the Medicaid claim must be filed within 120 days of the date of service.

When you appeal an action by Medicaid, you have between 30 and 60 days from receipt of the denial to file the appeal, depending on the state. Appeals should include a cover letter and photocopies of the original claim form, any preauthorization forms and the explanation of benefits received. First, the regional fiscal intermediary reviews appeals, and then the Department of Welfare. At each



level, an examiner reviews the case and makes a decision.



*States have time limits for claim submission.*

Time limits on filing claims and appeals prevent “stale” claims and long, drawn-out appeals. Find out your state’s requirements on filing claims and file claims promptly.

## Reciprocity

We know Medicaid is a state-administered program. So what happens if a Medicaid recipient requires medical attention in another state? Let’s say George Mason, who is 47 and is a Medicaid recipient, travels outside his home state to look for a job. While he is in the other state, he gets ill. Who pays? The answer is, his home state Medicaid program pays. It is up to the medical claims and billing specialist to request the proper forms from George’s home state. In these circumstances, you would contact the Medicaid intermediary in the patient’s home state.

**Reciprocity** is the process of a home state paying a claim for a medical situation that occurred in another state. Most Medicaid programs have reciprocity provisions.

## Explanation of Benefits

When you receive a Medicaid payment, an *explanation of benefits (EOB)* accompanies it. The **explanation of benefits** is a document explaining exactly what actions Medicaid took on a particular claim.

The actions explained in an EOB include approvals, denials, adjustments, suspends and audit/refunds. An **approval** occurs when an original claim or payment is approved for a previously denied claim. The EOB lists all denied claims, or **denials**, and should be researched and resubmitted immediately if necessary. **Adjustments**

can occur from overpayments or underpayments, or actions taken from appealed claims.

The EOB also lists suspended claims, or **suspends**, and are due to a claim in review or are waiting to receive additional information. **Audit/refund** transactions are miscellaneous transactions due to cost settlements, state audits or refund checks received.

As the medical claims and billing specialist, you should review the Medicaid explanation of benefits one line at a time to understand the reimbursement of benefits for each patient.

### **Third Party Liability**

It is possible for a person who is eligible for Medicaid to have additional health insurance from an insurance plan through an employer or another government program. The other insurance program is the primary carrier in these cases. Medicaid becomes the secondary carrier.

You will file the claim first with the primary carrier. After receiving an explanation of benefits (EOB) from the primary carrier, you will then submit a claim to Medicaid, enclosing a copy of the EOB from the primary carrier.



**Please pause and complete online Practice Exercise 5-1.**

---

## **Step 6 Medicare**

---

- Medicare is a federally administered, federally funded health insurance program. Medicare is administered by the Centers for Medicare & Medicaid Services (CMS). The Social Security Administration provides information about the program and handles enrollment for eligible individuals.

There are different kinds of Medicare coverage:

- Part A, Hospital Insurance

- Part B, Medical Insurance
- Part D, Prescription Drug Coverage

Medicare Part A is financed by the Social Security payroll withholding tax paid by workers and their employers. Medicare Part B is financed by monthly premiums paid by people who choose to enroll in the program.

### Who is Eligible for Medicare?

Medicare beneficiaries are people who meet at least one of the criteria described here.

#### **Facts About Medicare—Who Qualifies?**

People who qualify for Medicare must be one or more of the following:

1. Age 65 or older, retired on Social Security, railroad or civil service retirement
2. Blind
3. Disabled and eligible for Social Security disability benefits and, further, belong in one of these categories:
  - a. Disabled workers (any age)
  - b. Disabled widows or widowers of workers who are currently or fully insured through Social Security, civil service, the federal government or the Railroad Retirement Act and whose spouse had qualified for benefits under one of these programs
  - c. Adults disabled as minors (under 18 years of age), whose parents are on or eligible for Social Security
  - d. Children and adults with end-stage renal disease
  - e. Kidney donors

Individuals who apply for Social Security early, at 62 years of age, do not receive Medicare benefits; they are eligible for Medicare Parts A and B when they become 65 years of age. Certain aged or disabled people who do not qualify for Medicare Part A

may be able to get it by paying a monthly premium.

## Medicare Identification Card

The Medicare patient identification card lists all the information that you, as a claims specialist, need from the patient.

The card is red, white and blue, and cards issued after 1990 are plastic. The Medicare card lists the type of coverage (Part A, Part B or both) and the length of time Medicare has covered the patient. The card also lists a claim number. Copy the claim number exactly onto the patient's insurance claim form.

This is the patient's health insurance claim number. It must be on all Medicare claims.

This shows hospital insurance coverage.

This shows medical insurance coverage.

The dates the insurance starts are shown here.

MEDICARE HEALTH INSURANCE	
HEALTH CARE FINANCING ADMINISTRATION	
NAME OF BENEFICIARY <b>MARA L PETERS</b>	
MEDICARE CLAIM NUMBER <b>555-33-3333-A</b>	SEX <b>FEMALE</b>
IS ENTITLED TO <b>HOSPITAL MEDICAL</b>	EFFECTIVE DATE <b>(PART A) 04-01-20XX (PART B) 04-01-20XX</b>
SIGN HERE → <i>Mara L. Peters</i>	

The letters following the Medicare claim number (555-33-3333-A) on the identification card indicate the following:

- A Primary claimant (wage earner)
- B Wage earner's number (spouse is 62 years or older)
- C Child—includes minor, student or disabled child
- D Spouse of deceased wage earner
- T Uninsured and entitled only to health insurance benefits
- HA Disabled claimant (wage earner)

Any letters preceding the Medicare claim number (A000-00-0000) on the identification card indicate railroad retirees and such family members as the following:

A	Retired railroad employee
CA	Child
MA	Spouse of retired railroad employee
WA/WD	Widow or widower of deceased employee
WCA/WCD	Widow or widower of retiree with child or disabled child of deceased employee
JA	Widow or widower receiving a joint and survivor annuity

---

## Step 7 Services that Medicare Covers

---

Now that you're familiar with Medicare, let's examine some of its services.

### Medicare Part A

Medicare Part A helps pay for medically necessary inpatient care in a general hospital, skilled nursing facility care, home health care, hospice care and blood (during a covered stay).

Hospital services include a semiprivate room and board, general nursing and other hospital services and supplies.

Skilled nursing facility care includes a semiprivate room and board, skilled nursing and rehabilitative services and other services and supplies. The patient must have been in a hospital for at least three days and entered a Medicare-approved facility.

Home health care includes part-time or intermittent skilled care, home health aide services, durable medical equipment and supplies and other services, if medically necessary.

Hospice care includes pain relief, symptom management and support services for the terminally ill.

Blood is included when furnished by a hospital or skilled nursing facility during a

covered stay, if the blood is medically necessary.

<b>Medicare Part A (Hospital Insurance) Summary of Benefits Based on Data for 2011</b>			
<b>Services</b>	<b>Benefit</b>	<b>Medicare Pays</b>	<b>Patient Pays</b>
Hospitalization	First 60 days	All but \$1132	\$1132
	61 <sup>st</sup> - 90 <sup>th</sup> day	All but \$283 per day	\$283 per day
	91 <sup>st</sup> - 150 <sup>th</sup> day	All but \$566 per day	\$566 per day
	Beyond 150 days	\$0	All costs
Skilled nursing facility care	First 20 days	All costs	\$0
	21 <sup>st</sup> - 100 <sup>th</sup> day	All but \$141.50 per day	\$141.50 per day
	Beyond 100 days	\$0	All costs
Home health	Unlimited, if care medically necessary	All costs for services	\$0
		80% of durable medical equipment costs	20% of durable medical equipment costs
Hospice care	Terminally ill with an expectancy of only 6 outpatient months to live	All but a small co-payment for outpatient drugs and inpatient respite care	Balance
Blood service	Unlimited, if medically necessary	All but first three pints per year	First three pints per year unless patient arranges for replacement blood donation

*The monetary values are evaluated each year by the federal government and are subject to change.*

## **Medicare Part B**

Medicare Part B helps pay for a wide range of medical services and supplies not covered by Medicare Part A. Part B helps pay for medical expenses, clinical laboratory services, home health care, outpatient hospital treatment and blood, if medically necessary.

Medical expenses include physician's services, inpatient and outpatient medical and surgical services and supplies, physical and speech therapy, diagnostic tests, durable medical equipment and more.

Clinical laboratory services include blood tests, urinalysis, mammograms, Pap smears and more.

Home health care includes part-time or intermittent skilled care, home health aide services, durable medical equipment and supplies, if medically necessary.

Outpatient hospital treatment includes services for the diagnosis or treatment of an illness or injury.

Blood is included when furnished by a hospital or skilled nursing facility, if the blood is medically necessary.

<b>Medicare Part B (Medical Insurance) Example of Benefits Based on Data for 2011</b>			
<b>Services</b>	<b>Benefit</b>	<b>Medicare Pays</b>	<b>Patient Pays</b>
Medical expenses	Unlimited, if medically necessary	80% of approved amount after \$162 deductible; and  50% of approved amount for most outpatient mental health services	\$162 deductible and 20% of Medicare approved amount  50% for outpatient mental health services
Laboratory services	Unlimited, if medically necessary	Generally, 100% of Medicare covered lab services	Nothing for services
Home health care	Unlimited, if Medicare requirements are met	100% of approved amount; 80% of Medicare-approved amount for durable medical equipment	Nothing for services; 20% of Medicare-approved amount for durable medical equipment
Outpatient hospital services	Unlimited, if medically necessary	80% of approved amount for the doctor, or the remainder after the co-payment for other services	20% of approved amount for the doctor, or the co-payment for other services
Blood service	Unlimited, if medically necessary	80% of approved amount starting with 4 <sup>th</sup> pint	First three pints plus 20% of approved amount for additional pints unless patient arranges for donation of replacement blood

*The monetary values are evaluated each year by the federal government and are subject to change.*

## **Medicare Part D**

In 2006, Medicare implemented a program that includes prescription drug coverage, called Medicare Part D. The program won't cover all of the costs associated with

prescription drugs, but assists in the yearly out-of-pocket expenses.

Medicare doesn't directly provide the coverage, but instead by private insurance companies from each state. As a result, participants each choose a plan that best serves their needs. Although each plan varies in premiums and co-payments, the general coverage and costs are as follows:

- A monthly premium ranging from \$8.00 to \$32.00
- A deductible of \$250.00
- After the deductible is met a co-payment ranging from \$5.00 per prescription to 25 percent of the cost of the prescription
- After \$2,250.00 of coverage is provided, 100 percent of the prescription costs are paid by the participant until a cap of \$5,100.00 is reached.
- After the cap of \$5,100.00 has been reached then a co-payment of five percent of the prescription cost is paid by the insured.

Additional financial help is available for those with low incomes. If qualified, the deductible is waived, the premium is waived, and the co-payments are reduced. This allowance was made to cover those patients who previously received drug coverage from Medicaid, and will now be required to switch to Medicare Part D. States will no longer provide drug coverage through Medicaid.

---

## Step 8 Filing Medicare Claims

---

- ❑ As you now know, Medicare is a federally funded health insurance program administered by CMS. It's now time to look at how to file Medicare claims.

Submit Medicare claims for physician services with the carrier designated for your region. When you file with Medicare, you use the CMS-1500 claim form. Filing Medicare claims is similar to filing claims for other insurance carriers. However, the federal government developed the **Healthcare Common Procedure Coding System (HCPCS)** for the Medicare program. HCPCS consists of two levels:

- Level I CPT codes



## ➤ Level II HCPCS codes

We'll talk more about HCPCS coding later, but remember when you are filing Medicare claims, it's important to contact your state Medicare carrier to know what level of procedure codes are required in your state.

## Fiscal Agents and Fiscal Intermediaries

**Fiscal agents** are organizations under contract with the government to handle claims from physicians and other suppliers of services covered under Medicare Part B.

**Fiscal intermediaries** are organizations under contract with the government to handle claims from hospitals, skilled nursing facilities, long-term care facilities and home health agencies. The National Blue Cross and Blue Shield Association holds the fiscal intermediary contract to handle claims for services covered under Medicare Part A.

## Participating Physicians

A physician who agrees to accept payment from Medicare signs a Medicare-participating agreement and agrees to accept assignment on all Medicare claims. A PAR provider is a physician who participates with Medicare and a physician who does not participate is called a non-PAR provider.

Medicare payments are based on specific criteria, including approved charges. An **approved charge** would be whichever charge is the lowest of the following three charges.

- Customary charge—the amount a physician would normally charge for a specific service.
- Prevailing charge—an amount based on customary charges of physicians in the same geographical area.
- Actual charge—the amount the physician actually charges on the Medicare claim.

Physicians who accept assignments agree to the approved charges as payment in full

for the procedure or service. The physician may bill for coinsurance and deductibles, as well as for services not covered by Medicare. However, the physician may not collect excess charges, defined as any charges higher than the amount allowed by Medicare for a specific covered service.

Physicians do not currently have to accept assignment for Medicare. They may choose to accept assignment on a case-by-case basis, or for certain services and not others. Regardless of the physician's acceptance or non-acceptance, Medicare will pay only the allowable charge.

### **National Provider Identifier (NPI)**

National provider identifier (NPI) is a part of the Health Insurance Portability Accountability Act. This act requires each physician to apply for a nationally assigned identification number. In the past, each insurance carrier would assign a participating physician a personal identification number (PIN). You can imagine this would be confusing, especially if the physician participated with a number of carriers. NPI simplifies the process by assigning a single national identification number.

The NPI is a 10-digit number assigned by CMS (Centers for Medicare and Medicaid Services). A physician must submit an application to CMS to have a national provider identification assigned. The CMS-1500 and UB-04 claim forms use this number for identification purposes.

### **The Claim Form**

When you file with Medicare, you use the CMS-1500 claim form. Medicare regulations require all physicians who treat Medicare beneficiaries to file the claim form for their patients, whether the physician accepts assignment or not.



*Whether or not a physician accepts Medicare assignment, she must file a claim form for any Medicare patients she treats.*

## **Preauthorization**

Many insurance carriers that have contracted with Medicare will require preauthorization on some procedures. Some of these procedures are on a mandatory list, and others are chosen by the regional carrier that will require preauthorization. If you do not obtain preauthorization for a procedure that requires it, benefits will be denied.

When it is not possible to obtain preauthorization for the medical care and services rendered, immediate approval can be obtained by a telephone call to your local Medicare office. Be sure to make a note of the date the authorization was given, the name of the person with whom you spoke and any verbal authorization number that was given to you by the Medicare office.

Your state Medicare office can give you a complete list of services and procedures that require preauthorization.

### **Facts About Medicare—Preauthorization**

Some of the procedures that require preauthorization are:

- ✓ Cataract extractions
- ✓ Cholecystectomy
- ✓ Joint replacements (hip, shoulder, knee)
- ✓ Coronary artery bypass graft

- ✓ Inguinal hernia repair
- ✓ Bunionectomy
- ✓ Hysterectomy

## Time Limits and Appeals

File Medicare claims within one year of the dates of the performed services. This means that if Mary receives services in February 2010, then you must file with Medicare by the end of February 2011. The filing deadline is extended another full year if the service was provided in the last three months of the calendar year. If you fail to file by the deadline, Medicare will deny the claim. Additionally, the physician is liable for significant monetary penalties for failing to file a Medicare claim.

### Dates of Service

Jan. 1, 2010—Sep. 30, 2010

Oct. 1, 2010—Dec. 31, 2010

### Last Filing Date

Jan. 1, 2011—Sep. 30, 2011

Oct. 1, 2012—Dec. 31, 2012

When you appeal an action by Medicare, you must do so within 60 days of the date you received the notice of denial. Unless you can prove otherwise, Medicare deems that you received the denial notice five days after the date on it. If you should need more than 60 days to file the appeal, you can request more time from the intermediary at the Medicare office. You will be notified in writing of the time granted you.

## Explanation of Benefits

When you receive a payment, it's accompanied by an **Explanation of Medicare Benefits (EOMB)**. This form will explain the actions Medicare took on the submitted claim. This form may also be called the Medicare Summary Notice (MSN).

The EOMB includes the amount billed, amount approved, deductible and/or coinsurance that the patient is responsible for, and reductions or denials of charges. Match the code number on the claim with the code number on the back of the EOMB

to quickly explain reductions and denials. Reasons for reductions and denials can vary from the fact that the claim was filed after the time limit to the care not being covered. Review this example of an EOMB.

**Transamerica Occidental Life**      **EXPLANATION OF MEDICARE BENEFITS**  
 Transamerica Occidental Life Insurance Company

\*22313 M3216      **FAM PRAC KED**      **SEP 19, 20XX**

PERFORMING SUPPLIER	CONTROL NUMBER	NO. OF	DATE	PROCEDURE	AMOUNT	REDUCTIONS	DEDUCTIBLE	COINSURANCE	PAYMENT
L. WILSON	EX 544455	08-19	18-XX	93000	63.00	26.00	37.00	0.00	27.00
M. WIZELLE	EX 128	09-05	05-XX	99000	17.00	3.00	14.00	0.00	14.00
M. WIZELLE	EX 915	08-25	25-XX	9070	66.00	41.30	24.70	0.00	24.70
R. WALL	EX 128	08-08	08-XX	90880-32	38.00	28.00	10.00	0.00	10.00
<b>TOTALS</b>					<b>325.00</b>	<b>180.85</b>	<b>144.15</b>	<b>0.00</b>	<b>144.15</b>

NOTE: CLINICAL LABORATORY PROCEDURES WERE PAID AT 100% OF THE APPROVED AMOUNT.  
 A NEW LHM HAS REDUCED YOUR MEDICARE PAYMENT BY 1% FOR SERVICES FROM 09/01/XX THROUGH 09/30/XX

ON QUESTIONS RELATED TO THIS PAYMENT:      **TOTALS**      304.00      316.20      5.00      80.84      292.71

No 208044826

1. Date of check and statement.
2. Patient's name and Medicare number.
3. Number of supplier performing services if not the same as the physician/supplier billing for the services.
4. Claim control number. Refer to this number when inquiring about a particular claim.
5. Special notation, when applicable. (Here, the Medi-Cal number is listed.)
6. Procedure code-modifier. These codes and modifiers describe services rendered as billed by you.
7. Reductions or denials of charges can be explained by matching these numbers to the numbered explanations on the back of the EOMB.
8. Deductible. This column lists any deductible applied for claims included on this statement.
9. Co-insurance. This column lists the 20% co-insurance amount for claims included on this statement.
10. Number of claims. This figure represents the total number of claims included on this statement.
11. Amount of check. This is the total amount of the check attached and represents payment for all claims included on the statement.
12. This is the check number on the payment issued for the claims included on this statement.

## Advance Beneficiary Notice (ABN)

When providing care for a Medicare patient, the physician may recommend a procedure that is not covered by Medicare. These items can include routine physicals, some screening tests, hearing aids, dental care, dentures, routine foot care, cosmetic surgery, some vaccinations, and comfort items. In these cases, in order to allow the patient to make an informed decision regarding their care, Medicare requires that the physician inform the patient of the service not being a part of their coverage. Medicare has provided a form called an advance beneficiary notice, ABN. The ABN informs the patient of the procedure, and explains why it is not covered. The patient can then either decide to receive the service and consent to payment, or decide not to receive the service. Once decided, the patient then must sign the form. Review this example of an ABN.

A. Notifier:

B. Patient Name:

C. Identification Number:

### Advance Beneficiary Notice of Noncoverage (ABN)

**NOTE:** If Medicare doesn't pay for D. \_\_\_\_\_ below, you may have to pay. Medicare does not pay for everything, even some care that you or your health care provider have good reason to think you need. We expect Medicare may not pay for the D. \_\_\_\_\_ below.

D.	E. Reason Medicare May Not Pay:	F. Estimated Cost

**WHAT YOU NEED TO DO NOW:**

- Read this notice, so you can make an informed decision about your care.
- Ask us any questions that you may have after you finish reading.
- Choose an option below about whether to receive the D. \_\_\_\_\_ listed above.

**Note:** If you choose Option 1 or 2, we may help you to use any other insurance that you might have, but Medicare cannot require us to do this.

**G. OPTIONS: Check only one box. We cannot choose a box for you.**

**OPTION 1.** I want the D. \_\_\_\_\_ listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn't pay, I am responsible for payment, but I **can appeal to Medicare** by following the directions on the MSN. If Medicare does pay, you will refund any payments I made to you, less co-pays or deductibles.

**OPTION 2.** I want the D. \_\_\_\_\_ listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment. I **cannot appeal if Medicare is not billed.**

**OPTION 3.** I don't want the D. \_\_\_\_\_ listed above. I understand with this choice I am not responsible for payment, and I **cannot appeal to see if Medicare would pay.**

**H. Additional Information:**

This notice gives our opinion, not an official Medicare decision. If you have other questions on this notice or Medicare billing, call **1-800-MEDICARE** (1-800-633-4227/TTY: 1-877-486-2048).

Signing below means that you have received and understand this notice. You also receive a copy.

<b>I. Signature:</b>	<b>J. Date:</b>
----------------------	-----------------

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0938-0566. The time required to complete this information collection is estimated to average 7 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. If you have comments concerning the accuracy of the time estimate or suggestions for improving this form, please write to: CMS, 7500 Security Boulevard, Attn: PRA Reports Clearance Officer, Baltimore, Maryland 21244-1850.

Form CMS-R-131 (03/11)

Form Approved OMB No. 0938-0566

## Medicare Preventive Services

**Preventive services** are procedures that are provided in order to detect the early onset of an illness. Detecting illnesses such as cancers in their early stages save lives and health insurance costs. In recognizing the need for preventive medicine, Medicare provides coverage for a variety of preventive services. Medicare Preventive Services at the time of this printing include the following:

- Initial preventive physical exam
- Blood test for cardiovascular screening
- Test for screening diabetes
- Bone mass measurements

- Cancer screening
- Mammography
- Pap tests
- Pelvic exams
- Prostate exams
- Fecal occult blood tests
- Sigmoidoscopy
- Colonoscopy
- Double contrast barium enema
- Glaucoma screening
- Immunizations
- Nutritional therapy
- Diabetes self-management

Every one of these services has its own requirements, eligibilities and levels of coverage. For example, Medicare provides coverage for a mammogram yearly for any female beneficiary over the age of 40. Pap smears are covered for all low-risk females every other year and yearly for those who are in a high-risk category. Services such as bone mass measurements and glaucoma screening require the patient to exhibit risk factors before Medicare will cover these services.

Medicare provides for the first initial preventative physical exam (IPPE) as a person is newly eligible for Medicare. It is known as the “Welcome to Medicare” exam. Beyond this initial exam, Medicare does not cover annual physicals.

If you would like to have more information on all of these services, their requirements, and coverage you may wish to visit the CMS Web site at [www.cms.gov](http://www.cms.gov).

### **Medicare Fraud and Abuse**

The U.S. General Accounting office estimates that \$1 out of every \$10 spent on Medicare and Medicaid is lost to fraud and abuse. With the increasing costs

associated with health care, the reduction of fraud and abuse has become a point of focus for CMS.

Fraud examples:

- Billing for services or supplies that were not provided
- Altering claims to obtain higher payments
- Soliciting, offering or receiving a kickback, bribe or rebate
- Provider providing services for fictitious patients
- Using another person's Medicare card to obtain medical care

Abuse examples:

- Excessive charges for services or supplies
- Claims for services that are not medically necessary
- Breach of the Medicare participation or assignment agreements
- Improper billing practices including billing Medicare when Medicare is not primary.

Fraud and abuse can be reported to the Office of Inspector General, OIG. This governing body then makes a decision as to the penalty. The penalty can be monetary, criminal, administrative or a combination of any of the three. The Office Inspector General is also responsible to notify the state intermediaries of any new scams.

You as a medical billing professional, need to be sure you are coding properly, that you are not billing for medically unnecessary services, that the Medicare patient is who they say they are, and that you are using an appropriate fee schedule. Keep in mind you are human and may make a mistake from time to time. Medicare is not looking for you, they are looking for those who are purposely defrauding the system.

---

## **Step 9 Supplemental Insurance**

---

❑ People often have unique insurance needs. In this section, you'll explore several types



of supplemental insurance, including Medigap and Medi-Medi.

## **Medigap or Supplemental Insurance**

Medicare coverage is often not enough for many patients. Because of this, people sometimes buy supplemental insurance for Medicare. This coverage is usually purchased from a third-party private insurance company and, because it fills the gaps in Medicare, it is called **Medigap**.

Medigap and other specialized insurance policies pay for the expenses that are not covered by Medicare Parts A and B. The supplemental policies do not duplicate Medicare coverage. Insurance companies that offer supplemental Medicare policies must comply with federal government standards. The physician receives Medigap and other supplemental insurance benefit payments directly.

When a patient has Medigap insurance, you still bill Medicare as the primary carrier. From there, Medicare will send the claim on to the Medigap carrier. When the explanation of Medicare benefits (EOMB) arrives, it usually has a note that states the claim was sent to the supplemental carrier for any additional benefits.

Many times, you will bill Medicare as the primary carrier. However, there are times when Medicare is considered a supplemental carrier. Here are some situations that indicate that Medicare is the supplemental, rather than the primary, carrier.

### **Facts About Medicare as a Supplemental Carrier**

Medicare is the supplemental carrier when:

- ✓ The patient is covered by an employer's group health plan or spouse's insurance.
- ✓ The services or treatments are for a work-related illness or injury covered by workers' compensation.
- ✓ No-fault liability insurance covers the services or treatments (in the case of an automobile accident, for example).
- ✓ A patient with permanent kidney failure is covered by an employer group health plan.

## Medi-Medi (Medicare/Medicaid)

Medicare and Medicaid both cover some patients. People who qualify for Old Age Security assistance benefits, the severely disabled and the blind qualify for both Medicare and Medicaid.

Submit claims for Medi-Medi patients to Medicare first. These claims are automatically processed by Medicaid once Medicare completes its processing. You should follow the Medicaid guidelines for filing claims.

---

## Step 10 State Children's Health Insurance Program (SCHIP)

---

- ❑ The State Children's Health Insurance Program (SCHIP) was initiated in 1998. It is a jointly financed program between the federal government and each individual state. The SCHIP provides healthcare coverage for low-income families who do not qualify for Medicaid.

Each state has its own guidelines and eligibility rules, but in general, the standard requires the insured to be under the age of 19 and the families' earnings to be less than \$36,200 for a family of four. The program generally covers doctor visits, immunizations, hospitalizations, and emergency room visits. In some states, the program also includes dental care.



**Please pause and complete online Practice Exercise 5-2.**

---

## Step 11 Lesson Summary

---

- ❑ The Centers for Medicare & Medicaid Services administers both federally funded Medicare programs and state-run Medicaid programs. Medicaid covers low-income people. Each state's Medicaid program must meet minimum standards set forth by the federal government.

Medicare Part A is free for eligible recipients and covers hospitalization charges. Medicare Part B is available for an additional premium and covers physician's services, inpatient and outpatient services and supplies. As a medical billing specialist, it is important to keep up to date with both Medicaid and Medicare billing procedures. Both programs currently use the CMS-1500 or a similar form for claim submission.

Some people also have supplemental insurance coverage, referred to as Medigap. Medi-Medi patients are patients who are covered by both Medicaid and Medicare.

In the next lesson, you'll wrap up learning about healthcare programs by exploring military insurance, workers' compensation and COBRA.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 6

# Military Insurance, Workers' Compensation and COBRA

---

## Step 1 Learning Objectives for Lesson 6

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Define the three options of medical coverage offered through TRICARE.
    - Explain CHAMPVA and who is eligible for coverage.
    - Describe workers' compensation and its features.
    - Differentiate between workers' compensation and disability insurance.
    - Determine the steps required for filing claims in special insurance situations.
- 

## Step 2 Lesson Preview

---

- ❑ There are special insurance situations that have specific coverage programs. Families of military personnel, for example, may qualify for either the TRICARE or CHAMPVA programs. Employees injured on the job receive workers' compensation. People who are unable to work in their present job or skill anymore because of an injury often receive benefits from disability insurance.



*The government offers healthcare programs to families of military personnel.*

As a medical claims specialist, you will run into situations such as the ones described above. This lesson gives you the knowledge necessary to complete and file claims for healthcare providers that treat patients who receive benefits through one or more of these special insurance situations. Let's dive in and learn about TRICARE!

---

### Step 3 TRICARE

---

❑ TRICARE is the name of the Department of Defense (DOD) regionally managed healthcare program for military service families. **TRICARE** provides healthcare options for the families of military service members. These family members are **beneficiaries**. The service member is the **sponsor**, and can be active-duty, retired or deceased.

In the past, TRICARE didn't cover the sponsor (service member) because the sponsor was provided medical services on the military base on which he/she was stationed. However, due to recent defense budget cutbacks, some military bases have closed their medical facilities. Now, some service members *are* covered by TRICARE, but only if their base does not provide medical services.

As its name suggests, TRICARE has three options: TRICARE Standard, TRICARE Extra and TRICARE Prime. We will discuss these shortly. First, though, let's discuss CHAMPUS, the forerunner of TRICARE Standard.

## CHAMPUS

**CHAMPUS**, which stands for **Civilian Health and Medical Program of the Uniformed Services**, was established in 1966 to provide healthcare coverage for the families of members of the uniformed services. CHAMPUS was developed to control the rising costs of healthcare coverage and to standardize healthcare benefits. Many changes have taken place in the military healthcare system in the past several years. The most important of these changes is the transition from CHAMPUS to the TRICARE healthcare system. Although this transition has officially taken place, you'll still see references to CHAMPUS in your work as a medical claims specialist.

---

### Step 4 CHAMPVA

---

- ❑ In 1973, the Veterans Health Care Expansion Act created CHAMPVA. **CHAMPVA**, which stands for **Civilian Health and Medical Program of the Veterans Administration**, provides health care for families of veterans with permanent, service-connected disabilities. This includes the families of veterans who have died because of a service-connected disability.

A veteran is a person who has served in a uniformed service for the United States, who is no longer in the service and who has received an honorable discharge.

Although very similar to TRICARE Standard in terms of benefits, it is important to note that CHAMPVA is a separate program, distinctly different from TRICARE Standard. Determination of eligibility, the authorization of benefits and the processing of claims are the sole responsibility of the Veterans Affairs Health Administration Center in Denver, Colorado.

---

### Step 5 Common Words and Terms

---

- ❑ In order to work with TRICARE and CHAMPVA claims, it is important to understand the meaning of words and terms commonly used.

## Authorized Provider

An **authorized provider** is a physician, hospital, clinic or supplier who has applied, and been approved, to provide medical care and supplies. Each state licenses the provider, accredited by a national organization, or meets other standards of the medical community. TRICARE will only share the cost of healthcare costs from authorized providers.

## Catastrophic Cap

The **catastrophic cap** is the cost cap or upper limit that patient pays for health care in any fiscal year. The limit for an active-duty family enrolled in TRICARE Prime is \$1,000; for all other enrollees in TRICARE Prime the limit is \$3,000. The limit for eligible TRICARE Standard and Extra families is \$7,500. The catastrophic cap only applies to allowable charges for covered services. There is no cost cap for services that are not covered or for services received from a nonparticipating provider.

## Cost-Share

**Cost-share** is the percentage paid by the patient enrolled in TRICARE Standard and Extra of the allowable charges for health care for each claim. Cost-share depends on the sponsor's status (active or retired) in the service. Cost-share is based on the allowable charge regardless of what the provider actually bills and is paid after the patient has paid the annual deductible.

## Deductible

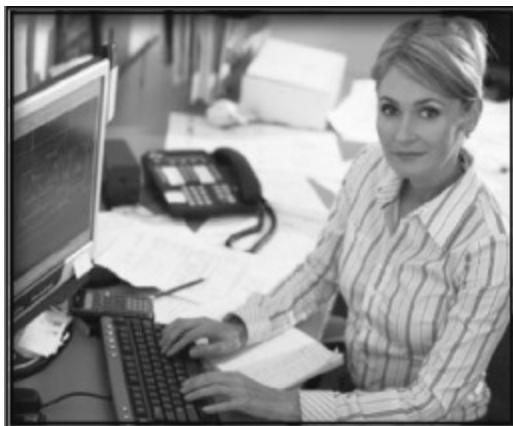
A **deductible** is the amount the patient enrolled in TRICARE Standard and Extra must pay each fiscal year before TRICARE begins sharing the cost (cost-share) of medical health care. The deductible is separate from and in addition to the cost-share amounts. For most enrollees, the deductible is \$150 per person or \$300 per family per fiscal year from October 1 through September 30.

## DEERS

**DEERS** stands for **Defense Enrollment Eligibility Reporting System**. DEERS is a



computerized data bank that lists all active and retired military members as well as their dependents. DEERS lists active and retired service members automatically. The military sponsor is responsible for enrolling his or her family members and should maintain the status of his or her family in order to process claims quickly and accurately.



*DEERS is a computerized data bank that lists all active and retired military members and any dependents.*

### **Medically Necessary**

Medical services or supplies generally accepted to be reasonable and adequate for the diagnosis and treatment of illness or injury are **medically necessary**.

### **Network Providers**

A **network provider** is the physician who provides medical care and services to TRICARE beneficiaries under the TRICARE Extra program at contracted rates.

### **Nonavailability Statement**

The **nonavailability statement**, or **NAS**, is required for all beneficiaries who live near a military care facility but are seeking nonemergency treatment at a civilian physician or hospital. The NAS is certification from the uniformed service hospital that the procedure the patient is seeking is not available at the military facility. People at the nearby military medical facility enter statements electronically into the DEERS computer files. TRICARE and CHAMPVA do not issue nonavailability statements themselves; the military hospitals must do this.

## Participating TRICARE Providers

Healthcare providers who participate in TRICARE are also called **participating providers**. A participating provider accepts the TRICARE allowable charge as the full fee for the care the patient receives. A participating provider files the claims for his or her TRICARE-eligible patients. Individual providers can participate on a visit-by-visit basis. Hospitals that participate in Medicare must, by law, also participate in TRICARE Standard for inpatient care. For outpatient care, hospitals may or may not participate.

Providers who do not participate in the TRICARE program may bill for their normal charges. The law states that those nonparticipating physicians may not charge more than 15 percent above the TRICARE Standard allowable charge.

## TRICARE Standard Supplemental Insurance

TRICARE Standard Supplemental Insurance is a health benefit plan that supplements TRICARE Standard benefits. Supplemental insurance programs generally pay most or all of the balance due after TRICARE Standard has paid its share of the cost of covered healthcare services and supplies.

---

## **Step 6 TRICARE Options**

---

- ❑ As you know, TRICARE has three options: TRICARE Standard, formerly known as CHAMPUS, TRICARE Extra and TRICARE Prime. Let's look at some specifics of each.

### TRICARE Standard

TRICARE Standard is the new name for CHAMPUS, although the name "CHAMPUS" isn't completely phased out (for example, the CMS-1500 form still refers to CHAMPUS). As you read, keep in mind that CHAMPUS and TRICARE are one and the same. The name has changed to one of the three policy options: TRICARE Standard, TRICARE Extra or TRICARE Prime.

TRICARE Standard pays a share of the cost of covered healthcare services obtained from authorized civilian hospitals and doctors. There is no enrollment in TRICARE Standard, though eligible persons need enrollment in the DEERS computer data bank.

TRICARE Standard pays for only medically necessary care and services provided by an authorized provider. Costs to the patient include an annual deductible of \$150 per person or \$300 per family, and usually 20 percent cost-share of allowable charges.

### **TRICARE Extra**

The second of the three healthcare options offered is TRICARE Extra. TRICARE Extra is a PPO-type option and provides healthcare services on a visit-by-visit basis. This option features healthcare providers who are part of an organized network and who have agreed to participate in TRICARE for all eligible patients. Eligible persons can seek care from a provider who is part of the network, get a discount on services, and have reduced cost-share, usually five percent less than TRICARE Standard. Physicians who participate in TRICARE Extra have agreed to accept the TRICARE allowable charge or a negotiated fee as the full fee for the care they provide. There is no enrollment in TRICARE Extra, though eligible persons need enrollment in the DEERS computer data bank.

TRICARE Extra pays for only medically necessary care and services provided by an authorized provider. Costs to the patient include an annual deductible of \$150 per person or \$300 per family for outpatient care, and usually 15 percent cost-share of allowable charges.

### **TRICARE Prime**

TRICARE Prime is the final option offered through the DOD managed healthcare program. TRICARE Prime is an HMO type option and is currently the least costly healthcare option offered through TRICARE. Eligible persons must enroll for a year at a time, and agree to seek health care from the network of healthcare providers, hospitals and clinics. There is a fee for enrollment for retirees; while TRICARE Prime automatically enrolls active-duty service members. When enrolled in TRICARE Prime, a **primary care manager, PCM**, is chosen or assigned. The PCM will provide and coordinate all healthcare needs. The first contact must be the PCM when

patients need care.

Costs to the patient include an annual enrollment fee and a pre-set co-payment fee. There are no annual deductible or cost-share payments with this option. The patient usually pays a \$12 co-payment for physician services, and \$30 co-payment for emergency services, depending on the sponsor's military status.

### **Point-of-Service**

The point-of-service (POS) option, only for TRICARE Prime enrollees, allows the patient to choose to get TRICARE-covered non-emergency services outside the TRICARE Prime network of providers without a referral from their primary care manager. There is an annual deductible of \$300 per person or \$600 per family under the POS option as well as a cost-share of 50 percent of the TRICARE allowable charge.

---

## **Step 7 Eligibility Requirements for TRICARE and CHAMPVA**

---

- Now that you've been introduced to TRICARE and CHAMPVA, let's take a closer look at the eligibility requirements.

### **TRICARE Eligibility Requirements—Who is Eligible?**

TRICARE is a healthcare program for all seven uniformed services: the Army, Navy, Marine Corps, Air Force, Coast Guard, Public Health Service and the National Oceanic and Atmospheric Administration.

The following beneficiaries are eligible for TRICARE medical coverage:



*TRICARE offers health care for military service members,*

1. Husbands, wives and unmarried children of active-duty or retired service members.
2. Husbands and wives who have not remarried and unmarried children of active-duty or retired service members who have died.
3. Husbands, wives and unmarried children of reservists who are ordered to active duty for more than 30 consecutive days or of reservists who die on active duty.
4. Unmarried children up to age 21, including stepchildren who are adopted by the sponsor.
5. Former spouses of active or retired military who were married to a service member who had performed at least 20 years of creditable service.
6. Dependents placed in the custody of a service member by a court or recognized adoption agency.
7. Active-duty service members—only if the military base on which they are stationed does not provide medical services.

Note: Children are those unmarried and under the age of 21. A child may also be covered up to the age of 26 if he or she is in school full-time.

### **Who is Not Eligible for TRICARE?**

1. Active-duty service members (unless, as stated above, there are no medical services available on their military base).
2. Dependent parents and parents-in-law.
3. Most persons who are eligible for Medicare Part A.
4. Widow or widower of a service member who remarries.
5. Persons eligible for benefits under CHAMPVA.

Now that you're aware of TRICARE's eligibility requirements, let's look at CHAMPVA's eligibility requirements.

### **CHAMPVA Eligibility Requirements—Who is Eligible?**

The following beneficiaries are eligible for CHAMPVA medical coverage as long as they are not eligible for benefits through the TRICARE program and not eligible for Medicare Part A upon reaching age 65.

1. Active-duty military retirees.
2. Husbands, wives and unmarried children of a veteran with total, permanent, service-related disability.
3. Husbands, wives and unmarried children of a veteran who died as the result of a service-related disability, or who at the time of death was rated permanently and totally disabled from a service-connected condition.
4. Husbands, wives and unmarried children of a service person who died in the line of duty while on active duty.

Note: Children are those unmarried and under the age of 21. A child may also be covered up to the age of 26 if he or she is in school full time.

### **Who is Not Eligible for CHAMPVA?**

1. Most persons who are eligible for Medicare Part A.
2. Persons eligible for benefits under TRICARE.

---

## **Step 8 Identification Cards**

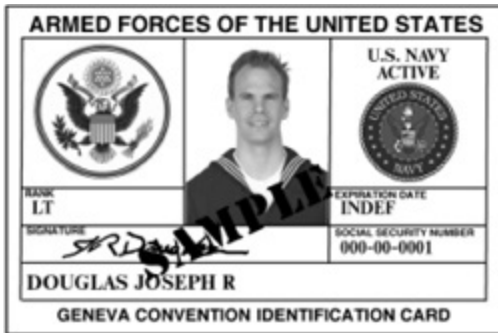
---

- ❑ To receive TRICARE or CHAMPVA benefits, patient must have a valid identification card. Individuals who are eligible for TRICARE Standard or TRICARE Extra are required to have a Uniformed Services (military) identification card. Individuals who enroll in TRICARE Prime receive a TRICARE Prime identification card. CHAMPVA enrollees have a special card as well.

The cards are color coded as follows:

- Active-duty sponsor—green
- Active-duty family members—tan
- Active-duty Reserve sponsors and family members—red
- Retirees—blue
- Retirees' family members—tan

All military identification cards include the following: a digital photograph of the card owner, the beneficiary's name, date of birth, sponsor's name and relationship to the beneficiary, the date the card was issued and the expiration date of the card. The "Medical" block on the back of the card includes whether the cardholder is eligible for medical care from military or civilian sources. Always make copies of the front and back of the identification card, and place these copies in the patient's file. Make copies at each physician visit. Look at the following example cards.



Front



Sponsor ID card

Back



Front



Family Member ID card

Back

<b>CIVILIAN HEALTH AND MEDICAL PROGRAM OF THE VETERANS ADMINISTRATION (CHAMPVA)</b>	
	<b>POSTMASTER: RETURN TO:</b> CENTRAL CHAMPVA REGISTRY CENTER VAMC DENVER, CO 86220
	<b>DEPENDENT OR SURVIVOR</b>  <b>BENEFICIARY OF VA IDENTIFICATION CARD</b>
SIGNATURE OF BENEFICIARY (If age 12 or older)  <div style="text-align: center; font-size: 24pt; font-weight: bold;">SAMPLE</div>	

VA FORM 10-7959, DEC 1988

1. NAME OF BENEFICIARY VOIDVOIDVOIDVOID	3. SEX X	4. EXP. DATE XX/XX/XX	5. I.D. NUMBER XXXXXXXXX	6. ISSUE DATE XX/XX/XX 000238
Use the identification number in block 5 when applying CHAMPVA CLAIMS. For Fiscal Information regarding this card, call the CHAMPVA Center at 1-800-331-9935.				

Sample CHAMPVA ID card

---

## Step 9 Services Covered

---

- CHAMPVA and TRICARE provide a wide range of healthcare options. The program's guidelines determine how each service is covered. Services covered include hospitalization, maternity, skilled nursing facilities and treatment for mental illness and alcoholism.

Hospitalization services include semiprivate room, general nursing, surgical services, drugs and medications, anesthesia, laboratory tests, x-rays and radiology services, necessary medical supplies, blood and blood products.

Maternity services include prenatal and postnatal care, and hospital and professional services.

Skilled nursing facility services include semiprivate rooms, regular nursing services, physical, occupational and speech therapy, drugs furnished by the facility and necessary medical supplies.

Treatment for mental illness and alcoholism includes up to 150 days in a residential treatment center for mental illness and a total of 28 days per year for alcoholism rehabilitation.



You should contact the Health Benefits Advisor at the nearest military facility to obtain a current copy of the CHAMPVA and TRICARE handbooks for guidelines in your region. The Health Benefits Advisor will also be able to give you the name of a fiscal intermediary in your region. A **fiscal intermediary** is an organization that contracts with the government to handle CHAMPVA and TRICARE claims. Fiscal intermediaries usually have three-year contracts. Be sure you have up-to-date information for the fiscal intermediary in your region. Having the correct information makes filing claims much easier.

You can also go to the following Web site to learn more about TRICARE:  
[www.tricare.mil](http://www.tricare.mil).

---

## Step 10 Filing TRICARE and CHAMPVA Claims

---

- Whether you are filing a TRICARE or CHAMPVA claim, you will need to follow the same basic steps. TRICARE or CHAMPVA must authorize all benefits under the programs in writing before patients receive services, supplies or equipment. Preauthorization gives the insurance provider a chance to look at a proposed treatment and determine if it is reasonable for the condition. The claim form needs an attached copy of the authorization.

After completing the preauthorization requirement, the next step is to check for the need for a nonavailability statement.

### Nonavailability Statement

Remember that a nonavailability statement, or NAS, is a certification from a military hospital stating that it cannot provide the necessary medical care or services. An NAS is required for the patient who lives in certain ZIP code zones around a military hospital, usually a 40-mile radius, before receiving nonemergency inpatient care at a civilian hospital under TRICARE and CHAMPVA. If the patient lives in a ZIP code zone around a military hospital, the only time a nonavailability statement is not required is for a true medical emergency. Now, the NAS system is automated. This means that the uniformed service medical facility enters the NAS electronically into

the DEERS computer files. An NAS is valid within 30 calendar days after it was issued.

## Filing Claims

The TRICARE and CHAMPVA contractors receive thousands of claims every day. The claims are computer processed for speed in paying the healthcare provider. Any mistake, forgotten signature or other missing information can slow down the claim. The procedure for filing a TRICARE or CHAMPVA claim is similar to any other claim. Is the patient covered by other health insurance, maybe through a spouse, through a job, or under medical coverage for accidental injuries under automobile insurance? If so, the other insurance becomes the primary insurance company, and the provider must file a claim with the primary insurance company before filing with TRICARE or CHAMPVA. After the primary insurance company has decided what it's going to pay, a claim may be filed with TRICARE or CHAMPVA. A copy of the health plan's explanation of benefits and a copy of the bill must be included.

## Claims for Physicians Who Have Accepted Assignment

A physician who agrees to accept assignment is known as a **participating provider**. Participating providers agree to accept the TRICARE or CHAMPVA allowable charge including the patient's cost-share and deductible, if any, as the full fee for the services provided. The physician agrees not to bill for the difference between his customary charge and the allowable charge established by TRICARE or CHAMPVA. The allowable charges for medical services are based on computations made under a method called the **Resource Based Relative Value System, or RBRVS**.

Beneficiaries pay a specified amount each year, called the catastrophic cap. The catastrophic cap applies only to the amount of money required to meet the patient's annual deductible and cost-shares based on the TRICARE Standard allowable charges for covered medical care received in any one fiscal year. When the beneficiary has paid the specified amount, TRICARE or CHAMPVA will then pay 100 percent of allowable charges for the remainder of the fiscal year.

For physicians who have accepted assignment, once the claim is completed and processed by the fiscal intermediary, payment is sent directly to the physician.

## Claims for Physicians Who Have Not Accepted Assignment

Physicians who do not accept assignment (nonparticipating physicians) may bill TRICARE or CHAMPVA for their customary charges. By law, the bill may not be more than 15 percent above the TRICARE Standard allowable charge.

In the case of physicians who have not accepted assignment, the payment is sent directly to the patient.

### Which Claim Form to Use?

A physician will usually submit a completed CMS-1500 claim form. Submit a completed DD Form 2527 with the CMS-1500 claim form if the claim is for care and supplies due to the result of an accidental injury or if the bill is \$500 or more. The **DD Form 2527** is a Personal Injury Statement about how the accident happened. The patient should complete the form.

When a hospital files the claim, it will use the CMS-1450 (also known as the UB-04) claim form. (We'll detail this form later in the course.) Always submit original claim forms and keep a copy of the claim form filed in the patient's file. After submitting the CMS-1450/UB04, the patient receives a **DD Form 2642**—Patient's Request for Medical Payment, which she must fill out and file along with an itemized superbill from the physician's office.

To learn specifics about TRICARE claims and to view the DD 2527 and DD 2642 forms, you can access the TRICARE Provider Manuals at the following Web sites: <http://manuals.tricare.osd.mil/Default.aspx> and <http://www.tricare.mil/>.

### What Documentation to Include With the Claim?

One or more of the following may need to be included with the completed claim form:

- Nonavailability statement
- Explanation of benefits from other insurance plan
- DD Form 2527



*Make copies of original documents, and keep copies of paper documents with the patients' files.*

Be sure to make copies of paper documents and keep the originals of these documents in the patient's file. If you don't provide the proper documents to the TRICARE/CHAMPVA contractor when needed, the claim could be denied or delayed. Send proper documentation with each claim, even if a claim was previously filed for similar services during the same course of treatment.

### **Time Limits and Appeals**

The TRICARE or CHAMPVA contractor must receive claims within one year of the date of service. Submit claims promptly to ensure full cost-share payment to the provider.

If you fail to file by the deadline, reimbursement will be denied. If a claim is denied or returned by the claims processor requesting additional information, or if you wish to appeal a decision, resubmit the claim within 90 days of the notice. If you should need more time to correctly resubmit or provide the additional requested information, you must contact the claims processor for your area that is noted on the document you received and request an extension of time.

### **TRICARE or CHAMPVA and Other Insurance**

By law, TRICARE or CHAMPVA is the secondary insurance carrier when a beneficiary is enrolled in other health insurance plans. However, there are two exceptions. TRICARE or CHAMPVA becomes the primary insurance carrier when the beneficiary is a recipient of the Medicaid program or has MediGap supplemental

health insurance.

If a TRICARE or CHAMPVA beneficiary is injured on the job or becomes ill because of his or her work, this becomes a workers' compensation case, and the claim must be filed with the compensation insurance carriers. Bill TRICARE or CHAMPVA once all workers' compensation benefits have been paid.

When a patient is injured in an automobile accident or receives an injury that may have third-party involvement, it is necessary to include DD Form 2527, Personal Injury Statement–Possible Third Party Liability. This form allows TRICARE or CHAMPVA to evaluate the circumstances of the accident and the possibility that the government may recover money for the medical care from the person who injured the patient.

### Summary Payment Voucher

For each TRICARE and CHAMPVA claim submitted, the claims processor will issue a summary payment voucher. The **summary payment voucher** is the same as an explanation of benefits (EOB). The summary payment voucher includes information about the amount charged, allowable covered charges, deductible, cost-share and payment amount. Cost-share includes co-payment amounts. Following is an example of a summary payment voucher.

TRICARE		EXPLANATION OF BENEFITS						
PATIENT NAME NORA CARTER		SPONSOR NO 200-00-000			CLAIM NO 1904593847 2357			
SPONSOR NAME RANDY CARTER		PROVIDER NO 234567890183928000			PATIENT ACC # 00000000000000601			
PROVIDER	SERVICE DATES	PROCED	MOD	NO	TYP	BILLED	ALLOWED	CODE
FAY LESLIE MD	06/01/XX	99203	00	01	01	70.00	43.40	003
		99070	00	01	01	30.00	30.00	
		57100	00	01	02	225.00	92.90	003
		64435	00	01	02	65.00	41.20	003
TOTAL						390.00	207.50	
DEDUCT	COST SHARE	PAID BY PATIENT	TOTAL PAYABLE		NET PAYMENT			
** 0.00	0.00	0.00	207.50		207.50			
REMARKS CODE 003 SEE ITEM FIVE ON REVERSE OF PAGE 1. IF YOU ARE NOT SATISFIED WITH OUR DETERMINATION, YOU HAVE THE RIGHT TO REQUEST A REVIEW WITHIN 90 DAYS OF THE DATE OF THIS NOTICE. SEE ITEM ONE ON REVERSE OF PAGE 1.								
*****VOUCHER SUMMARY								
TOTAL PAYABLE 207.50					NET PAYMENT 207.50			



Please pause and complete online Practice Exercise 6-1.

---

## Step 11 Workers' Compensation

---

- ❑ The first workers' compensation laws were established in 1911. These new laws allowed employees who were injured on the job to receive medical care without first taking their employers to court. An **employee** is a person who is hired to work for another.

**Workers' compensation** provides coverage to employees and their dependents if the employees suffer a work-related injury, illness or death. An **accident** is described as an unplanned or unexpected happening causing injury or death not due to any fault of the employee.

Two sets of laws govern workers' compensation: federal compensation laws and state compensation laws.

**Federal compensation laws** cover miners, maritime workers and civilian employees of the federal government. **State compensation laws** cover employers and employees within each state. State compensation laws vary from state to state.

The Office of Workers' Compensation Programs (OWCP) of the United States Department of Labor administers coverage of the federal workers' compensation laws. This office oversees three federal programs. They are:

- Federal Coal Mine Health and Safety Act, referred to as the Black Lung Benefits Act—This program provides benefits to coal miners.
- Longshoremen's and Harbor Workers' Compensation Act—This provides benefits for private and public employees who work on the sea nationwide.
- Federal Employees Compensation Act, FECA—It covers two classifications of on-the-job injuries—traumatic injuries and occupational illnesses.

The two types of on-the-job injuries covered by FECA are described as:

- ✓ **Traumatic injury**—an injury caused by a specific event or series of events during a single workday. Falling off a ladder and breaking an arm is an example of a traumatic injury.
- ✓ **Occupational illness**—a condition caused by continued exposure to the workplace. Respiratory trouble due to dust inhaled for years in a mine is considered an occupational illness.

State workers' compensation programs provide coverage for people who are not federal employees—most employees within each state. Programs vary from state to state, so it is important to become familiar with the regulations that apply to your state. You can obtain this information by contacting your state's workers' compensation office, board or commission.

State workers' compensation programs fall into four types of coverage:

- 1. State Compensation fund:** In the case of a state compensation fund the state is the insuring body. Employers pay a premium to the state, the state then insures the employees who are covered by the plan, and pays benefits based on the law established by the state.
- 2. Employer Self-Insured Programs:** Employers with sufficient capital can set up a fund to cover expenses incurred by job related accidents or illnesses. State regulations require a percentage of capital be set aside for the fund.
- 3. Private Commercial Workers' Compensation Programs:** In this case, a private health insurance program meeting state determined guidelines provide the workers' compensation coverage.
- 4. Combination Programs:** In some states, employers can have a combination of state funded, private or self-insured plans. These plans are put together in packages to best suit the needs of the business and their employees.

### Classification of On-The-Job Injuries

To qualify for workers' compensation benefits, the worker is required to have incurred an injury while doing the expected duties of the position or a disorder that can be linked to the employment of the worker, such as carpal tunnel syndrome. These are referred to as **on-the-job injuries**.

On-the-job injuries are categorized into four case classifications:

**Medical claims with no disability** are on-the-job injuries that are easily treated and the employee is expected to return to work within a short duration of time.

**Temporary disability** includes claims where the employee is expected to be unable to work for a period of time while they recuperate from their injuries. Typically, coverage includes lost wages, and the cost associated with the health care. The employee is expected to return to work although they may not be able to hold their previous position.

**Permanent disability** is an on-the-job injury that involves the permanent disability of the employee. The physician determines the level of the employee's impairment once the patient has reached a plateau on their ability to recover. This can range from partial disability to full disability. The physician will assign a percentage from one percent to 100 percent, with a 100 percent meaning the employee will no longer be able to work. Benefits include the medical care, lost wages, and an indemnity (compensation for a loss) for the disability.

**Death of a worker** is obviously the most serious of the categories. In the case where the employee is killed during the course of employment, a benefit is paid to the worker's dependents based on the wages earned by the employee at the time of death. Benefits paid for a death are sometimes referred to as double indemnity.

---

## Step 12 Filing a Workers' Compensation Claim

---

- ❑ The first thing to remember is to check every bill that comes by you to see if it is for a work-related injury. All other insurance companies will refuse a claim that is covered by workers' compensation. You must file with workers' compensation (often referred to as *workers' comp*) first.

### First Report of Injury

The **First Report of Injury** form gathers information regarding the injury, the patient's information, the employer's information, and the physician's initial



assessment. Although it's the physician's responsibility to complete this form, you as a medical billing professional may be asked to assist with gathering the information. It's also important to contact the employer to obtain information regarding the compensation carrier.

File the form with the following entities:

- State Workers' Compensation Board/Commission
- Employer's Workers' Compensation carrier
- The employer of the injured worker
- The worker's medical record

Submit these forms within 24 hours to 14 days depending on the laws regulating your state. Regardless of the time period, it is important to have this form submitted as soon as possible as it could delay the benefits, or cause the claim to be denied. In some cases, the employer will dispute the on-the-job injury. If this happens, it will still be necessary to submit the First Report of Injury.

## Progress Reports

As the injured worker receives treatment and progresses in his recovery, the physician will be required to submit progress reports to the compensation carrier. The progress report should include the patient's name, case number, treatment, progress, work status, and an estimation of the patient's ability to return to work. In some cases, the carrier may require copies of radiology, consultation, and laboratory reports. Again, the completion of the information falls on the shoulders of the physician. However, you will need to be prepared to assist in gathering the information required for this reporting.

## FECA

Let's look at the process for FECA (Federal Employees Compensation Act). FECA requires a different form for each class of claim: either **Form CA-1** for a traumatic injury or **Form CA-2** for an occupational illness. The *patient must fill out these forms* and file with the patient's employer. It is important to make sure this step is completed; otherwise, benefits might be reduced.

After the employer receives either Form CA-1 or Form CA-2, the employer completes **Form CA-16**, which authorizes treatment for the first 60 days. This authorization applies only to the first treating physician. The **first treating physician** is the doctor who first diagnosed and treated the injury. You need to attach Form CA-16 to the insurance claim form you file.

In order to file a workers' compensation claim, you need to fill out the CMS-1500 form. We'll show you how to do this later in the course. As you can see, the CMS-1500 is a commonly used, important form. This form is filed with the Office of Workers' Compensation Programs (OWCP), a part of the United States Department of Labor.

In addition to the normal claim form and the CA-16 form, OWCP requires other documentation for a job-related injury. Here is a list of the information the employee must submit to file a claim.

### **Facts About Filing a Workers' Compensation Claim**

The injured employee must submit this information to OWCP:

- ✓ Dates of examinations and treatment
- ✓ Patient's medical history
- ✓ Description of physician's findings
- ✓ Results of diagnostic tests, including x-rays
- ✓ Diagnosis
- ✓ Clinical treatment
- ✓ The physician's opinion regarding the connection between the injury and the job being performed

After receiving the necessary information, OWCP will assign a case file number. This number is important because it must be included on all documents you submit to the OWCP.

Many times, you will need to file progress reports stating the degree of recovery achieved by the patient. These progress reports usually go out when a person's

situation changes and, therefore, the level of care changes. This report also includes the physician's opinion regarding the patient's availability for work, an estimate of future recovery and the extent of permanent loss or disability.

To ensure that you file state workers' compensation claims correctly, you should contact your state workers' compensation office, board or commission and ask these important questions:

- What forms and records do you need from the medical office, and where can you obtain them? The claim forms and medical records that physicians are required to provide vary from state to state.
- What organizations and agencies should receive the claim forms? You should verify that you have the correct addresses.
- What is the filing deadline? Failure to file within the required deadline may result in a denied claim or reduced payments.
- How is reimbursement determined? Does the state workers' compensation program use a system of allowable charges or a fee schedule with set fees for each medical service?
- Can the patient or employer be billed for the costs of medical services and treatments that the state workers' compensation does not cover? By law, some states prohibit physicians from billing patients for any unpaid balances on workers' compensation cases.

### **A Note About Patient Records**

A regular patient might come to see the physician for a workers' compensation-covered injury. You must set up a separate file for all workers' compensation activity. Do not include any of the workers' compensation items in the patient's normal file. This helps keep records accurate and separate job-related injuries from injuries unrelated to the job.

- When a person is unable to work, she can be eligible for disability benefits. Unlike workers' compensation, people with disability insurance need not suffer job-related injuries or illnesses to be eligible for coverage.

The federal government, some states and some private insurance carriers offer disability insurance programs. Payroll deductions typically pay for disability insurance. For a program to cover a person with a disability, the disability needs to be a legal disability, rather than a medical disability.

A **medical disability** is a condition that disables the person, such as a severe back injury.

A **legal disability** is one that meets the requirements of the particular program. For example, in the Social Security Disability program, a legal disability is one that prevents the worker from doing *any* work, and the condition is expected to last for a year or more or to cause the worker's death.

As a medical claims specialist, you won't have to actually file claims with disability insurance carriers, but you might have to assist in putting records together to enable the patient to file.

### **Facts About Disability Insurance**

You may have to assemble the following records for a patient who is filing a claim with a disability insurance carrier:

- ✓ The patient's medical history
- ✓ Clinical symptoms
- ✓ Treatment provided
- ✓ A prognosis for the patient (the physician's prediction of how the patient's condition will be in the future)
- ✓ Any other applicable reports

You must have permission from the patient to release this information to anyone, including insurance companies. Be sure you have a signed release form.

---

## Step 14 The Consolidated Omnibus Budget Reconciliation Act (COBRA)

---

- ❑ The Consolidated Omnibus Budget Reconciliation Act (COBRA) was designed to provide health insurance coverage to those who become unemployed either voluntarily or involuntarily and to those who no longer qualify for health insurance benefits because of a reduction in hours. Persons who have been fired for gross misconduct are not eligible to participate. COBRA is also available to the dependents and the spouse of the employee in the case of a divorce or the death of the employee.

In order to qualify, an employee must have participated in a group health plan provided by their place of employment. The coverage is available for 18 months. In the case of divorce or death, the dependents and the spouse are eligible for coverage for 36 months.

The premiums for COBRA are determined by the total premium of the health insurance plan provided by the place of employment, including the employer's contribution and the employee's contribution plus a service fee of two percent.

Generally, coverage under COBRA will be the same as the coverage provided by the group insurance plan provided by the employer. For example, if the employee was receiving dental coverage from their place of employment, the employee may also elect to continue to receive that same coverage while participating with COBRA.

You as a medical billing professional, will bill COBRA as you would any other insurance program. They may be billed using a CMS-1500 form or electronically. Participants will have an insurance card providing billing information. As with any insurance, it's important to make a copy of the card front and back.



**Please pause and complete online Practice Exercise 6-2.**

---

## Step 15 Lesson Summary

---

□ This lesson introduced you to several special insurance programs that provide specific types of coverage. TRICARE is the Department of Defense's regional managed care program. It includes TRICARE Standard (the new name for CHAMPUS), TRICARE Extra and, the most restrictive of the three programs, TRICARE Prime. Family members, called *beneficiaries*, usually receive health care from a military physician in a military hospital or facility. If these are unavailable, private physicians or hospitals may provide health care, in which case the federal government pays for a portion of the cost. CHAMPVA provides healthcare coverage for families of veterans who have permanent, service-connected disabilities and families of veterans who have died because of a service-connected disability. DEERS (Defense Enrollment Eligibility Reporting System) is a worldwide database that lists people covered by TRICARE and CHAMPVA.

Workers' compensation provides coverage to employees and their dependents if the employees suffer a work-related injury, illness or death. One important thing to remember is that all other insurance companies will refuse a claim that is covered by workers' compensation. You must determine if an injury is work-related and if it is, you must file with workers' compensation first.

Disability insurance programs cover people who are unable to work because of legal disabilities. Although you won't have to file claims with disability insurance carriers, you might have to help a patient file by assembling the appropriate records.

You learned a ton of information about insurance in the past few lessons. In the next lesson, we'll shift gears a bit, so you can learn what all those medical terms mean. That's right, you'll be able to decipher what doctors say by learning about medical terminology.



Please pause and complete an online Quiz. Good luck!



The Just for Fun page is for your enjoyment.

First, read the list of words and then look at the puzzle. The words can be found in vertical, horizontal and backwards directions. Circle each word found and strike it off the list. The letters are often used more than once. It is best to find the big words first. When you find all the words listed, you will have 26 letters left over that will spell out a phrase. Good luck!

- |               |                         |                  |                     |
|---------------|-------------------------|------------------|---------------------|
| accident      | diagnosis               | insurance        | PPO                 |
| actual charge | doctor                  | lab              | preauthorization    |
| beneficiary   | encounter form          | Medicaid         | prepay              |
| benefits      | EOMB                    | medical          | prevailing charge   |
| Blue Cross    | explanation of benefits | Medicare         | procedure           |
| cast          | FECA                    | medicine         | provider            |
| claim         | fee                     | modifiers        | reasonable charge   |
| code          | filing                  | NEC              | specialist          |
| contract      | form                    | nonparticipating | sponsor             |
| copayment     | HCFA                    | NOS              | subscriber          |
| course        | HCPCS                   | panel            | UPIN                |
| CPT           | HMO                     | patient          | usual and customary |
| deductible    | ICD                     | payment          | volume              |
| DEERS         | index                   | physician        |                     |

S P O N S O R E R U D E C O R P C D E E R S A  
 U S U A L A N D C U S T O M A R Y L A E B P C  
 B L U E C R O S S U P I N P H E I C D O E R T  
 S C P T L E N A P E E F T P M A L A B M N E U  
 C L A I M I P F O R M M R O O U M M T B E V A  
 R H C P C S A C O D E R A P A T I E N T F A L  
 I D Y A P E R P S O S O C P A H S D E E I I C  
 B E N E F I T S N C P F T R D O I I M C C L H  
 E D F E C A I V E T E R A O I R S C Y N I I A  
 R U N D I E C O N O C E C V A I O A A A A N R  
 P C A B N S I L I R I T C I C Z N R P R R G G  
 A T I G D R P U C N A N I D I A G E O U Y C E  
 Y I C N E U A M I E L U D E D T A I C S L H L  
 M B I I X O T E D C I O E R E I I I N N G A T  
 E L S L A C I D E M S C N S M O D I F I E R S  
 N E Y I S O N P M E T N T C I N H C F A A G A  
 T L H F I E G R A H C E L B A N O S A E R E C  
 E X P L A N A T I O N O F B E N E F I T S S T

PHRASE: - - - - -

S	P	O	N	S	O	R	E	R	U	D	E	C	O	R	P	C	D	E	E	R	S	A
U	S	U	A	L	A	N	D	C	U	S	T	O	M	A	R	Y	L	A	E	B	P	C
B	L	U	E	C	R	O	S	S	U	P	I	N	P	H	E	I	C	D	O	B	E	R
S	C	P	T	L	E	N	A	P	E	E	F	T	P	M	A	L	A	B	M	N	E	U
C	L	A	I	M	I	P	F	O	R	M	M	R	O	O	U	M	M	T	B	N	E	V
R	H	C	P	C	S	A	C	O	D	E	R	A	P	A	T	I	E	N	T	F	A	L
I	D	Y	A	P	E	R	P	S	O	S	O	C	P	A	H	S	D	E	E	I	I	C
B	E	N	E	F	I	T	S	N	C	P	F	T	R	D	O	I	I	M	C	I	C	H
E	D	F	E	C	A	I	V	E	T	E	R	A	O	I	R	S	I	C	Y	N	I	A
R	U	N	D	I	E	C	O	N	O	C	E	C	V	A	I	O	A	A	A	R	A	R
P	C	A	B	N	S	I	L	I	R	I	T	C	I	C	Z	N	R	P	R	Y	G	G
A	T	I	G	D	R	P	U	C	N	A	N	I	D	I	A	G	E	O	U	Y	C	H
Y	I	C	N	E	U	A	M	I	E	L	U	D	E	R	D	T	A	I	C	S	L	H
M	B	I	X	O	T	E	D	C	I	O	E	R	E	I	I	I	N	N	G	A	T	E
E	L	S	L	A	C	I	D	E	M	S	C	N	S	M	O	D	I	F	I	E	R	S
N	E	Y	I	S	O	N	P	M	E	T	N	T	C	I	N	H	C	F	A	A	G	A
T	L	H	F	I	E	G	R	A	H	C	E	L	B	A	N	O	S	A	E	R	E	C
E	X	P	L	A	N	A	T	I	O	N	O	F	B	E	N	E	F	I	T	S	S	T

ANSWER: CLAIMS AND BILLING SPECIALIST



# Lesson 7

# Medical Terminology—Word Parts

---

## Step 1 Learning Objectives for Lesson 7

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Explain *word parts*.
    - Define *root word*, and describe how the term is used.
    - Demonstrate how *prefixes* and *suffixes* fit together with root words to form new terms.
- 

## Step 2 Lesson Preview

---

- ❑ Medicine is a rewarding field! You will experience its satisfactions and live up to its challenges every day when you work as a medical claims and billing specialist. And as you already know, skilled medical claims and billing specialists are in high demand. Doctors, hospitals and clinics all need qualified medical claims and billing specialists. In fact, many such positions remain unfilled due to a lack of qualified candidates. Most employers look for claims and billing specialists who have schooling and experience, and with the training you receive in this course, you can count on learning everything you need to know about this medical field. Finding the position you want should be a snap!



One very important part of medicine is its language. Doctors, nurses and other healthcare personnel, including medical claims and billing specialists, communicate in specialized terms that, at first, might sound like a foreign language. You've no doubt overheard medical conversations in your own visits to the doctor. As a claims specialist, you'll hear medical terminology in daily conversation. More importantly, you'll use this knowledge as you review medical records and process insurance claims. On occasion, you'll even research those terms in coding manuals to ensure that the correct medical code has been used. Just think—you'll soon be a medical terminology guru! What used to sound like a foreign language will someday become as familiar as your everyday conversation!

Fear not, though, learning medical terminology is much easier than learning a foreign language. Medical terms can be broken down into easy-to-understand parts. In this lesson, we will introduce you to your new language—the language of medicine. In these next few lessons, you'll learn the building blocks you'll need so that you can learn how to break down any medical term. We'll discuss root words, prefixes and suffixes, and explain how these word parts come together to form medical terms. Throughout the lesson, have your flashcards handy as you study the following material, complete Practice Exercises, and take the quiz. Let's get started!

---

### **Step 3 Word Parts**

---

- Words are all around us. We use them every day to communicate. There are long words and short words, complex words and simple words. And, regardless of how much education you've had, there will be words that are new to you. As a medical claims and billing specialist, you will hear or see medical terms. These terms might seem complex at times, but you can simplify them. In every sentence we speak, every letter we write and every bill we process, the words are constructed of parts. These parts can give us clues to the words' meanings. Because you know this, you will be able to break words down and figure their meaning from their word parts.
  - Look at these words you already know:  
telephone    microwave

television    microscope

telescope

➤ It's easy to split these words into parts:

telephone        =    tele        +    phone

television        =    tele        +    vision

telescope        =    tele        +    scope

microwave       =    micro       +    wave

microscope       =    micro       +    scope

You can also see that some of these words contain some of the same parts. *Tele/* is in three of the words. *Telescope* and *microscope* both have the part */scope*.

These smaller parts that words can be divided into are called **word parts**, and they are very important in learning medical terminology. Word parts are like building blocks. A child can take a dozen building blocks and make many different things, combining the blocks in different ways. The same is true of word parts. Many different words can be formed from a few word parts.

---

## Step 4 Root Words and Word Parts

---

❑ The foundation for all words is the root word. The **root word** is the basic component of terms we use to communicate. Many simple words contain only a root word without any other word parts:

book read joy

cook drive

We use word parts together with root words to make new and different words. This is usually done by adding either a prefix or a suffix. A **prefix** is a word part added to the beginning of a root word. A **suffix** is a word part added to the end of a root word.

When other word parts are added to root words, a new word is formed. The new word means something slightly different. Below are some new words that were formed from the root words above. A prefix or suffix has been added to each root word. Remember, a prefix is a word beginning. A suffix is a word ending.

booklet — a little book

reread — to read again

joyful — having the quality of joy

cooked — to cook sometime in the past

driver — a person who drives

In addition to prefixes and suffixes, different root words can even be added to each other to form new words. Words that are made up of two or more root words are called **compound words**. Here are some examples:

book + shelf = bookshelf

drive + way = driveway

news + paper = newspaper

Understanding word parts helps us understand new words—even long and complicated words.

You may never have heard the word *recalculate*. But if you know what *calculate* means, and you know what the prefix *re/* means, then you will know that *recalculate* means *to calculate again*.

In fact, you probably have made up some new words yourself just by making new combinations of word parts.

Let's review the word parts we've discussed. Think of these word parts as the building blocks of medical terms.

## Word Parts

### Root

### Word

The root word is the foundation or cornerstone of the word.

**Prefix** A prefix is attached to the beginning of a root word to change its meaning.

**Suffix** A suffix is attached to the end of a root word to change its word form or meaning.

Now let's take the basic concept of word parts and apply it to medical terms.

---

## Step 5 Medical Terms and Word Parts

---

❑ Medical terms often appear to be long and complicated, but actually, even the longest medical term can be broken down into small parts that are easy to understand. Once you become familiar with the individual word parts, medical terminology becomes very easy. Try to look at medical terms like little puzzles. You're putting together different pieces (root words, prefixes, suffixes and combining vowels) to form complete words. And while it's important that you understand a bit about word parts, it is more important that as a medical claims and billing specialist you understand the meanings of the medical terms you learn here. You'll want to be familiar with common medical terminology as you hear or see it. As a claims specialist, your daily routine will revolve around the language of medicine!

Understanding some essential word parts will help you recognize medical terms. In your medical claims career, you'll use a medical dictionary to confirm correct spellings and meanings. You'll soon find that your medical dictionary will become as well-worn as a beloved teddy bear as you'll use it to confirm correct spellings and meanings. You will learn about each of these word parts, one at a time, in a simple, logical, easy-to-understand sequence. This will make it very easy for you to spell and understand even the longest and most complicated terms.

### **An Important Note About Medical Terms**

- ✓ Many medical terms contain a fourth word part that we have not talked about yet—the combining vowel. The combining vowel is used to join a root word to other word parts.

Here is an example of how the combining vowel is used. As you can see, not all terms have all four parts.

Medical Term	Root Word	Combining Vowel	Suffix
dermatology	dermat/ means <i>skin</i>	o	/logy means <i>the study of</i>

➤ *Dermatology* means *the study of skin*.

Below are two more medical terms that show examples of word parts. These are compound words, since they contain more than one root word.

Medical Term	Prefix	Root Word	Combining Vowel	Root Word	Suffix
neonatologist	neo/ means <i>new</i>	nat/ means <i>birth or born</i>	o	log/ means <i>the study of</i>	/ist means <i>one who specializes in</i>

➤ A *neonatologist* is one who specializes in the study of the newborn

If you use a different prefix, you will have the following term:

Medical Term	Prefix	Root Word	Combining Vowel	Root Word	Suffix
perinatologist	peri/ means <i>around</i>	nat/ means <i>birth or born</i>	o	log/ means <i>the study of</i>	/ist means <i>one who specializes in</i>

➤ A *perinatologist* is someone who specializes in the study of the fetus and newborn (the time *around* the birth).

These are two types of doctors you may find yourself working for as a medical claims and billing specialist!



Please pause and complete online Practice Exercise 7-1.

---

## Step 6 Root Words

---

❑ As you learned earlier in this lesson, word parts are the building blocks for all words, including medical terms. Up to this point, we have only described word parts in a general manner. Now we will take a closer look at **root words**—the foundation of

all words.

You will find many familiar root words in this lesson because they are used in everyday English as well as in medical terminology. The words we cover in this lesson are the most common of all medical root words.

You may have wondered why medical terms are so long and complicated. This is because these terms have very definite meanings. In medicine, one complicated word is used in place of four or five common words so that doctors can communicate exactly what they mean to other health workers. This is to prevent misunderstandings that can interfere with the patient's care. For example, the words *abdomen* and *stomach* may mean the same thing to you, but they have different meanings to a doctor. Because of this, doctors use different words for the stomach and the abdomen. You will be learning the root words for these and other parts of the body in this lesson and in lessons to come.

Doctors and other healthcare workers use precise medical terms to communicate exact information about a patient's condition. As you learn to build words, you will be building your professional skills. You will be an important link in the healthcare team. Without you, the medical billing specialist, this patient information would not make it to the insurance companies in the correct format, meaning that your colleagues, other healthcare professionals, could not get properly reimbursed for their expertise and services. Thanks to claims and billing specialists like yourself, these doctors have professionals to handle their claims!

## The Functions of Root Words

There are three interesting facts about root words.

### **Facts About Root Words**

- ✓ Root words are the foundation of a medical term.
- ✓ Root words name body parts or body functions that the terms represent.
- ✓ Most medical terms have at least one root word.



➤ Look at these examples of root words.

### **Root Word English Meaning**

neur/	nerve
gastr/	stomach
scop/	examine
log/	study of
cardi/	heart
path/	disease

You can see these root words in the medical terms that follow. Even though you may not know the meaning of the medical term, you know the meaning of the root word you saw just a moment ago.

### **Medical Term Meaning**

<b>neuritis</b>	inflammation of nerves
<b>gastritis</b>	inflammation of the stomach
<b>microscope</b>	an instrument to examine small things
<b>logic</b>	a method of studying an area of thought
<b>cardiac</b>	relating to the heart
<b>pathology</b>	the process of the study of disease

### **Compound Words as Root Words**

Some terms have two or more root words in them. They are called **compound words**. In the examples below, we will use the same root words we used previously.

### **Compound Word Meaning**

<b>neuropathy</b>	a disease process of nerves
<b>gastroscope</b>	an instrument to examine the stomach
<b>cardiologist</b>	one who studies the heart

**pathologist**      one who studies disease

Notice that the combining vowel /o/ was used to join the root words above.

### Combining Forms of Root Words

Root words sometimes can be awkward to pronounce. That is why you may see the combining vowel—usually the letter /o/—between the root word and other word parts. The combination of the root word and the combining vowel is called the **combining form**. Look at the combining forms for the root words you saw previously.

<b>Root Word</b>	<b>Combining Form</b>	<b>English Meaning</b>
neur/	neur/o	nerve
gastr/	gastr/o	stomach
scop/	scop/o	examine
log/	log/o	study of
cardi/	cardi/o	heart
path/	path/o	disease

In this course, each new root word you learn will be in its combining form.

**Root Word + Combining Vowel = Combining Form**

Now that you know the basics about root words, we're going to move ahead and learn more about medical terms. First, you will practice pronouncing root words using the following easy exercise.

---

## Step 7 Pronounce Root Words

---

Follow these steps to familiarize yourself with root words.

- a. Take your Quick-learn Tutor and Set 1 flashcards out of your Quick-learn Kit. Each flashcard contains many flashterms.

- b. Find the first flashcard. It begins with Flashterm 1-1. Insert the card into the lower part of Side A of your Quick-learn Tutor. Push the card up until Flashterm 1-1 appears in the left window.
- c. Access the online portion of your course. Go to the Lesson 7 book. Click on Lesson 7 Listen to Root Words.
- d. Listen to a root word as it is pronounced. After you hear a root word, pause the audio.
- e. Look at the root word in the left window of your Quick-learn Tutor. Practice pronouncing it out loud several times to familiarize yourself with the term. Push the flashcard up until the meaning of the root word appears in the right window. Read the meaning of the root word.
- f. Repeat steps d and e, continuing with all the flashterms on Flashcard 1.
- g. When you have completed Flashcard 1, turn the card over for Flashcard 2. Proceed until you have pronounced all the root words for Set 1.
- h. Next, begin again with Flashcard 1 and play the audio again. This time, pronounce each root word in order but do not stop after each term.
- i. As you pronounce each root word, look at it on the flashcard.

Good job! You've already become familiar with some of the common medical terms you'll hear in your new claims career.

After you have finished pronouncing all the root words for this lesson, move on to the next exercise—learning to write root words.

---

## Step 8 Write Root Words

---

- Follow these steps to learn to write root words.
- a. Insert Flashcard 1 into Side A of your Quick-learn Tutor.
  - b. Look at each root word as it appears in the window and say it out loud. Write each root word on blank paper. Be sure to put a slash (/) between the root word and the combining vowel, just as you see it on the flashcard.
  - c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the root word. Writing these root

words and meanings will help you learn them more easily. Here is an example of the first flashterm.

aden/o gland

d. Do this for each flashterm for this set.

Finally, after you have pronounced and written each term, familiarize yourself with the meanings of these root words by performing the next exercise.

---

## Step 9 Meanings of Root Words

---

- Follow these steps to learn the meanings of root words.
  - a. Again insert the flashcard for Set 1 into Side A of your Quick-learn Tutor. Beginning with Flashterm 1-1, pronounce each root word out loud. Before you look at the meaning, see if you can remember it. Check yourself by pushing the flashcard up until you can see the meaning in the right window. Do this for each flashterm for this set.
  - b. Now insert Flashcard 1 into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of Flashterm 1-1 in the right window. Read each meaning out loud. Before you look, see if you can remember the word part that goes with that meaning. Check yourself by pushing the flashcard up until you can see the root word in the left window. Do this for each flashterm for this set.
  - c. Practice with the flashcards several times until you are familiar with the root words and their meanings. **It's not necessary to memorize all the terms.** You will find that you become familiar with many medical terms as you use them throughout this course.

You may use your flashcards for all Practice Exercises and the Quizzes. However, the time you spend reviewing the flashterms now will mean less time spent looking them up later.

### Study Tip

- ✓ After you have finished your activities with a set of flashcards, return

the flashcards, in order, to your Quick-learn Kit. You can easily refer to them later, as needed, throughout the course.



Please pause and complete online Practice Exercise 7-2.

---

## Step 10 Prefixes

---

- If you consider the root word to be the boxcar on a train, the prefix is the engine and the suffix is the caboose. Prefixes are added in front of root words while suffixes are added at the end of root words.



As you have learned, a **prefix** is a word part that is attached to the beginning of a word. A prefix changes the meaning of a medical term. While the root word names a body part or body function, the prefix gives additional information about the medical term.

### Facts About Prefixes

- ✓ A prefix gives additional information about a medical term.
- ✓ A prefix usually tells *where*, *when* or *how*.

- Look at some examples of prefixes and their meanings. Notice that prefixes do not have combining vowels.

<b>Prefix</b>	<b>Meaning</b>
peri/	surrounding
brady/	slow
tachy/	fast
micro/	small, tiny
a/	without, absent

➤ Now let's learn more about prefixes.

### Facts About Prefixes

- ✓ A prefix does not change the meaning of a root word—but a prefix *does* change the meaning of the whole medical term.

In the list below, you will see medical terms made from some of the root words you studied earlier. Notice that the prefix does not change the meaning of the root word.

<b>Medical Term</b>	<b>Meaning</b>
renal	relating to the kidney
<b>peri</b> /renal	relating to <b>surrounding</b> the kidney
cardia	heart
<b>brady</b> /cardia	<b>slow</b> heart
<b>tachy</b> /cardia	<b>fast</b> heart
glossia	tongue
<b>macro</b> /glossa	<b>large</b> tongue
gastric	relating to the stomach
<b>hypo</b> /gastric	relating to <b>below</b> the stomach
leukocytosis	condition of white cells
<b>a</b> /leukocytosis	condition of <b>absence of</b> white cells

## Another Fact About Prefixes

- ✓ Many terms do not begin with a prefix.

A prefix is attached to the root word. If there is no prefix, the first word part you will see is the root word. Look at these examples.

**peri/renal**—starts with prefix

**renal**—starts with root word

Remember, a prefix only tells *where*, *when* or *how*. A root word tells *what*.

How do you tell if the beginning of the word is a prefix or a root? One way is to see what happens when you remove the first word part. Look at the following example. You saw these terms a moment ago. The root here means *heart*.

### Medical Term Meaning

cardia            heart

**bradycardia**    **slow heart**

When you take the prefix *brady/* away, the meaning of the term changes from *slow heart* to *heart*. However, the meaning of the root, *heart*, doesn't change, so you know that *brady/* is a prefix.

## Facts About Prefixes and Root Words

- ✓ If you take away a prefix, you take away only the *where*, *when* or *how*.
- ✓ If you take away a root word, you have taken away the *what*—the basic meaning of the term.

Look at the next example below. This term is a compound word. The *what* is a *white*

*cell*. A white cell is one kind of cell—it is not a red cell or a liver cell. Look what happens to the meaning of the term when you remove one of the two root words that make up the compound word.

### Medical Term Meaning

leuk/o/cyt/osis condition of white cells

cyt/osis condition of cells

When you take away the root word *leuk/o*, the meaning of the term changes from *white cells* to just *cells*. The term *cyt/osis* means a condition of any kind of cells: red cells, white cells, liver cells and so on. The *what* of the term changed from *white cells* to *cells*. Therefore, *leuk/o* is a root word.

For now, we will make it easy for you. All the prefixes you will learn are followed by a slash. Look at these examples.

brady/ micro/ peri/

All the root words you will learn have a slash between the root and the combining vowel. Look at these examples.

cardi/o leuk/o cyt/o

---

## Step 11 Pronounce Prefixes

---

- ❑ Follow these steps to familiarize yourself with prefixes.
  - a. Take your Quick-learn Tutor and your Set 2 flashcards out of your Quick-learn Kit.
  - b. Find the first flashcard for Set 2. Insert the card into Side A of your Quick-learn Tutor. Push the card up until the first prefix appears in the left window.
  - c. Access the online portion of your course, and click on Lesson 7 Listen to Prefixes.
  - d. Listen to each prefix as it is pronounced. After you hear a prefix, pause the audio.
  - e. Look at the prefix in the left window of your Quick-learn Tutor. Practice



pronouncing it out loud several times to familiarize yourself with the term. Push the flashcard up until the meaning of the prefix appears in the right window. Read the meaning of the prefix.

- f. Repeat steps d and e, continuing with all the flashterms on the flashcard.
- g. When you have completed the flashcard, turn the card over. Proceed until you have pronounced all the prefixes for Set 2.
- h. Next, begin again with the first flashcard and play the audio. This time, pronounce each prefix in order but do not stop after each term.
- i. As you pronounce each prefix, look at it on the flashcard.

After you have finished pronouncing all the prefixes in this set, move on to the next exercise—learning to write the prefixes for this lesson.

---

## Step 12 Write Prefixes

---

Follow these steps to learn to write prefixes.

- a. Insert the first flashcard for Set 2 into Side A of your Quick-learn Tutor.
- b. Look at each prefix as it appears in the window and say it out loud. Write each prefix on blank paper. Remember to include the slash.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the prefix.
- d. Do this for each prefix for this set.

Finally, after you have pronounced and written each term, learn the meanings of these prefixes by performing the next exercise.

---

## Step 13 Meaning of Prefixes

---

Follow these steps to learn the meanings of prefixes.

- a. Again insert the flashcard into Side A of your Quick-learn Tutor. Pronounce each

prefix out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.

- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud and then say the prefix. Check yourself by pushing the flashcard up until you can see the prefix in the left window. Do this for each flashterm for this set.
- c. Practice with the flashcards several times until you are familiar with the prefixes and their meanings. Don't struggle to memorize them. The more times you review your flashcards, the more familiar they will be to you.

### Study Tips

- ✓ Remember to keep your flashcards in order even after you're finished with an activity so they'll be easy to refer back to.
- ✓ A handy way to review flashcards from previous lessons is to read down the flashcard without inserting it into the Quick-learn Tutor.



Please pause and complete online Practice Exercise 7-3.

---

## Step 14 Suffixes

---

- A **suffix** is the word part that is attached to the *end* of a root word.

Why do we use suffixes? A suffix can change the word form or the meaning of a term. The word form tells you how the word functions in the sentence. Word forms are also referred to as parts of speech.

Two important parts of speech are the noun and the adjective.

A **noun** is the name of a person, place or thing. An **adjective** is a word that describes a noun. Here's an example.

The **new** **student** wants a **good** **career**.  
adjective noun adjective noun

The words *student* and *career* are nouns because they name a person, place or thing. The words *new* and *good* are adjectives because they describe nouns.

Some root words can function as both nouns and adjectives. All you have to do is change the suffix. Here's an example.

### **Noun Adjective**

courage courageous

- Compare these two sentences:

*Courage* is an important quality for a soldier to have.

The *courageous* man saved the boy's life.

In the first sentence, *courage* is a noun. It is a thing, a quality. In the second sentence, the word *man* is the noun, and the word *courageous* describes the man, making *courageous* an adjective.

- Look at these examples of medical terms that can be changed from nouns to adjectives just by changing the suffix.

### **Noun Adjective**

cardi/**a** cardi/**ac**

gastr/**ia** gastr/**ic**

muc/**us** muc/**ous**

neur/**osis** neur/**al**

### **Facts About Suffixes**

- ✓ A suffix can change a root word to a noun or an adjective.

The suffix determines whether a word is a noun or an adjective. Suffixes that make a word a noun are called **noun suffixes**. Suffixes that make a word an adjective are

called **adjective suffixes**. No matter what root word they are joined to, a noun suffix always changes the word into a noun, and an adjective suffix makes the word an adjective.

Here is a table of some common medical suffixes. Notice that some of the suffixes are noun suffixes and some are adjective suffixes. Many noun suffixes don't really have a meaning. They are just used to show that the word is a noun.

<b>Suffix</b>	<b>Noun or Adjective</b>	<b>Meaning</b>
/y	noun	the process of
/a	noun	(no meaning)
/ia	noun	condition
/us	noun	(no meaning)
/osis	noun	condition
/ac	adjective	relating to
/ic	adjective	relating to
/ous	adjective	relating to
/al	adjective	relating to

When you learn suffixes later in this lesson, the flashcard will tell you which are noun suffixes and which are adjective suffixes.

Did you notice that many of the suffixes have the same meaning? If they have the same meaning, how do you know which one to use? The answer is that *only certain suffixes and certain root words can be combined*. For example, each root word generally can be combined with only one adjective ending. *Cardi/o* is joined with */ac* to form *cardiac*. *Cardi/o* is never joined with */ic*, */al* or */ous*. The words *cardiic*, *cardial* and *cardious* do not exist.

There are reasons that certain root words are joined to certain suffixes, and these reasons have to do with word origins. However, you needn't be concerned with this. Instead, simply learn which suffixes go with which root words. To help you with this, we have taken many root words and combined them with the correct suffix. This will help you remember which suffixes go with which roots.

In the next few lessons, you will not only be learning individual word parts but also complete medical terms—both nouns and adjectives.

Often a *root word* + *suffix* combination can itself be used as a word ending. You can think of this as a **combined suffix**. For example,

path/o + /y = /pathy

The combined suffix */pathy* can be joined to many other words.

cardiopathy myopathy neuropathy

These combined suffixes will be written on your flashcards as regular suffixes, but if you look closely, you'll be able to see the *root word* + *suffix* combination. Look at these examples.

Root Word	+	Suffix	=	Combined Suffix	Meaning
path/o	+	/y	=	/pathy	process of disease (noun)
path/o	+	/ic	=	/pathic	relating to a disease (adjective)
megal/o	+	/y	=	/megaly	process of enlargement (noun)
megal/o	+	/ic	=	/megalic	relating to enlargement (adjective)
cardi/o	+	/a	=	/cardia	heart (noun)
cardi/o	+	/ac	=	/cardiac	relating to the heart (adjective)



*Look closely, and you will be able to see the root word + suffix combination.*

### Facts About Suffixes and Root Words

- ✓ Most root words—but not all—need either a noun suffix or an adjective suffix at the end of them.

Most root words can't stand alone as complete words—they need a suffix at the end of them. But like everything else in life, there are exceptions. For some root words, you don't need a suffix of any kind to form a complete word. These roots already are complete words. By dropping the combining vowel, these root words can stand alone. They can also work as suffixes themselves.

- Listed below are three examples of root words that don't need a suffix.

### **Root Word Suffix (Noun) Meaning**

gram/o	/gram	picture, record, tracing
graph/o	/graph	machine that creates a tracing or recording
derm/o	/derm	skin

In this course, you will be given more noun and adjective suffixes. Whenever you learn a new term, look to see which suffixes are used with which roots. That way you will begin to recognize which roots and suffixes belong together.

- Let's start off by learning how to pronounce suffixes.

---

## **Step 15 Pronounce Suffixes**

---

Follow these steps to familiarize yourself with suffixes.

- Take your Quick-learn Tutor and your Set 3 flashcards out of your Quick-learn Kit.
- Insert the first flashcard for Set 3 into Side A of your Quick-learn. Push the card up until the first flashterm appears in the left window.
- Access the online portion of your course, and click on Lesson 7 Listen to Suffixes.
- Listen to a suffix as it is pronounced. After you hear a suffix, pause the audio.
- Look at the suffix in the left window of your Quick-learn Tutor. Practice pronouncing it out loud several times to familiarize yourself with the term. Push the flashcard up until the meaning of the suffix appears in the right window. Read the meaning of the suffix.

- f. When you have completed the flashcard, turn it over for the next flashcard for this lesson. Proceed until you have pronounced all the suffixes for Set 3.
- g. Next, begin again with the first flashcard and play the audio. This time, pronounce each suffix in order but do not stop after each term.
- h. As you pronounce each suffix, look at it on the flashcard.

After you have finished pronouncing all the suffixes for this set, move on to the next exercise—learning to write suffixes.

---

## Step 16 Write Suffixes

---

- Follow these steps to learn to write suffixes.
  - a. Insert the first flashcard for Set 3 into Side A of your Quick-learn Tutor.
  - b. Look at each suffix as it appears in the window and say it out loud. Write each suffix on blank paper.
  - c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the suffix.
  - d. Do this for each suffix for this lesson.

Finally, after you have pronounced and written each term, learn the meanings of these suffixes by performing the next exercise.

---

## Step 17 Meanings of Suffixes

---

- Follow these steps to learn the meanings of suffixes.
  - a. Again insert the first flashcard for Set 3 into Side A of your Quick-learn Tutor. Pronounce each suffix out loud. Before you look at the meaning, see if you can remember it. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
  - b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up

until you see the meaning of the first flashterm in the right window. Read each meaning out loud. Before looking, see if you can remember the suffix that goes with that meaning. Check yourself by pushing the flashcard up until you can see the suffix in left window.

- c. Practice with the flashcards several times until you are familiar with suffixes and their meanings. You may use your flashcards for all Practice Exercises and the Quizzes.



**Please pause and complete online Practice Exercise 7-4.**

---

## Step 18 Lesson Summary

---

- Understanding how to “decipher” medical terminology is a special link to becoming an effective medical claims specialist. Your ability to understand diagnosis and procedure terminology provides healthcare providers (and insurance companies) the information they need to get properly reimbursed. Although medical terms might seem complex, you now know that you can simplify them by breaking them down into word parts and then figuring out the meanings of the parts. Word parts are like building blocks because many different words can be formed from a few word parts.

The foundation for all words is the root word, the basic component of terms. The root word names the body part or body function that the term represents. Most medical terms have at least one root word.

We use word parts together with root words to make new and different words. This is usually done by adding either a prefix or a suffix. Prefixes are word parts added to the beginning of a root word. A prefix gives additional information about a medical term, and a prefix usually tells where, when, or how. A prefix does not change the meaning of a root word—but a prefix does change the meaning of the whole medical term. A suffix is a word part added to the end of a root word. The suffix determines whether a word is a noun or an adjective. Most root words need either a noun suffix or an adjective suffix at the end of them. Combining vowels are word parts that join a root word to another word part. Combining vowels make terms easier to pronounce.



It's important that you understand word parts as a medical claims specialist. While this lesson may have strained your brain a little more than the previous ones, you've now learned about the building blocks you'll need to "build" many medical terms! The Practice Exercises in this lesson are important. If you skipped any or struggled to complete some of them, take a few moments to go back and work on them again. Doing so will prepare you for the upcoming quiz and build upon your medical foundation of knowledge.



Please pause and complete an online Quiz. Good luck!

## Just for Fun

- The Just for Fun page is for your enjoyment. You will not be tested on the material, but you may find it interesting.

After a long day of helping people, most health professionals take a break to smile and have fun. Having fun after working hard has four benefits.

- It relieves stress.
- It exercises your face muscles. (Well, that's better than nothing.)
- It isn't fattening.
- It is free. (We're not talking about Disneyland here.)

If anything else in this world gave you these four benefits, you'd take as much of it as you could get. So every once in a while we'll take a fun break—just like this.

Some Just for Fun pages are for enjoyment. Some will tell you interesting things about language and the medical field. Some will give you a warm smile.

There are two words that nobody wants to hear. One word is *death* and the other is *taxes*.

In medical terminology, there are two words nobody wants to hear. One word is *Greek* and the other is *Latin*. These are two of the languages that medical terms

come from. Most people use words that come from Greek and Latin everyday. Here are some examples.

**Greek      Latin**

Telephone plumber

chemistry alibi

therapy medium

skeleton honor

The English language has more ways to say something than any other language. That is because it contains words from so many languages. In fact, there are a lot of words in English that come from French. Here are some examples.

**French**

humility

liberty

image

The English language also uses words that are Anglo-Saxon. They are usually three or four letters long. When you use a “four-letter word,” you are probably using an Anglo-Saxon word. Look at these examples.

**Anglo-Saxon**

cat

dog

free

Medicine has been around a long time. The word parts you are learning come from Greek and Latin.

A long time ago, no one in England spoke English. The peasants spoke Anglo-Saxon. Peasants couldn't read or write. They could only speak their language. It was very simple. Speaking Anglo-Saxon meant you hadn't been to school and didn't have much in the way of gold and diamonds, or even food, for that matter.

Anglo-Saxon words became our everyday words.

The only people who were educated were the clergy. They read and wrote Latin. They studied Greek when they wanted to do something really exciting. Therefore, anyone who spoke Latin or Greek was considered educated. As science developed, scientists used Latin and Greek so everyone would know they were educated and not just goofing off. Greek and Latin words became our professional terms.

In 1066, the French invaded England. The French ruled England and owned the land. The French language gained importance. Eventually French words became our elegant words. After many years, the English language grew from these roots. That's why in English today, there are usually three words (at least) for everything. If you consider where the different words come from, you can see why different words for the same thing may sound everyday, scientific or elegant. Look at these examples.

<b>Anglo-Saxon</b>	<b>Latin or Greek</b>	<b>French</b>
fire	conflagration (wow)	blaze
job	profession	affair
happy	felicitous	joyous
behind*	posterior	derriere

Today, by choosing different words, English can still sound everyday, professional or elegant. Don't be afraid of long words. You will soon learn easy, step-by-step ways of breaking them down to the building blocks you have learned. In this section, you are learning the building blocks. In future sections, you will learn what the terms mean. Soon you will be using medical terms like a professional, because you will be a professional.

\*Longer than four letters; "butt" not used professionally.

# Lesson 8

# Medical Terminology—Dividing and Combining Terms

---

## Step 1 Learning Objectives for Lesson 8

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Divide medical terms into parts and then give the meaning of each part.
    - Properly combine prefixes, root words and/or suffixes to form medical terms that describe certain diagnoses and procedures.
- 

## Step 2 Lesson Preview

---

- ❑ Previously, you learned that word parts fit together to form medical terms: prefixes, root words and suffixes. This lesson shows you how to take complete terms and divide them. You'll also learn how to combine word parts correctly to create new terms.

You may recall the train example in the last lesson—the root word is the boxcar, the prefix is the engine, and the caboose is the suffix. When you divide medical terms, you can look at the entire train and determine the prefix, suffix and root word. This is important because you sometimes will be faced with unfamiliar terms. If you can look at an unfamiliar word and divide it properly, you then can determine its meaning based on the word parts.



As a medical claims and billing specialist, you might receive bills that don't have the correct medical term spelled out for you. The doctor might have written the procedure or diagnosis in a sentence, but the insurance company needs a key term. *You* are the link between the healthcare provider and her salary! This lesson shows you how to take these “plain English” descriptions and combine word parts to form the correct medical term. As you read this lesson, keep in mind that you are learning both the meanings of and how to assemble words. However, if you find yourself getting confused when dividing and combining terms, remember that as a medical claims and billing specialist, it is more important that you be able to determine the meanings of medical terms than divide and combine the words. Throughout the lesson, be sure to have your flashcards and medical dictionary handy as you will need to consult them as you study the following material, do the Practice Exercises and take the quiz. Your knowledge of medical terms will make you a valuable resource in the medical field—you will be able to communicate effectively with health care providers and insurance companies. Keep up the good work and move on to Step 3!

---

### Step 3 Dividing Medical Terms

---

- ❑ You have learned about word parts—the building blocks of medical terms—and now you can identify these building blocks in medical terms. By dividing medical terms into their word parts, you will be able to recognize new or complicated medical terms. Then you will be able to look them up in a dictionary more easily and spell them correctly.

#### Facts About Dividing Words

- ✓ When you look for the word parts in a medical term, read from the end of the term to the beginning. This simple technique lets you “see” word parts more easily.

Look at this example.

## thermometer

If you read from the end of the word, the first word part you see is the suffix *meter*. Draw a slash to the left of *meter*.

**thermo/meter**

Continue reading from right to left. Next you see an *o*. This may be a combining vowel. Put in another slash. Continue reading from right to left. You see the root word *therm*.

**therm/o/meter**

- Now give the meaning of thermometer starting with the suffix.

### Word Part Starting with End of Word Meaning

/meter	instrument to measure
o	(combining vowels have no meaning)
therm/	heat



A thermometer is an instrument to measure heat.

The following three examples further show you how to divide a medical term, reading from end to beginning, to find the meaning.

### Word Part Starting with End of Word Meaning

/genesis	creating
o	(combining vowels have no meaning)
carcin/	cancer of gland tissue

Carcinogenesis means creating cancer of gland tissue.

### Word Part Starting with End of Word Meaning

/partum	labor (delivery)
---------	------------------

post/

after

Postpartum means after labor or delivery.

### Word Part Starting with End of Word Meaning

/plasty

restore through surgery

o

(combining vowels have no meaning)

maxill/o

upper jaw

Maxillaoplasty means restoring the upper jaw through surgery.

Of course, whenever you are pronouncing a term, you should read from the beginning of the term to the end, just as you would read any new word in English.

Here is an important point you need to know when you divide medical terms. (It helps to remember that a *consonant* is any letter of the alphabet except *a, e, i, o, u* and, for the purposes of working with medical terms, *y*.)

### Facts About Dividing Medical Terms

- ✓ When a suffix begins with a consonant, there is a combining vowel between the root word and the suffix.

➤ Look at these examples.

### Term with Suffix Beginning with Consonant Meaning

cardi/o/ + **gram**

tracing of the heart

thromb/o/ + **plasty**

surgical repair of blood clot

thorac/o/ + **centesis**

withdrawing fluid from the chest

gastr/o/ + **megaly**

enlargement of the stomach

Because all the suffixes in these examples begin with a consonant, the combining vowel is used. (Did you notice in these examples that dividing slashes (/) were



placed between each word part?)

### Facts About Dividing Words

- ✓ When the suffix begins with a vowel, there is no combining vowel between the root word and the suffix.

Vowels are the letters *a, e, i, o* and *u*; as previously mentioned, *y* also is considered a vowel when working with medical terms.

➤ Here are some examples.

#### Term with Suffix Beginning with Vowel Meaning

arthr/ + <b>algia</b>	pain in joints
bi/ + <b>opsy</b>	look at living (tissue)
cardi/ + <b>ac</b>	relating to the heart
hemat/ + <b>oma</b>	blood tumor (lump)
cardi/o/path/ + <b>y</b>	disease of the heart

As you can see, the combining vowel was not used in the terms above before the suffix. The last term, *cardiopathy*, ends with the suffix */y*. The suffix */y* follows this vowel rule because it acts like a vowel here.

### Facts About Dividing Words

- ✓ There is a combining vowel between two root words in a compound word.

As you learned in Lesson 7, a compound word has two or more root words in it. Look at these examples. Notice the combining vowel between the root words. Also notice that the combining vowel remains even if the second root word begins with a vowel.

## Compound Word with Combining Vowel Meaning

**cardi/o/log/ist**

heart specialist

**gastr/o/enter/o/logy**

study of the stomach and bowels

**therm/o/meter**

instrument to measure heat



- Let's try a few more “dissections” of medical terms. Look for word parts in the examples below. Read each term from the end of the term—from right to left. Put in slashes between word parts. Pay special attention to whether or not a combining vowel is present. Be careful. Not every o is a combining vowel, so use your flashcards if you need help.

perirenal

hemostasis

neuritis

hepatitis

cranium

pararenal

appendectomy

paraneural

cardiology

hepatomegaly

Here is how you should divide these terms. Either way is correct as the combined suffix does not always need to be divided.

peri/ren/al

hem/o/stasis

neur/itis

hepat/itis

crani/um

para/ren/al

append/ectomy

or

append/ec/tom/y

para/neur/al

cardi/o/logy

or

cardi/o/log/y

hepat/o/megaly

or

hepat/o/megal/y

- Now give the meaning of these terms. Start at the end of the term and work to the left. Write the meaning in the blank lines. (The meaning you give doesn't have to be exactly the same as ours. We will use the meanings from your flashcards.)

peri/ren/al

\_\_\_\_\_

hem/o/stasis

\_\_\_\_\_

neur/itis

\_\_\_\_\_

hepat/itis

\_\_\_\_\_

crani/um

\_\_\_\_\_

para/ren/al

\_\_\_\_\_

append/ectomy

\_\_\_\_\_

para/neur/al

\_\_\_\_\_

cardi/o/logy

\_\_\_\_\_

hepat/o/megaly

\_\_\_\_\_

- The meanings for each of the above terms are listed here:

peri/ren/al relating to around (surrounding) the kidney

hem/o/stasis control (hold in) blood

neur/itis inflammation of nerve(s)

hepat/itis inflammation of the liver

crani/um (structure of the) skull

para/ren/al relating to beside (beyond) the kidney

append/ectomy (the process of) removal of the appendix

para/neur/al relating to beside a nerve

cardi/o/logy (the process of) the study of the heart

hepat/o/megaly (the process of) enlargement of the liver

The words *the process of* are enclosed in parentheses because they usually are left off when the word is defined in common speech. For example, *hepatomegaly* commonly is

defined as *enlargement of the liver*, not the *process of enlargement of the liver*.

People who work in the medical field often use shorter and simpler meanings of words to save time. As you become more familiar with medical terms, you probably will use simpler meanings also. Sometimes a simpler meaning of a word can be formed by reading the word from beginning to end.

Compare these simpler meanings that were given by an experienced claims specialist to the meanings derived from word parts.

<b>Term</b>	<b>Meaning Derived from Word Parts</b>	<b>Simpler Meaning</b>
thermometer	instrument to measure heat	heat-measuring instrument
paraneural	relating to beside a nerve	next to a nerve
cardiology	(the process of) the study of the heart	heart specialty
hepatomegaly	(the process of) enlargement of the liver	liver enlargement

For now, start at the end of a word that is new to you to help you look for word parts that you recognize and to help you give meanings for word parts. This is the easiest way to find word parts and give meanings. As you become more familiar with various word parts, feel free to use simpler meanings.

Now let's examine a few word parts and their meanings. Remember, you may use your flashcards to find word part meanings, and as you learn more word parts, dividing medical terms will become easier!

### **Word Part Meaning**

bi/ two

/malacia softening

syn/, sym/ together with

gynec/o female

sarc/o nongland tissue, flesh

vit/o living, alive

chem/o	chemical, drug
meta/	change, beyond
maxill/o	upper jaw
nect/o	bind
/oma	tumor, mass

Before we move on, examine the following two boxes. The boxes list common prefixes and suffixes and their meanings. These boxes will help you as you divide and combine terms.

<b>Prefix</b>	<b>Meaning</b>
a-, an-	absence of, without, no, not
ante	before
con	with
contra	opposite, against
dia-	across, apart, complete knowledge, through
endo-	within, in, inner
post	after
pro-, pros-	before, forward, in front of
re-	back, behind
sub-	under, below
trans-	across, through, over, beyond

<b>Suffix</b>	<b>Meaning</b>
-al	relating to, pertaining to
-algia	pain

- ectomy removal, excision
- gnosis about the patient's condition
- gram recording, picture
- ic relating to, pertaining to
- itis inflammation
- logy study of
- osis abnormal condition
- scopy process of visual examination



**Please pause and complete online Practice Exercise 8-1.**

---

## **Step 4 Pronounce Word Parts**

---

- Now that you know the basics about dividing medical terms, practice pronouncing word parts using the following exercise. Pronouncing the terms will help you become familiar with them.
  - a. Take your Quick-learn Tutor and your Set 4 flashcards out of your Quick-learn Kit. Insert the first flashcard for Set 4 into Side A of the Tutor.
  - b. Access the online portion of your course, and click on Lesson 8 Listen to Word Parts.
  - c. Listen to a word part as it is pronounced. After you hear a word part, pause the audio.
  - d. Look at the word part in the left window of your Quick-learn Tutor and practice pronouncing it out loud several times to familiarize yourself with the term. Push the flashcard up and read the meaning of the word part.
  - e. Continue this process for all the flashcards for this set.
  - f. Next, put the flashcards in order and play the audio again. This time, pronounce each word part in order but do not stop.

g. As you pronounce each word part, look at it on the flashcard.

---

## Step 5 Write Word Parts

---

- The next step in your lesson is to practice writing the terms you have just learned. Follow these instructions:
    - a. Insert the first flashcard for Set 4 into Side A of your Quick-learn Tutor.
    - b. Look at each word part as it appears in the window and say it out loud. Write each word part on blank paper. Remember to include the slash.
    - c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part.
    - d. Do this for each flashterm for this set.
- 

## Step 6 Meanings of Word Parts

---

- Follow these steps to familiarize yourself with the meanings of the terms you have pronounced and written.
  - a. Again insert the first flashcard for Set 4 into Side A of your Quick-learn Tutor. Pronounce each word part out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
  - b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud. Before you look, see if you can remember the word part that goes with that meaning. Check yourself by pushing the flashcard up until you can see the word part in the left window. Do this for each flashterm for this set.
  - c. Practice with the flashcards several times until you are familiar with the word parts and their meanings. You may use the flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercises 8-2 and 8-3.**

---

## Step 7 Combining Medical Terms

---

- Combining word parts to form medical terms is just the reverse of dividing medical terms into word parts.

When you learned to divide medical terms, you gained the skill of recognizing long or complicated terms by dividing them into their word parts. Sometimes when doctors fill out bills and charts, they may use a term unclearly or incorrectly. If you know how to combine word parts, you can put together the correct medical term from its everyday English meaning. This is the reason for learning how to combine medical terms.

Knowing just a few word parts allows you to combine them into many different medical terms. Look at this example of the number of new terms you can form each time you add a new word part to your list.

Word Parts Learned		Terms You Can Form		
<b>Root Words:</b>	gastr/o	cyst/o	splen/o	
<b>Suffixes:</b>				
/ic	gastric	cystic	splenic	gastrosplenic
/itis	gastritis	cystitis	splenitis	
/ectomy	gastrectomy	cystectomy	splenectomy	
<b>Prefixes:</b>				
epi/	epigastric	epicystitis	episplenitis	
peri/	perigastric	pericystic	perisplenitis	
		pericystitis		



Let's see now. You only needed to learn eight word parts to build 17 medical terms! Not bad. Just stick to the steps and before you know it, you will have learned many word parts the easy way. Word parts, like nickels and dimes, add up fast.



Let's go over the important things to remember when combining medical terms. These rules will help you when combining most Latin terms.

### Facts About Combining Word Parts

- ✓ Use a combining vowel between a root word and a suffix that begins with a consonant.

Meaning	Term with Suffix Beginning with Consonant	Combined Term
tracing of the heart	cardi/o/ + <b>gram</b>	cardi/o/gram
surgical repair of a blood clot	thromb/o/ + <b>plasty</b>	thromb/o/plasty
to cut into the stomach	gastr/o/ + <b>tomy</b>	gastr/o/tomy

### Facts About Combining Word Parts

- ✓ Do not use a combining vowel between a root word and a suffix that begins with a vowel.
- ✓ Do not use a combining vowel between a prefix and a root word.

➤ Look at these examples. The combining vowel is not used.

Meaning	Term with Suffix Beginning with Vowel	Combined Term
blood tumor (lump)	hemat/o/ + <b>oma</b>	hemat/oma
look at living (tissue)	bi/o/ + <b>opsy</b>	bi/opsy
relating to the heart	cardi/o/ + <b>ac</b>	cardi/ac

### Facts About Combining Word Parts

- ✓ Use a combining vowel between two root words in a compound word even when the second root word begins with a vowel.

- Look at these examples. The combining vowel is used between two root words. All of the root words below are in boldface type.

Meaning	Compound Word	Combined Term
heart specialist	<b>cardi</b> /o/ <b>log</b> /ist	cardiologist
instrument to measure heat	<b>therm</b> /o/ <b>meter</b>	thermometer
study of the stomach and intestines	<b>gastr</b> /o/ <b>enter</b> /o/ <b>log</b> /y	gastroenterology
relating to water electrical activity	<b>hydr</b> /o/ <b>electr</b> /ic	hydroelectric

When dividing and combining terms in this course, it's helpful to identify the prefixes and suffixes in addition to the root words. For example:

Meaning	Prefix	Root(s)	Suffix	Medical Term
control blood		hem/o	/stasis	hemostasis
relating to around kidney	peri/	ren/o	/al	perirenal
enlargement of the liver		hepat/o	/megaly	hepatomegaly
inflammation of vessels		angi/o	/itis	angiitis
removal of the spleen		splen/o	/ectomy	splenectomy

Read from the beginning of the term to the end when you are pronouncing a term you have created.

And remember, read from the end of the term to the beginning when you check the meaning of a term you have created.

Combining word parts can be more difficult than dividing terms because there are many suffixes that mean the same thing. You must know which one to use. To learn this, you will use the combined suffixes you learned in Lesson 7. This way you will learn which suffixes go with which root words.

In everyday practice, medical claims and billing specialists look up new terms in a medical dictionary to be sure they are using the correct suffix. At this point in the course, you do not need a medical dictionary—your flashcards contain the word parts you need.



Please pause and complete online Practice Exercises 8-4 and 8-5.

---

## Step 8 Pronounce Word Parts

---

- Follow these steps to familiarize yourself with additional word parts you'll encounter in your new career:
  - a. Take your Quick-learn Tutor and your Set 5 flashcards out of your Quick-learn Kit. Insert the first flashcard for Set 5 into Side A of the Tutor.
  - b. Access the online portion of your course, and click on Lesson 8 Listen to Word Parts.
  - c. Listen to a word part as it is pronounced. After you hear a word part, pause the audio.
  - d. Look at the word part in the left window of your Quick-learn Tutor and practice pronouncing it out loud several times. Push the flashcard up and read the meaning of the word part. Continue this process for all the flashcards for this set.
  - e. Next, put the flashcards in order and play the audio again. This time, pronounce each word part in order but do not stop.
  - f. As you pronounce each word part, look at it on the flashcard.

---

## Step 9 Write Word Parts

---

These are the steps to follow:

- a. Insert the first flashcard for Set 5 into Side A of your Quick-learn Tutor.
- b. Look at each word part as it appears in the window and say it out loud. Write each word part on blank paper. Be sure to include the slash.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside each word part.
- d. Do this for each flashterm for this set.

---

## Step 10 Meanings of Word Parts

---

Follow these steps:

- a. Again insert the first flashcard for Set 5 into Side A of your Quick-learn Tutor. Pronounce each word part and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the word part. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the words and their meanings.
- d. When you feel comfortable with the spelling, pronunciation, and meaning of each word part, go on to the next step.



**Please pause and complete online Practice Exercise 8-6.**

---

## Step 11 Lesson Summary

---

Medical terms are constructed of root words, prefixes and suffixes. By learning these word parts, you can divide a medical term into its word parts and derive its meaning. You can take an unfamiliar medical term, separate its root word from any

prefixes or suffixes and determine what that word means. This is important because you cannot possibly memorize every single medical term healthcare providers use. But you can learn to divide and combine medical terms, and this skill will enable you to become a competent, professional medical claims specialist. You'll be able to break up unfamiliar medical terms so that you can look them up in your medical dictionary to determine the correct spelling and meaning.

Now don't get discouraged if you found this lesson a little challenging. As you read in the preview of this lesson, keep in mind that as a medical claims and billing specialist, it is more important that you be able to determine the meanings of medical terms than divide and combine the words. However, this doesn't mean that the online Practice Exercises in this lesson aren't important. If you skipped any or struggled to complete some of them, go back and work on them again. Doing so only will help you with the upcoming quiz. U.S. Career Institute successfully has graduated thousands of men and women from its program, and we want you to be one of these success stories! If you need a helping hand, contact your instructor. And remember that U.S. Career Institute offers support even after you graduate and as you advance in your new career.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 9

# Abbreviations, Symbols and Special Terms

---

## Step 1 Learning Objectives for Lesson 9

---

- When you have completed the instruction in this lesson, you will be trained to do the following:
- Determine common medical abbreviations.
  - Explain common symbols.
  - Describe eponyms and acronyms.
  - Describe sound-alikes and opposites.
  - Convert singular medical terms to plurals and recognize medical plurals.
- 

## Step 2 Lesson Preview

---

- How many people have you talked to today? Imagine you ran into a good friend who was very bad about keeping in touch with his family. If you asked him, “Did you write that letter to your brother?” he probably would shake his head no. To him, keeping in touch is very complicated.

Now look closely at the question you asked. The sentence, “Did you write that letter to your brother?” illustrates how the English language can be complex. Your question contained three *sound-alikes*—the words *you*, *write* and *to* sound the same as other words (*ewe*, *right* or *rite* and *too* or *two*). Sound-alikes, medical plurals and opposites are just three of the types of terms we’ll cover in Lesson 9. *You* (not *ewe*) will also learn some common medical abbreviations and symbols.



*To some people, keeping in touch is very complicated.*

It's amazing how much you have learned already about medical terminology. This knowledge will allow you to understand all the facets of your new career in medical claims and billing. Medical care providers will appreciate your knowledge. So let's move on to this lesson about special terms.

---

### **Step 3 Abbreviations**

---

- ❑ Doctors frequently use shortened versions of longer words or phrases. These shortened versions of words and phrases are called **abbreviations**. Abbreviations are extremely useful to a doctor because they save valuable time. However, abbreviations are not helpful unless you, the medical claims specialist, can determine the names for the procedures the doctor performed. Because it is important to be completely accurate, doctors and hospitals get together and produce lists of approved abbreviations—abbreviations they all agree on and understand.

#### **Abbreviations in Hospitals**

Hospitals are required by the Joint Commission on Accreditation of Healthcare Organizations (also known as The Joint Commission) to keep a list of acceptable abbreviations. Only the accepted abbreviations may be used in the medical records for that hospital.



## Office Records

The rules for abbreviations are more relaxed for the records in individual offices. However, any bills or insurance forms typed up must follow the hospital's list of abbreviations.

## Doctors

Doctors sometimes have their own personal abbreviations. As a medical claims specialist, you will need to learn these personal abbreviations. This will help you communicate more effectively with your clients or employer.

## Pharmacies

Lists of medications and treatments prepared by a pharmacy are included in the medical bill and they appear on the insurance forms filed by the doctor's office or hospital. Usually Latin abbreviations are used for these medications and treatments.

On your flashcards, beside each Latin lower case abbreviation you will see the full Latin phrase. You will not need to learn the Latin words—just the punctuation and the everyday meaning.

---

## **Step 4 Learn Abbreviations**

---

- ❑ It's important to be familiar with common medical abbreviations, so take some time to practice saying and writing medical abbreviations using the following easy exercise. Because pronunciation is not an issue with abbreviations, there is no audio to go with this flashcard set.
  - a. Take your Quick-learn Tutor and your Set 6 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
  - b. Look at each abbreviation as it appears in the window and say it out loud. Write each abbreviation on blank paper.
  - c. Push the card up until the meaning appears in the right window and read the

meaning out loud. Write the meaning beside each abbreviation.

d. Do this for each flashterm for this set.

---

## Step 5 Meanings of Abbreviations

---

Follow these steps:

- a. Again insert the first flashcard for Set 6 into Side A of your Quick-learn Tutor. Pronounce each abbreviation and look at how it is spelled. Then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud and then say the abbreviation. Again, check yourself by pushing the flashcard up until you can see the meaning in the left window.
- c. Practice with the flashcards several times until you are familiar with the abbreviations and their meanings. Don't struggle to memorize them. You may always look up abbreviations.



Please pause and complete online Practice Exercise 9-1.

---

## Step 6 Slang

---

There are two types of slang you may encounter in the medical field—medical slang and English slang.

### Medical Slang

Medical slang words are informal abbreviations for longer medical terms. For example *sedimentation rate* is called *sed rate*. The *laboratory* is the *lab*. Doctors use medical slang frequently for the same reason they use abbreviations—to save time.



### **Facts About Medical Slang**

- ✓ If you encounter slang on a medical form, do not copy it onto the bill. Use the full term the slang represents. For example:
- ✓ If the doctor wrote, “The patient was prepped for appy,” you would type, “The patient was prepped for appendectomy.”
- ✓ And then you enter the correct code on the form. (You will learn more about coding procedures later in this course.)

Some medical slang terms are used so frequently that they become accepted medical terms. *Exam* and *prep* are two examples of this.

### **English Slang**

English slang words are highly informal words not usually used in professional writing.

### **Facts About English Slang**

- ✓ Obscene or offensive statements are never put in any medical report, including patient files, insurance forms and patient charts, unless the patient is being quoted (in this case, use quotation marks around the quoted statement). If the patient is not being quoted, delete the offensive or obscene statement.
  - ❖ Correct: The patient said, “I fell down and hurt my ass.”

❖ Incorrect: The patient is a pain in the ass. (Leave out this whole sentence.)

---

## Step 7 Slang Terms

---

Follow these steps:

- a. Take out your Quick-learn Tutor and your Set 7 flashcards. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each slang term as it appears in the window and say it out loud. Write the slang term on blank paper.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside each slang term.
- d. Do this for each flashterm for this set.

---

## Step 8 Meanings of Slang Terms

---

Follow these steps:

- a. Again insert the first flashcard for Set 7 into Side A of your Quick-learn Tutor. Pronounce each slang term and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud and then say the slang term. Again, check yourself by pushing the flashcard up until you can see the meaning in the left window.
- c. Practice with the flashcards several times until you are familiar with the words and their meanings.



**Please pause and complete online Practice Exercise 9-2.**

---

## Step 9 Symbols

---

- ❑ The symbols used in medicine are no different from those used in everyday life. When you use symbols, you must be sure the symbol is well known. To give you a better understanding of which symbols are acceptable, we will go through the main rules you need to remember.

### Facts About Using Symbols

- ✓ When you use symbols, do not leave a space between the symbol and the numeral.
- ✓ However, *do* leave a space between a numeral and the symbol x. This symbol means *by* in dimensions, as in 6 x 9.

- Look at the list of symbols below, what they mean and how they are used.

<u>Symbol</u>	<u>Meaning</u>	<u>Example</u>
°C	degrees Celsius	32° C
°F	degrees Fahrenheit	98.6° F
&	and (between capital letters only)	D&C
X	times, by	x 3 days, 2 x 3 x 5
+	plus (urine; reflexes)	3+
:	ratio; __ to __	1:2
/	per, vision test	2/day; 20/20
/	over (blood pressure)	120/80
—	minus, __ to __ (range), through	-2, 4-5, II-XII
-	suture size	3-0 (000) silk
#	number	#16 Fr, #3-0 silk



Please pause and complete online Practice Exercise 9-3.

---

## Step 10 Special Terms

- ❑ In medical terminology, as in the rest of the English language, there are special terms that have specific rules. These terms include proper nouns and other capitalized words, sound-alikes and opposites. You will learn to determine which words require special treatment, such as capitalization. You will also learn about two special classes of terms: *eponyms* and *acronyms*.

## Eponyms

In addition to the medical terms you learned to combine and divide in an earlier lesson, medical reports contain other information, such as laboratory test results, special medical abbreviations and the names of medical equipment and procedures. Often these words include **proper names**—that is, brand names or the names of people. You must capitalize proper names. Frequently, a person's name or a brand name is included in a medical term when that term is an *eponym*.

It was the custom in the past to use a person's name to identify his or her medical inventions or discoveries. The kinds of things named for people include:

- a new disease; a symptom or sign of disease
- an anatomical structure
- a new instrument, test or examination method

An **eponym** is a term that is formed from a person's name. The person's name is given to the name of his or her discovery or invention to indicate that person did the research and made the discovery. One example is *Bell's palsy*.

### **Facts About Eponyms**

- ✓ An eponym has two parts:
  1. The person's name as an adjective.
  2. The type of invention or discovery as a noun.

## Eponym Adjective Eponym Noun Meaning

Bell's	palsy	facial paralysis
Pott's	clamp	surgical instrument
Chiba	needle	long biopsy needle
McBurney's	point	examination location for the appendix
Kaposi's	sarcoma	unusual skin cancer

Because an eponym includes a person's name, you won't be able to divide it into medical word parts. You do, however, capitalize the proper name in the term, but not the noun.

If you use an eponym frequently enough, you will probably memorize how it is spelled. Otherwise, you will have to look in your medical dictionary for the proper spelling of eponyms.

Luckily, most eponyms can be found quite easily in the dictionary because they are listed under the noun part of the phrase. Look at these examples of some medical dictionary listings.

### Eponym                      Listed in Medical Dictionary Under

Bell's palsy              palsy

Kaposi's sarcoma      sarcoma

McBurney's point      point

Because it is difficult to remember the meanings of eponyms, their use is becoming less common. In fact, it is now considered more professional to use a properly combined medical term rather than an eponym. Even so, eponyms are still frequently used by doctors.

Brand names are another category of terms that require capitalization.

## Brand Names

In the past, an eponym told you the name of the person who took credit for a discovery or an invention. Some names of medical products indicate that a company

owns the patent for an invention or discovery. **Brand names** are like eponyms because they demonstrate who discovered the procedure, diagnosis or disease. The kinds of new brand name eponyms you will see today will be for the following:

- a genetic cell line or tissue culture product
- equipment or instruments
- drugs or therapy methods

Look at these examples: General Electric CT scanner, Pen. Vee K penicillin and Phillips' milk of magnesia.

Don't worry if you can't pronounce some eponyms. Like your own name, there are usually a number of different ways to pronounce them. All you need to be able to do is to find the correct spelling in the dictionary.

### Common Eponyms

Babkin reflex	Hodgkin's disease
Cantor tube	Hodgkin's sarcoma
Charcot's syndrome	Kaposi's sarcoma
Colles fracture	Laennec's cirrhosis
Cooley's anemia	Legg's disease
Epstein-Barr virus	McBurney's point
Erb's palsy	Miller-Abbott tube
Gordon's reflex	Pauley's point
Halsted suture	West Nile virus

### Acronyms

An **acronym** is a word that is formed by using the initials from a group of words or from word parts. Here are some acronyms you are probably already familiar with:

#### Acronym Stands for

IRS          Internal Revenue Service



USA      United States of America  
DMV      Department of Motor Vehicles

Acronyms are a special kind of abbreviation. Doctors like to use acronyms because they save time. Instead of having to write the very long names of some diseases and procedures, the doctor can simply use the acronym. Here are some examples of some common medical term acronyms.

<u>Medical Term or Phrase</u>	<u>Acronym</u>
Cardiopulmonary resuscitation	CPR
Complete blood count	CBC

Acronyms are formed by taking the first letter of each word in a phrase or by taking the first letter of the word parts:

FTD = **F**lorist **T**elegraph **D**elivery  
NG = **n**asogastric

Not every word in the phrase has to be represented in the acronym. Small, nonessential words in a phrase are usually omitted:

EENT = eye, ear, nose *and* throat

Acronyms are usually pronounced by saying the letters one by one. However, if the letters of the acronym spell a word or can be pronounced as a word, then the acronym may be pronounced as if it were a word. Look at these examples:

### Acronym Pronounced

EEG      Say the letters—Ee-ee-gee  
ELISA      Pronounce the word—El-ee-sah

In fact, some acronyms that can be pronounced like words actually become words if they are used often enough. The word *laser* began as an acronym for the phrase *Light Amplification by Stimulated Emission of Radiation*. No one bothers to say the whole phrase any more because *laser* is an accepted word. The same is true of the word

*scuba*, which stands for *self-contained underwater breathing apparatus*.

### Facts About Acronyms

- ✓ Write acronyms in capital letters with no periods or spaces between the letters. For example:

CBC = complete blood count

NSVD = normal spontaneous vaginal delivery

When you hear a new acronym, be sure to look it up and find out what it stands for. This will help you write, type and spell acronyms correctly. Most common acronyms can be found in a medical dictionary along with their meanings.



**Please pause and complete online Practice Exercise 9-4.**

---

## Step 11 Pronounce Acronyms

---

Follow these steps:

- Access the online portion of your course, and click on Lesson 9 Listen to Acronyms.
- Put the first flashcard for Set 8 into Side A of your Quick-learn Tutor.
- Listen to each acronym as it is pronounced. Pause after each acronym.
- Practice pronouncing each acronym until you can pronounce it clearly and easily. You do not need to memorize the meaning of an acronym—only be able to form it and look up its meaning on the flashcard.
- Do this for each flashcard for this set.

---

## Step 12 Sound-alikes and Opposites

- ❑ Two types of word pairs may occasionally present challenges for the medical claims and billing specialist: homophones and antonyms.

### Homophones (Sound-alikes)

Terms that sound alike are known as **homophones**. They are not spelled alike, and they have different meanings, but when homophones are pronounced, they sound the same. The English language is full of homophones. Look at these examples:

principle — principal

seen — scene

two — too

meddle — metal

As you can see, each of these four pairs of words look different, but sound alike. As you work with medical records and with doctors, insurance companies and others, be careful that you distinguish between homophones when you are hearing information. You certainly wouldn't want to meddle in the business's principle scene when you really needed to know if the principal had seen the metal. Okay, so that's a stretch, but you get the idea!

### Antonyms (Opposites)

**Antonyms** are words or word parts that are opposite in meaning to each other. Sometimes these words can sound very similar to each other, which can cause problems for someone with no training. Look at these two antonyms:

➤ hypotension (low blood pressure)

➤ hypertension (high blood pressure)

When you review claims and bills, make sure the terms used make sense. Did the doctor mean what he or she wrote? If you have a question, call the doctor's office and double-check. Insurance companies will deny claims for inaccurate forms!

Look at this situation. You know that normal blood pressure is 120/80.

Which term below is correct?

- The patient has *hypertension* with a blood pressure of 90/60.
- The patient has *hypotension* with a blood pressure of 90/60.

In this context, *hypotension* is correct because 90/60 is lower than 120/80.



**Please pause and complete online Practice Exercise 9-5.**

---

## Step 13 Medical Plurals

---

- ❑ Many medical terms follow special medical plural rules. Some medical words can even have two plural forms, one that follows the normal English rule and one that follows the medical rule.

When there are two ways to make a medical term plural, generally doctors will use English rules when dictating reports for patients or other nonmedical people, and then they will use medical rules when reports are going to other doctors or into the medical chart.

Since medical plurals and English plurals sound very different, it will be easy for you to tell which rule the doctor is following.

### Medical Rules for Plurals

In some cases, medical plurals are formed by changing suffixes. In other cases, letters in the root word must be changed in addition to changes in the suffix. The following chart shows you how to form medical plurals.

**Rule: Follow this chart to form medical plurals.**

#### Ending With Change To Example

/um

/a

medi/um—medi/a (mee-dee-uh)

/us	/i	calcul/us—calcul/i (cal-cue-lie)
/a	/ae	lamin/a—lamin/ae (lam-in-ee)
/is	/es	diagnos/is—diagnos/es (dy-ag-no-seez)
/itis	/itid/es	arthr/itis—arthr/itid/es (ar-thrit-a-deez)
i/on	i/a	criteri/on—criteri/a (cry-teer-ee-ah)
ax	ac/es	thorax—thorac/es (thore-a-seez)
ix	ic/es	cervix—cervic/es (serv-eh-seez)
ex	ic/es	index—indic/es (in-deh-seez)
yx	yc/es	calyx—calyc/es (kay-luh-seez)



Please pause and complete online Practice Exercise 9-6.

---

## Step 14 Lesson Summary

---

- This is the last of three lessons that have introduced you to the language of medicine—the medical terminology you will need to perform your job as a medical claims specialist effectively and professionally. You have learned about word parts (root words, prefixes and suffixes), and how to divide and combine a medical term and derive its meaning by using its word parts. In this lesson, you learned how to use abbreviations and symbols when you complete medical claims and bills. This lesson also presented information about such special medical terms as eponyms, acronyms, homophones (sound-alikes), antonyms (opposites) and plurals.



Please pause and complete an online Quiz. Good luck!

***Just for Fun***



Here are some acronyms used for computers. They are used so much that most people who use them don't know what they mean.

**PC** This stands for **personal computer**. This acronym was developed by IBM® (International Business Machines) for the microcomputers it invented for everyday people to use. It means the same thing as personal computer, a computer with a microchip to hold its memory. Originally, PC was just an IBM brand name. Now PC is used to mean a personal computer of any brand, the same way many people use Kleenex® to mean facial tissue of any brand.

**CRT** This stands for **cathode ray tube**. A cathode ray tube is a television picture tube. Let's divide the term cathode.

cat/ = negative /ode = electrical pole

The tube is a vacuum tube. Inside, in the back, the cathode (negative pole) sends out a stream of electrons called the cathode ray, like water from a hose. The cathode ray sprays across the inside surface of the tube to make the picture on the tube.

Every picture tube you see—whether it is in a TV, an x-ray machine or a computer monitor—is a CRT.

**CPU** This stands for **central processing unit**. The memory chip is here. This is the brain of a computer—where the computer does its work.

The CPU does the computing and is the “computer.” Some ads for low-priced

“computers” only quote the price of the CPU. The CRT, keyboard, and disk drives are extra.

Look up any acronyms you don't know. If you can't find an acronym, ask the person who used it what it means. An expert will know what it means or how to find it.

# Lesson 10



# Introduction to Anatomy

---

## Step 1 Learning Objectives for Lesson 10

---

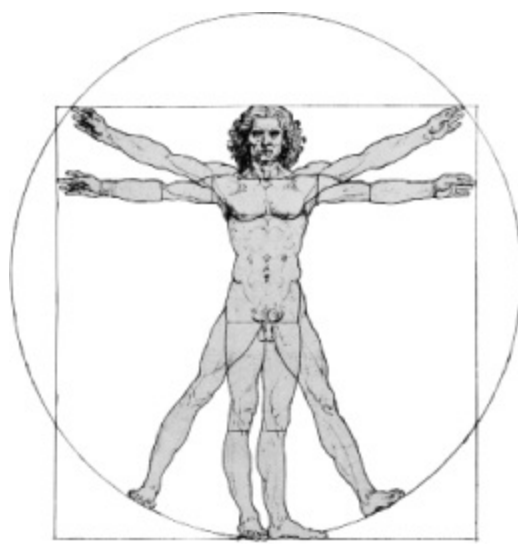
- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Explain the basic components of human biology.
    - Describe the human body, including how it works and how it is put together.
    - Define the terms used to locate parts of the body.
- 

## Step 2 Lesson Preview

---

- ❑ When Leonardo da Vinci drew his sketches of the human body back in the fifteenth century, he probably didn't anticipate just how important the study of the human body would become.

Today many people use anatomy daily in their professions. Athletic coaches must be well versed in anatomy because their knowledge of muscles and bones will help their players achieve top performance. Doctors must know vast amounts of anatomy, from the top of the human head down to the little toe and all the nerves, blood vessels and organs in between. In this lesson, you will begin to understand how anatomy affects our everyday lives.



*Leonardo da Vinci's human form*

We begin this journey with an introduction to the science of life—*biology*. After you have learned about basic human biology, we will move into the more specific science of *anatomy*, including *physiology*—the study of how the body works. Don't worry! We will move at a comfortable pace, and we'll carefully cover each detail you must know. Let's go!

---

### Step 3 Human Biology

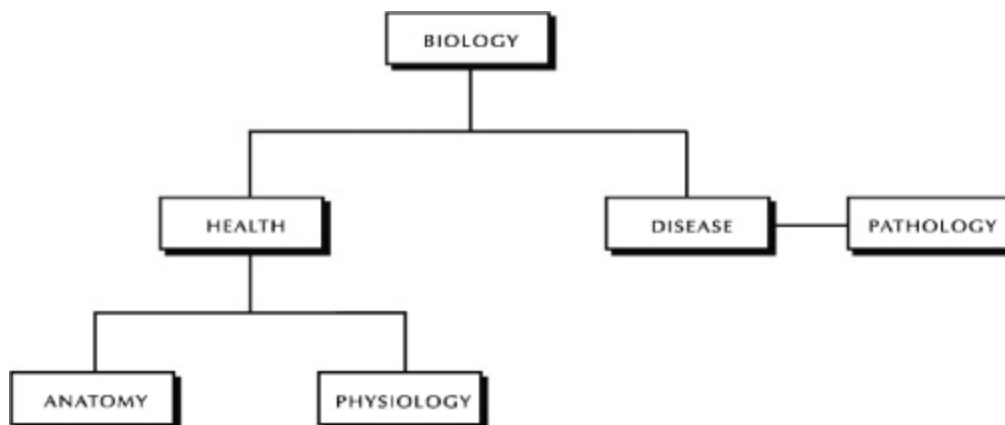
---

- For the next several lessons, you will learn about the study of human living things. Because you are a human, you'll be learning a lot about yourself. You'll grow in your understanding of the human body and the specialized terms doctors use to talk about the body. You'll be surprised at how much you learn about this fascinating subject just by reading the instruction, completing the Practice Exercises and studying your flashterms.

#### What is Human Biology?

**Human biology** is the study of how the body is put together and how it works in health and disease. We do not expect you to become an expert in biology, but understanding the basics of biology will give you a good background for the terms doctors use. This will help you become a better medical claims and billing specialist.

Human biology in the healthy state covers two basic concepts: anatomy and physiology. Human biology in disease deals with pathology. Look at how these concepts are related:



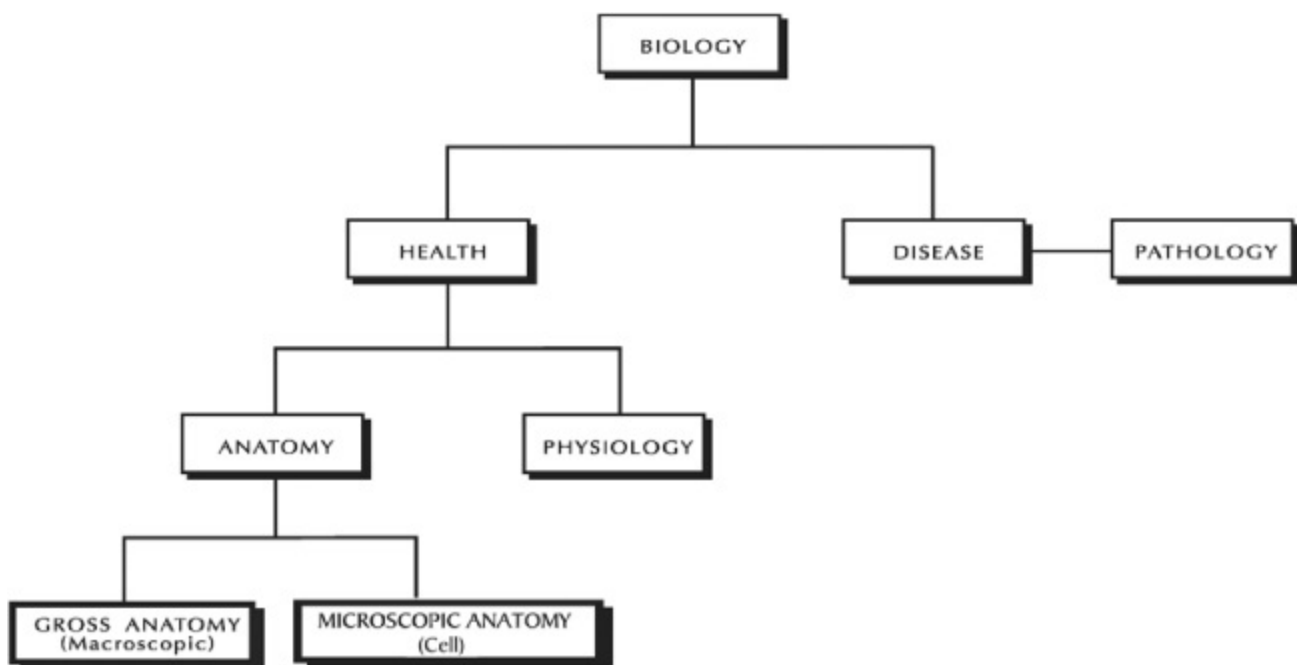
*Biology deals with health and disease.*

We will discuss each of these topics in more detail. Remember, the idea is not to become an expert in biology, but to understand the context of the terms you might see on a claim or bill.

## Anatomy

**Anatomy** is the science of the structure of the body—the appearance and relationships of body parts. The two kinds of anatomy are *gross anatomy* and *microscopic anatomy*.

- **Gross anatomy** includes parts of the body that we can see with our eyes. It is also called macroscopic anatomy.
- **Microscopic anatomy**, or **cell anatomy**, includes parts of the body that are too small to be seen with the naked eye.



Two kinds of anatomy are gross anatomy and microscopic anatomy.

## Gross Anatomy

In **gross (macroscopic) anatomy**, we are concerned with the presence and appearance of a body part.

The study of the form of body parts is called **morphology**. The form of a body part includes its size, shape, color, contour and texture. For example, when a kidney is normal in size, shape, color, contour and texture, we say it has *normal morphology*.

A basketball player and a jockey both have the same *anatomic structure*. For example, they both have five fingers on each hand. However, there is a *morphologic* difference between them. For example, the hand of the basketball player is larger than the hand of the jockey.

Gross anatomy also deals with the location and position of the organs and body parts. For example, not only should the heart be in the chest, but it should be in the left side of the chest.

### Facts About Gross Anatomy

The terms used to describe gross anatomy include:

- ✓ The names of the body parts.
- ✓ Where the body parts are located.
- ✓ How the locations of two body parts are related.

## Microscopic Anatomy

**Microscopic (cell) anatomy** is the science of the body's individual cells and tissues. This kind of study is done with a microscope. The microscopic study of cells is called **cytology**. The microscopic study of tissues is called **histology**.

### **Facts About Microscopic Anatomy**

The terms used to describe microscopic anatomy include:

- ✓ The names of different cell parts and cell types.
- ✓ The colors cells become when they are dyed for microscopic examination.
- ✓ The ways cells are arranged in different types of tissue.

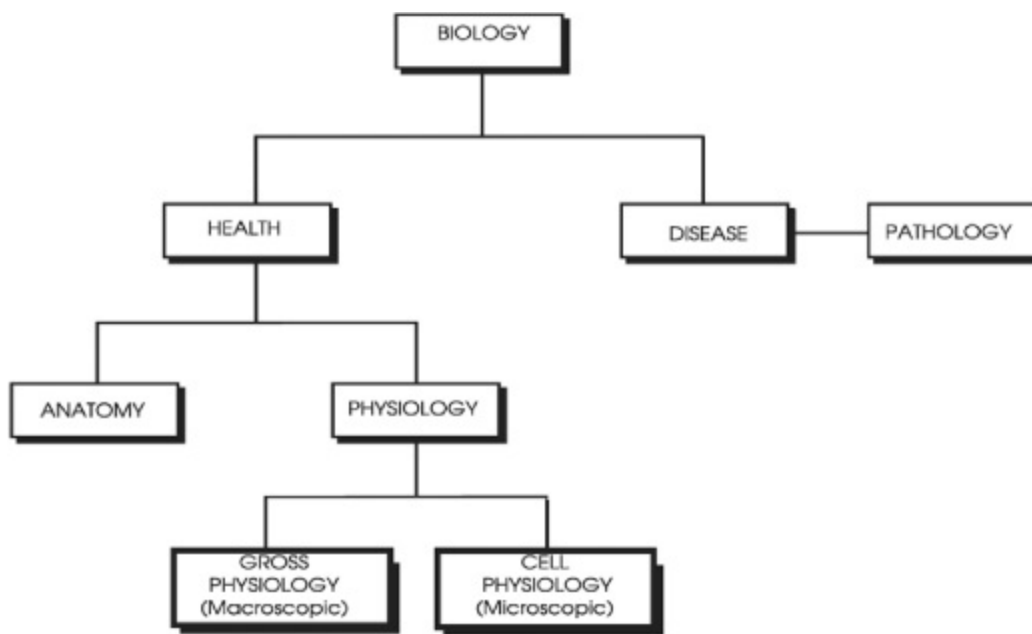
## Physiology

**Physiology** is the study of how the body works—it describes the function of the body, and its organs, tissues and cells.

Each organ, cell or tissue has its own special physiologic function. For example, kidneys make urine, but they cannot think. The brain thinks, but it cannot make urine.

Physiology can also be divided into macroscopic physiology and microscopic physiology.

- **Macroscopic physiology** is usually called **gross physiology**.
- **Microscopic physiology** is usually called **cell physiology**.



*Physiology can be broken into gross physiology and cell physiology.*

---

## Step 4 Pathology

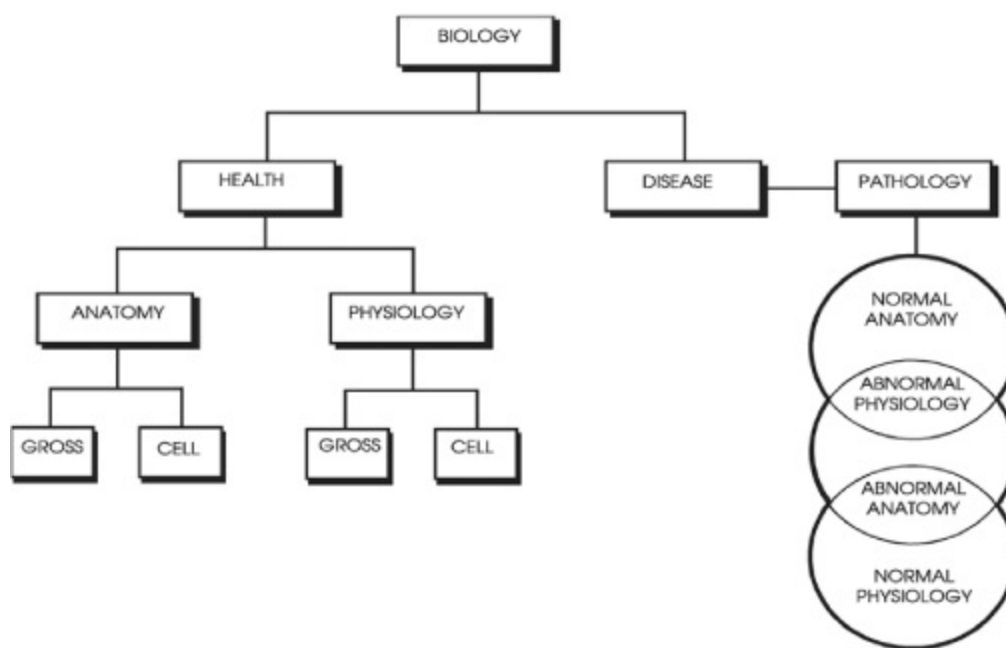
---

❑ **Pathology** is the study of human biology when anatomy and/or physiology are abnormal.

### Facts About Pathology

- ✓ *Abnormal physiology* is sometimes called **pathophysiology**.
- ✓ *Abnormal anatomy* is called **pathology** or **pathologic anatomy**.

Look at the relationships below.



*Pathology deals with abnormal anatomy and abnormal physiology.*

## How do Anatomy, Physiology and Pathology Relate to One Another?

In this section, we'll examine normal anatomy and physiology.

### Normal Anatomy/Abnormal Physiology

A person can have abnormal physiology (pathophysiology) but normal anatomy. For example, a diabetic has abnormal physiology—the person cannot make insulin—but the diabetic may have normal anatomy. The insulin-making function is abnormal but the appearance and location of the organ that makes the insulin is normal.

### Abnormal Anatomy/Normal Physiology

A person can have abnormal anatomy (pathology) but normal physiology. For example, a healthy dwarf has abnormal anatomy but normal physiology. The anatomy is abnormal but it functions normally.

### Abnormal Anatomy/Abnormal Physiology

When an anatomic abnormality (anatomic pathology) lasts long enough, it may lead

to a physiologic abnormality. For example, in early alcoholism, the liver changes by containing more fat and enlarging. These are anatomic abnormalities. The function is normal. If alcoholism continues long enough, the liver slowly stops functioning. This is a physiologic abnormality.

On the other hand, when a physiologic abnormality (pathophysiology) lasts long enough, it may lead to an anatomic abnormality. For example, at the start of a cold, you will have sniffles and a loss of smell. These are physiologic abnormalities. The function of the nose is abnormal. The anatomy of the nose, its size and color, is normal. Later, you may have a swollen, red nose from the cold. Swelling and redness are pathologic changes in anatomy. Because swelling and redness are changes in size and color, they can also be called morphologic changes.

For most disease processes, anatomy and physiology have both become abnormal (pathologic) by the time a diagnosis is made. For example, in the early stages of alcoholism, the liver functions well and the liver function tests are normal. The diagnosis of alcoholic liver disease is not usually made. The patient feels fine and cannot believe that the liver is abnormal. When both the anatomy and physiology are pathologic, the patient feels sick, there is hepatomegaly, and the liver function tests are abnormal. So you can see that the diagnosis is not usually made until both the anatomy and physiology are pathologic.

Likewise, in the early stages of a cold, when you just have sniffles, you will probably say, "I think I'm getting a cold." When your nose is red, swollen, stuffy and runny, you'll say, "I have a cold." Again, the diagnosis isn't usually made until both anatomy and physiology are abnormal. Of course, it's hard to get a day off work with just abnormal anatomy or just abnormal physiology, but some people try!

So even though diseases can be divided into anatomic pathology and pathophysiology, most of the time medicine deals with both anatomic and physiologic pathology at the same time.





*At the start of a cold, you will have sniffles and a loss of smell.*



**Please pause and complete online Practice Exercise 10-1.**

---

## **Step 5 Beginning Anatomy and Physiology Concepts**

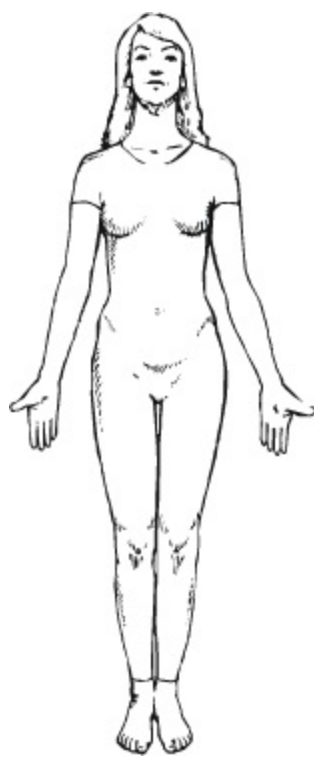
---

- ❑ Now that you have a basic understanding of human biology, you are ready to move on into the more specific science of anatomy and physiology. Anatomy and physiology are two key components in the medical world.
  - **Anatomy** refers to the structure of the body—the appearance and relationships of body parts, such as muscles, bones, organs and other systems.
  - **Physiology** is the study of how these body parts work together to sustain life—the functions of the body and its organs, tissues and cells.

### **The Anatomic Position**

Doctors use a system to describe the location of anatomical parts. This system assures that there is no confusion about the location of any parts, even if the patient is hanging by the feet doing yoga.

The location of body parts is always described as if the patient were in the position shown in the following figure. This body position is called the **anatomic position**.



*The anatomic position*

Notice the position of the hands in the figure. The palms are facing forward and the thumbs are facing outward. No matter what the position of the patient, the doctor will describe the location of anatomic parts as if the patient were always in this position. Stand up and put your body in the anatomic position. That's right.

Be sure you can remember the anatomic position. All the terms you will learn in this lesson are based on the relationships of body parts when the body is in this position.

## **Planes and Sections of the Human Body**

The human body has three dimensions: height, width and depth.

### **Facts About Dividing the Body**

The body can be divided in three different ways:

- ✓ Superior and inferior (top and bottom) sections.
- ✓ Right and left sections.
- ✓ Anterior and posterior (front and back) sections.

Dividing the body like this can help you understand where organs or parts are located. You can divide the body into these sections by making a mental “slice” or “cut.”

## Transverse Planes and Sections

The **transverse** or **horizontal** plane divides the body into superior (above) and inferior (below) sections. A transverse plane can be made anywhere in the body from the feet to the head.

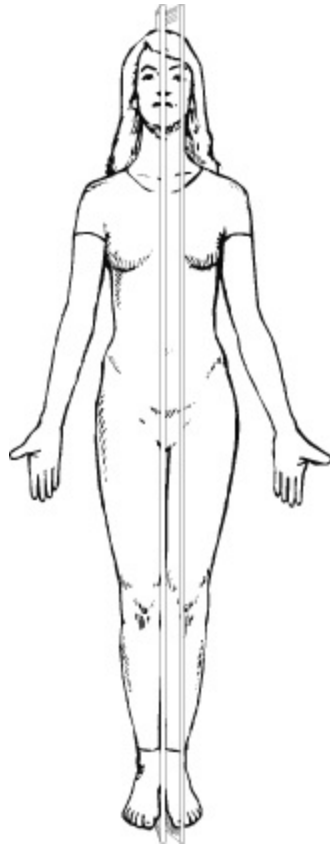


*Transverse sections*

- A transverse plane made at the neck divides the body into superior and inferior sections. The head is superior to the plane. The chest, arms, abdomen and legs lie inferior to the plane.
- A transverse plane made at the waist also divides the body into superior and inferior portions. The head, chest and arms are superior to the plane. The pelvis and legs are inferior to the plane.
- A transverse plane made at the level of the knees divides the body into superior and inferior sections, too. The thighs, abdomen, chest, arms and head are superior to the plane. The calves and toes are inferior to the plane.

## Sagittal Planes and Sections

A **sagittal** or **longitudinal** plane divides the body into right and left sections. A **midsagittal** or **median** plane divides the body into equal right and left sections. A midsagittal plane is the midline of the body. A **parasagittal** plane divides the body into unequal right and left sections. A sagittal plane can be made at any point of the body from the right side to left side.



*Sagittal sections*

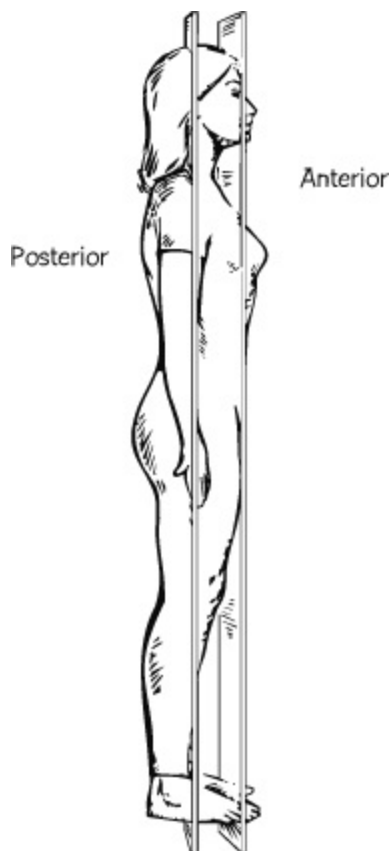
## Coronal Planes and Sections

A **coronal** or **frontal** plane divides the body into anterior (front) and posterior (back) sections. A coronal plane can be made at any point from the front of the body to the back of the body.

- A coronal plane at the level of the ears divides the body into anterior and posterior sections. The face, abdomen and knees are anterior to the plane. The back, buttocks and ankles are posterior to the plane.
- A coronal plane at the level of the nose divides the body into anterior and posterior sections. The nose is anterior to the plane. Everything else is posterior to the plane.

You can divide the body and each organ using planes. For example, a midsagittal plane of the liver would divide the liver into equal left and right sections.

Study the definitions of these planes until you can form a mental image of them. You can remember these concepts more easily if you picture the planes using your own body.



*Coronal sections*



**Please pause and complete online Practice Exercise 10-2.**

---

## **Step 6 Location Terms**

---

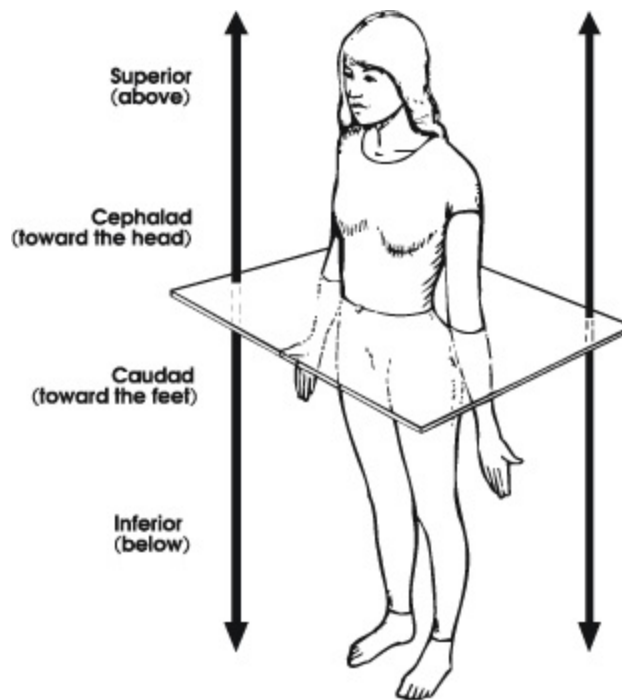
- The location terms you will learn in this lesson are very important. Doctors use them to describe what they see when they examine a patient. You will learn how to pronounce the terms later in this lesson.

When doctors describe the location of anatomic parts, they use terms that compare the location of one part to another part. There are a number of terms used to

describe the relative location of body parts and organs. These terms rely on the anatomical position and the anatomic sections you have just learned.

### Facts About Location Terms

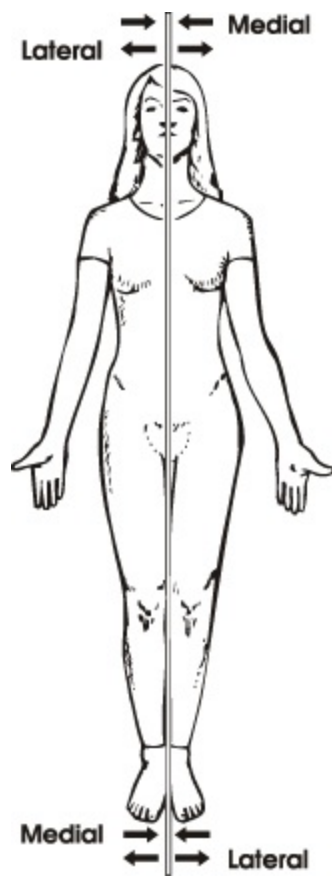
- ✓ These terms usually come in antonym pairs. Each word of an antonym pair means the opposite of the other word, such as the antonym pairs above and below or left and right.



*Transverse plane*

If you draw a transverse plane through the body or an organ, these words describe anything above or below that plane.

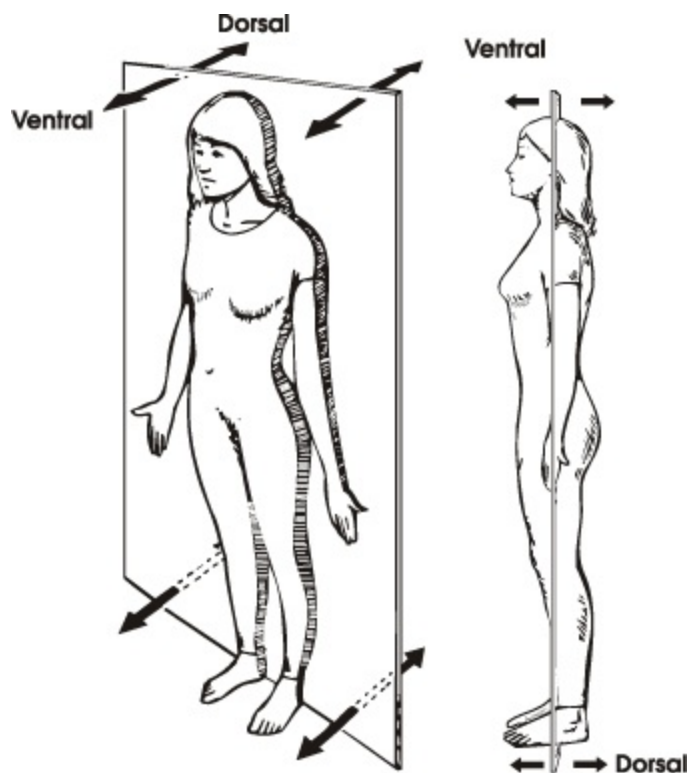
- **Superior** means above.
- **Inferior** means below.
- **Cephalad** means toward the top of the head.
- **Caudad** means toward the soles of the feet.



*Sagittal plane*

If you draw a midsagittal plane through the body or an organ, these words describe anything closer to or farther away from that plane.


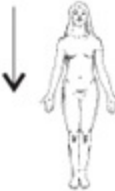




- **Medial** means closer to the midsagittal plane or middle.
- **Lateral** means farther away from the midsagittal plane or middle.



If you draw a coronal plane through the body or an organ, these words describe anything in front of or behind that plane.

- **Anterior** means in front of.
- **Posterior** means in back of.
- **Ventral** means on the belly side.
- **Dorsal** means on the back side.

On the next page is a chart summarizing these location terms and how they are used.

Location Term	Definition	Location Illustration	Example
<b>Superior</b>	Above		The nose is superior to the chin.
<b>Inferior</b>	Below		The pelvis is inferior to the abdomen.
<b>Medial</b>	Closer to the middle		The groin is medial to the thigh.
<b>Lateral</b>	Farther away from the middle		The ear is lateral to the nose.
<b>Anterior</b>	In front of		The heart is anterior to the spine.
<b>Posterior</b>	In back of		The lungs are posterior to the sternum.

Look at some sentences showing how these words are used. Compare these statements to your own body. Be sure your body is in the anatomic position when you do.

The lungs are **superior** to the liver.



The liver is **inferior** to the heart.

The incision was made in a **cephalad** direction.

The arteries for the lower extremities travel in a **caudad** direction.

The nose is **medial** to the eye.

The right thumb is **lateral** to the right index finger.

The sternum is **anterior** to the heart.

The lungs are **posterior** to the sternum.

The **ventral** hernia was repaired.

The patient was placed in the **dorsal** position for surgery.

The following terms are used for the body or an organ as a whole. They describe parts that are nearer the center or parts that are nearer the surface of the body or an organ. Examples of how these words are used follow the terms.

- **Proximal** means nearer to the center of the body or organ. The knee is proximal to the foot.
- **Distal** means farther away from the center of the body or organ. The foot is distal to the knee.
- **Superficial** means on or closer to the skin or surface of an organ. The wound was superficial, not involving the muscles, and did not require sutures.
- **Deep** means under or farther away from the skin or surface of an organ. The wound was deep and penetrated the liver.
- **Central** means within or near the center. The heart is central within the rib cage.
- **Peripheral** means at or near the rim or edge. The peripheral veins of the arms and hands can easily be seen.
- **Parietal** means the outer wall of a body cavity. The parietal pleura forms the outer layer that surrounds the lungs.
- **Visceral** means the covering of an organ. The visceral pleura covers the lungs.
- **External** means outside or closer to the skin or surface of an organ. The pericardium is external to the heart.

- **Internal** means inside or farther away from the skin or surface of an organ. The lungs are internal to the ribs.
- **Ipsilateral** means situated on or affecting the same side of the body. The left leg and left arm are ipsilateral.
- **Contralateral** means situated on or affecting the opposite side of the body. The right leg and left arm are contralateral.

Some things in the body, like blood cells, fluid or nerve messages, can move. The next two terms describe body parts that carry things which move.

- **Afferent** means carrying toward a body part or the center of an organ. An afferent neuron is a nerve that carries nerve messages to the brain from a muscle.
- **Efferent** means carrying away from a body part or the center of an organ. An efferent neuron is a nerve that carries nerve messages away from the brain to a muscle.

---

## Step 7 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 9 flashcards out of your Quick-learn Kit. Insert the first flashcard for Set 9 into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 10 Listen to New Terms.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can

pronounce the terms clearly and easily.

---

## **Step 8 Write New Terms**

---

Follow these steps:

- a. Insert the first flashcard for this set into Side A of your Quick-learn Tutor.
  - b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
  - c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
  - d. Do this for each term.
- 

## **Step 9 Meanings of New Terms**

---

Do the following steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each word part or term and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the flashterms and their meanings. You may use the flashcards for the Practice Exercises and Quizzes.
- d. When you feel comfortable with the spelling, pronunciation and meaning of each flashterm, go on to the next step.



**Please pause and complete online Practice Exercise 10-3.**

---

## Step 10 Lesson Summary

---

- This lesson brings you further along in your journey to become an effective and professional medical claims specialist. Anatomy is an integral part of every aspect of medicine, so the ability to recognize terms and their medical context will make you a valuable member of the healthcare team.

This lesson explained the basics of *human biology*—the study of how the body is put together and how it works in health and disease. Human biology in the healthy state includes anatomy and physiology. Human biology in disease deals with pathology. *Anatomy* is the science of the structure of the body—the appearance and relationships of body parts. The two kinds of anatomy are *macroscopic (gross) anatomy* and *microscopic (or cell) anatomy*. *Physiology* is the study of how the body works—it describes the function of the body and its organs, tissues and cells. Physiology can also be divided into *macroscopic physiology* (usually called *gross physiology*) and *microscopic physiology* (usually called *cell physiology*). *Pathology* is the study of human biology when anatomy and/or physiology are abnormal. *Abnormal physiology* is sometimes called *pathophysiology*. *Abnormal anatomy* is called *pathology* or *pathologic anatomy*.

When doctors describe the location of anatomic parts, they refer to the anatomic position and the anatomic sections (transverse, sagittal and coronal) with the corresponding anatomic planes. There are also specific *location terms* used by doctors to describe the relative locations of body parts and organs.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 11

# The Anatomy of the Human Body

---

## Step 1 Learning Objectives for Lesson 11

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Discuss landmarks and divisions as they apply to anatomy.
    - Discuss the basic body cavities and membranes.
    - Explain how the body is organized.
    - Discuss how a basic understanding of anatomy relates to medical claims processing.
- 

## Step 2 Lesson Preview

---

- ❑ In previous lessons, you've learned some of the language that goes along with the medical field. In this lesson, you will learn about the body—how it works, how it is organized and how its systems are connected.

Don't worry if you don't remember everything about this lesson. It is meant only as an introduction and to give you a knowledge base. This base enables you to understand what medical providers are faced with every day. As a medical claims specialist, you need to have this basic understanding to communicate with doctors on a daily basis.



*This lesson will serve as an introduction to the human body.*

---

### **Step 3 Gross Anatomy**

---

- ❑ Contrary to what you might have thought earlier, *gross anatomy* does not mean *nasty* or *disgusting* anatomy! Instead, as you know, it refers to the study of body parts and systems that can be seen without the aid of a microscope. In this context, the word *gross* means *large*.

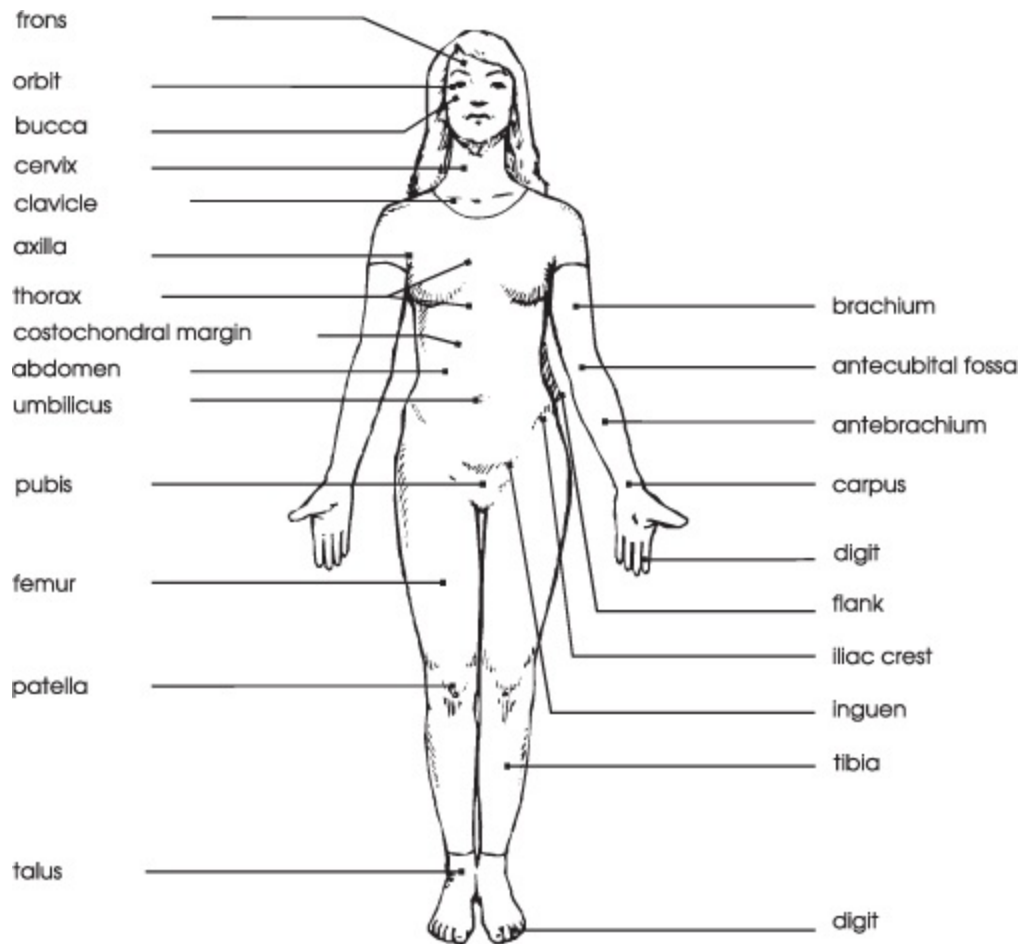
#### **Landmarks and Divisions**

When a doctor examines the surface of the body, the doctor will use several gross anatomy terms to describe location. The study of the surface of the body is often called *superficial anatomy*. These location terms, or **landmarks**, have been used for hundreds of years, long before we could see inside the body with x-ray or ultrasound machines. These terms are used every day in physical examinations, medical histories and surgery reports. As a medical claims specialist, you're likely to encounter these terms often.

#### **Superficial (Surface) Landmarks, Face Up**

When the body is **supine**, which means lying flat on the back, the doctor can see the anterior or ventral side of the body. Let's look at the terms used for superficial landmarks on the anterior surface.

This figure shows the surface landmarks in the *supine* position. The surface landmarks are labeled. Can you find these parts on your own body? Check off each landmark after you have found it. If you are not sure what a new term means, consult the list of meanings that follows the picture.



*Surface landmarks, supine*

### **Surface Landmarks, Supine Meaning**

frons	forehead
orbit	eye
bucca	cheek
cervix	neck
clavicle	collarbone
axilla	armpit

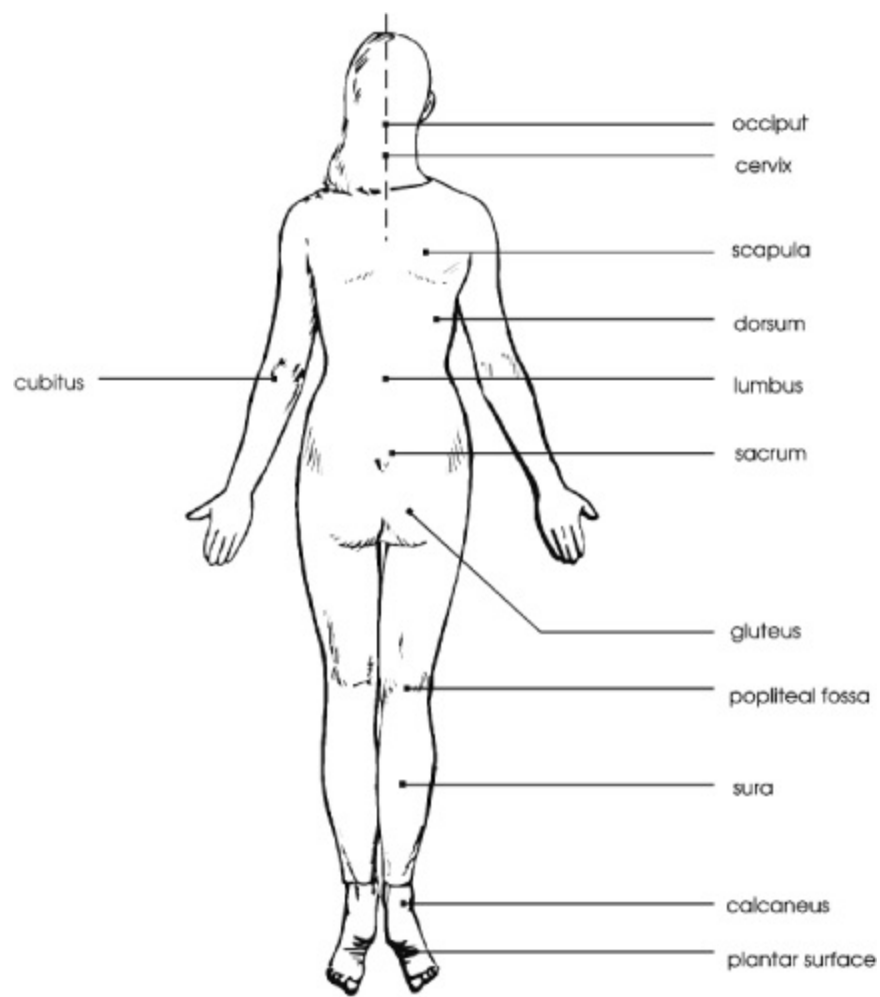


thorax	chest
costochondral margin	rib and cartilage
abdomen	trunk
umbilicus	navel, bellybutton
pubis	front pelvic bone
femur	thigh
patella	kneecap
talus	ankle
brachium	upper arm
antecubital fossa	front of elbow
antebrachium	forearm
carpus	wrist
digit	finger/toe
flank	side from ribs to hip bone
iliac crest	hip bone
inguen	groin
tibia	leg
digit	toe/finger

### Superficial (Surface) Landmarks, Face Down

When the body is lying **prone**, or face down, the doctor can see the posterior or dorsal side of the body.

The following drawing shows the surface landmarks in the prone position. The surface landmarks are labeled. Can you find these parts on your own body? You may not be able to reach all of them. Check off each landmark after you have found it. If you need help, you can find the meaning of each surface landmark on the next page.



*Surface landmarks, prone*

**Surface Landmarks, Prone**

**Meaning**

cubitus	elbow
occiput	back of head
cervix	neck
scapula	shoulder blade
dorsum	upper back
lumbus	lower back
sacrum	spinal bones located between the buttocks
gluteus	buttock
popliteal fossa	back of knee
sura	calf
calcaneus	heel
plantar surface	sole of foot

---

## Step 4 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 10 flashcards out of your Quick-learn Kit. Insert the first flashcard for this set into Side A of the Tutor.
- b. Access the online portion of your course and go to Lesson 11 Listen to New Terms Set 10.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a checkmark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

## Step 5 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
- d. Do this for each term in this set.

---

## Step 6 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each word part or term and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times, until you are familiar with the word parts and terms and their meanings. You may use the flashcards for your Practice Exercises and Quizzes.
- d. When you feel comfortable with the spelling, pronunciation and meaning of each flashterm, go on to the next step.

---

## Step 7 Adjective Forms for Landmark Names

---

Some of the landmark names you have just learned probably were unfamiliar to you, but you may have heard these terms in their adjective form. Read the following chart:

Landmark Name (Noun Form)	Meaning	Root Word	Adjective Form
frons	forehead	front/o	frontal
orbit	eye	orbit/o	orbital
bucca	cheek	bucc/o	buccal
cervix	neck	cervic/o	cervical
clavicle	collarbone	clavicul/o	clavicular
axilla	armpit	axill/o	axillary
thorax	chest	thorac/o	thoracic
brachium	upper arm	brachi/o	brachial
carpus	wrist	carp/o	carpal
digit	finger or toe	digit/o	digital
abdomen	trunk	abdomin/o	abdominal
umbilicus	navel, bellybutton	umbilic/o	umbilical
inguen	groin	inguin/o	inguinal
pubis	front pelvic bone	pub/o	pubic
femur	thigh	femor/o	femoral
tibia	leg	tibi/o	tibial
patella	kneecap	patell/o	patellar
talus	ankle	tal/o	talar
cubitus	elbow	cubit/o	cubital
occiput	back of head	occipit/o	occipital
scapula	shoulder blade	scapul/o	scapular
dorsum	upper back	dors/o	dorsal
lumbus	lower back	lumb/o	lumbar
sacrum	spine between buttocks	sacr/o	sacral
gluteus	buttock	glute/o	gluteal
sura	calf	sur/o	sural
calcaneus	back of ankle	calcane/o	calcaneal



Please pause and complete online Practice Exercise 11-1.

---

## Step 8 Divisions of the Abdomen

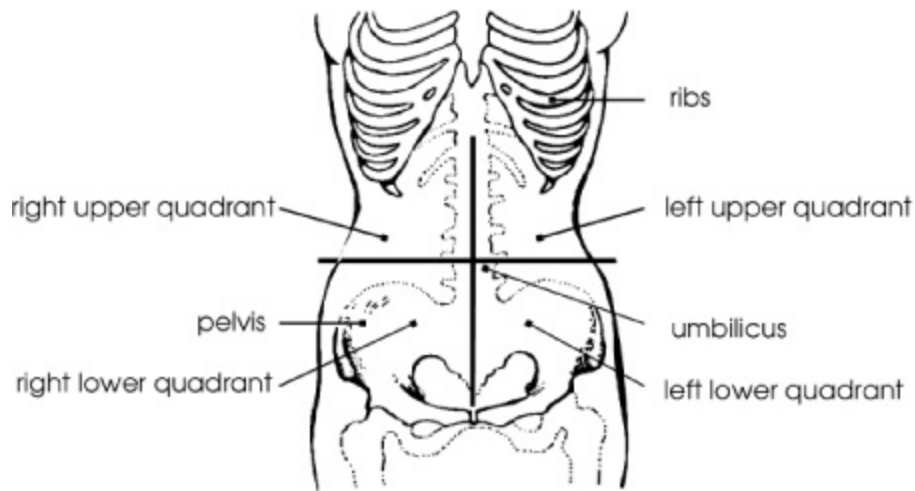
---

- Many doctors and surgeons mentally divide the abdomen into nine areas or regions, each referring to certain organs in the abdominal cavity of each region.

However, younger doctors and those who aren't surgeons will usually use a simpler way to divide the abdomen. The abdomen is divided into fourths. Each of these areas is called a **quadrant**, which means a one-fourth section.

The divisions are made by drawing a line along the **midsagittal plane** (dividing left and right) and a line along the **transverse plane** (dividing top and bottom) at the

level of the umbilicus. An illustration of the division of the abdomen into four quadrants follows.



*The four abdominal quadrants*

### **Facts About Abdominal Quadrants**

The four abdominal quadrants are named using the following words. The acronym for each quadrant is also listed.

- ✓ Right upper quadrant: RUQ
- ✓ Left upper quadrant: LUQ
- ✓ Right lower quadrant: RLQ
- ✓ Left lower quadrant: LLQ



**Please pause and complete online Practice Exercise 11-2.**

---

## **Step 9 Internal Landmarks: The Body Cavities**

---

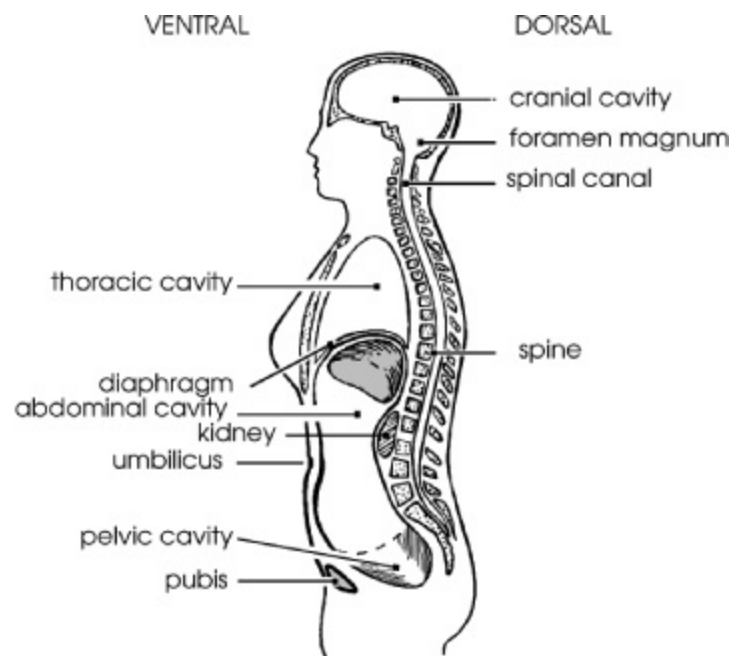
- The spaces within the body that contain the various internal organs are called **body cavities**.

## Facts About Body Cavities

Body cavities have two functions:

- ✓ Body cavities protect the organs they contain.
- ✓ Body cavities keep the organs in a fairly constant location.

The two principal body cavities are the dorsal body cavity and the ventral body cavity. The major body cavities are shown in this drawing.



*Body cavities*

The dorsal body cavity is subdivided into two cavities—the cranial cavity and the spinal canal. The **cranial cavity** is the space inside the skull that contains the brain. The **spinal canal** is the cavity formed by the vertebrae. The spinal canal contains the spinal cord and the beginning of the spinal nerves. There is no real boundary between the cranial cavity and the spinal canal. The **foramen magnum** is the opening of the *occipital bone* that interconnects the two cavities.

The ventral body cavity is also subdivided into two major cavities—the thoracic cavity and the abdominopelvic cavity. The **thoracic cavity** contains smaller cavities and subdivisions. The **mediastinum** is a mass of tissue between the lungs extending from the sternum to the vertebral column. Included in the mediastinum is the **pericardial cavity**, which encloses the heart. The two **pleural cavities** each contain

a lung. The boundary between the thoracic cavity and the abdominopelvic cavity is the **muscular diaphragm**, a dome-shaped muscle.

The **abdominopelvic cavity** consists of an upper portion and a lower portion. The upper portion is called the **abdominal cavity**. It contains the gallbladder, liver, spleen, stomach, small intestine, most of the large intestine, kidneys, pancreas and the ureters. The lower portion, called the **pelvic cavity**, contains the bladder, colon, rectum and the internal reproductive organs. There is no physical boundary between the abdominal cavity and the pelvic cavity. The imaginary boundary lies at the level of the rim of the pelvic bone.

---

## Step 10 Membranes That Line the Body Cavities

---

- Membranes are layers of tissue that cover organ surfaces, line body cavities and form tubes. Body membranes come from two basic tissue groups:
  - epithelial tissue
  - connective tissue

### Epithelial Tissue Membranes

Epithelial membranes are classified by where they are located in the body.

**Epithelial membranes** include cutaneous membrane, mucous membrane and serous membrane.

### Cutaneous Membrane

The outer layer of the skin is a **cutaneous membrane**. It is made of stratified squamous epithelium. The surface of the skin, the outer layer of the stratified squamous epithelium, dries to a tough, nonliving, keratinized layer of squamous cells that waterproofs the skin.

### Mucous Membrane



**Mucous membranes (mucosa)** line every tube or cavity that connects to the surface of the body. The mucous membranes often secrete mucus, which prevents body cavities from drying out. The digestive, respiratory, reproductive and urinary tracts are all covered with mucous membranes.

## Serous Membrane

**Serous membranes (serosa)** line the major body cavities that do not connect to the surface of the body. Serous membranes occur in pairs—the **visceral layer** lines the organ and the **parietal layer** lines the cavity. The serous membranes secrete **serous fluid (serum)**, which lubricates the organs and reduces friction as they glide across each other and the cavity walls.

## The Thoracic Cavity Membranes

The **thoracic cavity** is protected by a serous membrane lining called the **pleura**. The serous membrane lining the pericardial cavity is the *parietal pericardium*. The *visceral pericardium* is the thin, transparent serous membrane covering the heart itself. The lungs are protected by two layers of serous membranes—the *parietal pleura* lines the pleural cavities and the *visceral pleura* covers the lungs themselves.

## The Abdominopelvic Cavity Membrane

The **abdominopelvic cavity** is protected by the largest serous membrane of the body, called the *peritoneum*. Unlike other membranes, the peritoneum contains large folds that bind organs to each other and to the cavity wall. The *parietal peritoneum* lines the cavity wall. The *visceral peritoneum* covers some of the organs within the cavity.

## Connective Tissue Membranes

### Synovial Membrane

Synovial membrane is composed of a gel-like material. It usually contains different types of connective tissue elements. The **synovial membranes** line the joints of the

shoulders, knees, hips, fingers and toes. The synovial membranes secrete a fluid to cushion the motion of these joints so that the bone surfaces do not rub against each other.

## The Cranial and Spinal Canal Membranes

The brain and spinal cord are protected by meninges. The **cranial meninges** line the cranial cavity and are continuous with the **spinal meninges** that line the spinal canal. The meninges consist of three layers, each called a **meninx**. The outer meninx is called the *dura mater*. The middle meninx is the *arachnoid*, and the inner meninx is the *pia mater*.

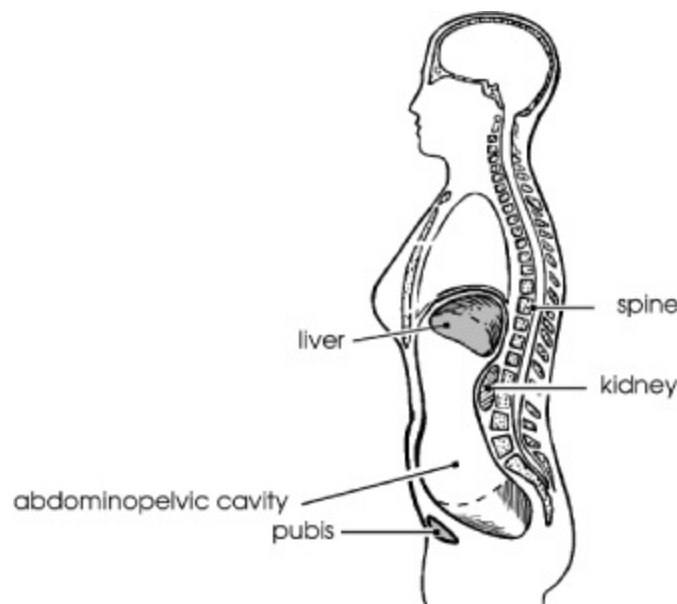
---

## Step 11 Retroperitoneal Organs

---

- Sometimes an organ lies outside a cavity. When you look at this type of organ from inside the cavity, its location is considered to be behind the parietal serosa. For example, in the following graphic, you can see that the kidney is outside the abdominal cavity.

Viewed from inside the abdomen, this kidney is behind the peritoneal serosa. Organs in this location are called **retroperitoneal organs** (pronounced *retro-peri-toe-neel*).



*The kidney is a retroperitoneal organ.*

---

## Step 12 Pronounce New Terms

---

- ❑ Occasions arise when you have to communicate orally about a claim form or bill. You need to be able to understand a healthcare professional's pronunciation of terms, and you need to pronounce anatomical terms yourself. This exercise helps you understand and pronounce the terms you have been reading about.
  - a. Take your Quick-learn Tutor and your Set 11 flashcards out of your Quick-learn Kit.
  - b. Access the online portion of your course, and go to Lesson 11 Listen to New Terms Set 11.
  - c. Listen to the flashterm as it is pronounced. After you hear a term, pause the audio.
  - d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
  - e. Continue this process for each flashcard in this set.
  - f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
  - g. Practice the terms you mispronounced by listening again. Be sure you can pronounce each term clearly and easily.

---

## Step 13 Write New Terms

---

- ❑ The next step in your lesson is to practice writing the terms you have learned. Follow these instructions:
  - a. Insert the first flashcard for this set into Side A of your Quick-learn Tutor.
  - b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
  - c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.

d. Do this for each flashcard.

---

## Step 14 Meanings of New Terms

---

- Follow these steps to learn the meanings of the terms you have pronounced and written.
  - a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each word part or term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
  - b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud. Before you look, see if you can remember the term that goes with that meaning. Check yourself by pushing the flashcard up until you can see the term in the left window.
  - c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use the flashcards for the Practice Exercises and the Quiz.
  - d. When you feel comfortable with the spelling, pronunciation and meaning of each flashterm, go on to the next step.

---

## Step 15 Organization of the Body

---

- You have been studying how the body is organized anatomically. You've been learning the locations of different body parts and how the internal parts of the body are divided into cavities.

Now you will be learning how the body is organized physiologically, that is, how the body is organized to do its work.

Your body has many tasks to perform in order to keep you alive. These tasks often have to be performed simultaneously. This requires great organization.

Your body has to work efficiently, like an army. In any army, there are many

individual soldiers. These individual troops must be organized so that all the various tasks of the army can be completed. Soldiers are grouped into squads; squads are grouped into platoons; platoons are grouped into regiments, then divisions. The whole unit is called an army. The army then works with the navy and the air force in order to get the job done.

The smallest unit in your body is the cell. In fact, your body is composed of millions of cells. The work of the body, although it appears to be the work of large parts, is really the combined work of all the different types of cells in the body.

Similar types of cells group together to form tissues. There are four types of tissues:

- **Epithelial tissue** covers every body surface, including the outer surface, body cavities and organs.
- **Connective tissue** connects other types of tissues, helps support the body and has its own blood supply.
- **Muscle tissue** can extend and contract, allowing movement.
- **Nervous tissue** transmits electrical impulses and makes up the brain, spinal cord and peripheral nerves.

For example, muscle cells group together to form muscle tissue. Liver cells group together to form liver tissue. Nerve cells form nerve tissue.

Different types of tissues group together to form organs. For example, liver tissue, blood vessel tissue, nerve tissue and bile tissue group together to form the liver. Muscle tissue, connective tissue, nerve tissue and blood vessel tissue group together to form a muscle, such as the biceps muscle.

Body organs with similar functions can be grouped into organ systems. For example, the liver, stomach, intestines and pancreas are all organs whose function is digestion. As a group, they form the digestive system. The digestive system is also called the gastrointestinal system.

As you can see, body organization begins with the cell and progresses to tissues, organs and then organ systems.

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 12 flashcards out of your Quick-learn Kit. Insert the first flashcard for this lesson into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 11 Listen to New Terms Set 12.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

## **Step 17 Write New Terms**

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-Learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
- d. Do this for each term in this set.

---

## **Step 18 Meanings of New Terms**

---

□ Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each word part or term and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times, until you are familiar with the word parts and terms and their meanings. You may use the flashcards for your Practice Exercises and Quizzes.
- d. When you feel comfortable with the spelling, pronunciation and meaning of each term or word part, go on to the next step.

---

## Step 19 Organs and Organ Systems

---

□ Tissues are grouped together to form an organ. In an organ, all the tissues work like a team. Each type of tissue has its own job to do, but together the tissues have a common purpose: the function of the organ.

Each type of tissue does its own job. For example, the liver contains tissues from each of the basic tissue groups (epithelium, connective, muscle, nervous). The epithelium covers and protects the organ and makes the glands of the organ. The connective tissue holds the organ together and provides support or repair. The muscle tissue provides motion, contraction or pressure in ducts and vessels. The nervous tissue provides connection to the brain and warning of danger. Even so, all the groups of tissues in the liver act together to perform the functions of the liver.

In the same way, the heart also contains tissues from each of the tissue groups, all acting together to perform the function of the heart. However, from a practical point of view, when a patient has a problem, the problem is not with a tissue type but with a particular organ, such as the liver or the heart.

An organ usually interacts with other organs that help it perform its function. For example, the liver, pancreas, stomach and bowel are organs that all work together to

digest food. Thus, organs with similar functions or physiology are grouped together in organ systems. In fact, the different specialties of medicine are divided by organ systems. You can probably recognize some of them already.

## Respiratory System

The organs in the **respiratory system** are all concerned with breathing, the function of respiration. The respiratory organs include the lungs, trachea and the larynx. The pleura and the pleural cavities are where the respiratory organs lie.

Look at the following encounter form. You can see that the patient was diagnosed with an upper respiratory infection. Even if you don't know specifics about the respiratory system, you do know that the respiratory system controls breathing functions. So this infection likely affects the patient's lungs, trachea or larynx.

As a medical claims specialist, you'll encounter anatomical and physiological terms many times each day. Having a basic knowledge of these terms will make your job much more interesting and enjoyable.

## Circulatory/Cardiovascular System

The organs in the **circulatory** or **cardiovascular system** include organs that form and transport blood and lymph. The organs in this system include the heart, arteries, veins, lymphatic vessels and nodes, spleen and thymus gland. The cardiac portion of this system lies in the mediastinum.

The vascular part includes the blood and lymph vessels and lymph nodes. The vascular part is in every organ in the body. The thymus is a lymphopoietic organ. It lies in the mediastinum and produces lymph tissue.

## Nervous System

The **nervous** or **neurological system** includes the central nervous system, which is made up of the brain and spinal cord, and the peripheral nervous system, which includes the nerves that reach each organ in the body. Because this system includes the mind, it can be called the **neuro-psychiatric system**.



## Muscular System

The **muscular system** includes the skeletal muscles, ligaments and tendons. Only voluntary muscles are part of this system. Smooth muscles and cardiac muscles are considered part of the systems where they occur.

## Skeletal System

The **skeletal system** includes bones, joints, cartilage and spine. Since it is so hard to separate the functions of the voluntary muscles and bones, some people combine the muscular and skeletal organ systems into one system, the **musculoskeletal system**. Hyaline cartilage occurs in other systems, such as the hyaline cartilage of the larynx in the respiratory system. Most people think bones aren't living tissue, but rather something hard, like a rock. But each bone in your body is a living organ, just like your heart.

## Integumentary System

The **integumentary system** includes skin, nails, hair, sweat and sebaceous glands. **Integument** means *in the covering* or *in the skin*. The skin and the organs it contains are part of this system. The skin is the largest single organ in the body! A large skin injury, such as a burn, can be fatal.



## Endocrine System

The **endocrine system** includes the glands that don't have ducts. These glands secrete within themselves directly into their blood vessels. They are made of epithelium. They secrete hormones. Endocrine glands include the thyroid, pituitary and adrenal glands.

## Digestive System

This system is concerned with digestion of food. It begins with the mouth and ends at the anus. It includes the stomach, intestines, liver, pancreas, mouth and esophagus. The **digestive system** is also called the **gastrointestinal system**.

## Urinary System

This system filters the blood and produces urine. It includes the kidneys, ureters, urinary bladder and urethra.

## Reproductive System

This organ system involves the organs for reproduction. The **reproductive system** includes such organs as the ovaries, uterus, vagina, breasts, testes and penis.

## The Immune System

One system you may have heard about is the **immune** or **immunologic system**. This system that defends the body from disease is not clearly understood. It appears to use parts of the cardiovascular system, the nervous system and the endocrine system to provide defense against some kinds of disease. The immune system provides **immunity**, or resistance, to diseases caused by stress, viruses and degeneration. It helps fight cancer and tries to kill any foreign substance in the body, even a transplanted organ.

---

## Step 20 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and the flashcards labeled Set 13 out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 11 Listen to New Terms Set 13.
- c. Listen to the flashterm as it is pronounced. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Continue this process for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce each term clearly and easily.

---

## Step 21 Write New Terms

---

The next step in your lesson is to practice writing the terms you have learned. Follow these instructions:

- a. Insert the first flashcard for this set into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
- d. Do this for each flashcard.

---

## Step 22 Meanings Of New Terms

- ❑ Follow these steps to learn the meanings of the terms you have pronounced and written.
  - a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term or word part out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
  - b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud. Before you look, see if you can remember the term that goes with that meaning. Check yourself by pushing the flashcard up until you can see the term in the left window.
  - c. Practice with the flashcards several times until you are familiar with the flashterms and their meanings. You may use the flashcards for the Practice Exercises and the Quizzes.



**Please pause and complete online Practice Exercise 11-3.**

---

## Step 23 Lesson Summary

---

- ❑ This lesson continued your introduction to anatomy—how the body works, how it is organized and how its systems are connected.

Doctors use terms, called *landmarks*, to describe locations on the body. These include superficial, or surface, landmarks for the body in the supine and prone positions. To accurately describe locations on the abdomen, surgeons divide the abdomen into nine areas or regions, which refer to certain organs in the abdominal cavity in each region. Non-surgical doctors often use a simpler way to describe locations on the abdomen by dividing the abdomen into fourths, or quadrants. Internal landmarks used by doctors to describe location include body cavities and the body cavity membranes.

The body is organized in a complex structure that enables it to work effectively. The smallest unit is the cell. Cells group together to form tissues. Tissues group together to form organs. Organs form organ systems, which function as a whole to operate

the amazing mechanism we call the body.

This lesson is intended to serve as a base that will help you to understand the context of terminology used in medical bills and claims, and to communicate effectively with healthcare professionals.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 12

# Organ Systems I

---

## Step 1 Learning Objectives for Lesson 12

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
  - Define terms relating to organ systems.
  - Describe the two tissue layers of the skin.
  - Explain the skin conditions and details concerning the skin appendages (hair and nails).
  - Describe how each gland in the skin works.
  - Discuss the major bones in the body.
  - Discuss the major muscles in the body.
  - Describe the anatomy of the nerves and the central and peripheral nervous systems.
  - Explain the anatomy and physiology of the heart.
  - Determine the functions and parts of the peripheral vascular system.
  - Describe the immune system and how it works to protect the body.
  - Use organ system terminology as it is applied in a medical setting.

---

## Step 2 Lesson Preview

---

- ❑ In Lesson 11, you learned how the human body is organized to do its work. The highest level of organization in the body is the organ system. In this lesson and the next lesson, you will be studying each body system in greater detail. It is important that you, as a medical claims and billing specialist, understand the basic ways in

which the body works. This helps you to communicate effectively with healthcare providers. It also helps you by giving you more knowledge in anatomy—a very important science in the world of medicine.



*It is important that you, as a medical claims and billing specialist, understand the basic ways in which the body works.*

This lesson is designed to give you a more in-depth understanding of five organ systems. The organ systems that you will be learning about in this lesson are the integumentary system (the skin), the musculoskeletal system, the neurological system, the cardiovascular system and the immune system.

You'll also see how you will encounter these organ systems each day as a claims specialist.

---

### Step 3 Integumentary System

---

- ❑ The **integumentary system** is composed of the skin (known as the **integument**), a number of appendages growing from the skin (hair and nails), and the glands contained in the skin. The largest organ system in the body is the integumentary system. Its function is to protect the body from things such as heat, cold, harmful chemicals and bacteria. Loss of only part of the integument (in-teg-you-ment), for example, from a burn injury, can result in death. This system covers nearly two square meters of surface area.

#### Skin

The skin is composed of two layers of tissue. They are:

- the epidermis



➤ the dermis

The table shows the names of the components of each layer. The skin also includes **appendages**, structures arising from it, and **derivatives**, structures that grow within it.

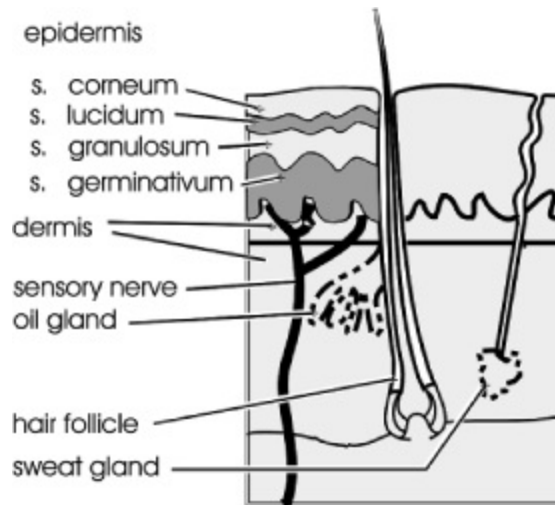
Overview of Skin Elements	
Skin	
Epidermis	
Stratum corneum	
Stratum lucidum	
Stratum granulosum	
Stratum germinativum	
Dermis	
Papillary layer	
Reticular layer	
Skin Appendages	
Hair	
Nails	
Skin Derivatives	
Sudoriferous glands	
Sebaceous glands	

## The Epidermis

The following figure illustrates the layers and components of the epidermis. The outermost layer is made up of squamous (flat) cells that dry to a tough, nonliving, **keratinized** (care-ah-tin-eyes-d) layer that waterproofs the skin. It is thicker on the palms of the hands and the soles of the feet.

The epidermis continually forms new cells in its deepest layer and sheds dead cells at

its surface. Millions of dead squamous cells are shed everyday.



*Layers of the epidermis*

The epidermis contains specialized cells that add color to the skin. These cells are called **melanocytes** because they contain the pigment **melanin**. The color of skin depends on the number of melanocytes and the depth at which they lie. The epidermis is organized in four layers: the stratum corneum, stratum lucidum, stratum granulosum and stratum germinativum.

## The Dermis

The **dermis** is the layer of the skin that lies beneath the epidermis. It is a layer of connective tissue that is tough and flexible. For example, the leather in leather gloves is dermal tissue. The dermis is thick over the palms and soles, thinner in your inner wrist and very thin in the eyelids. Rub the skin of your eyelid, wrist and palm to see the difference in toughness and flexibility in the skin, depending on the thickness of this layer.

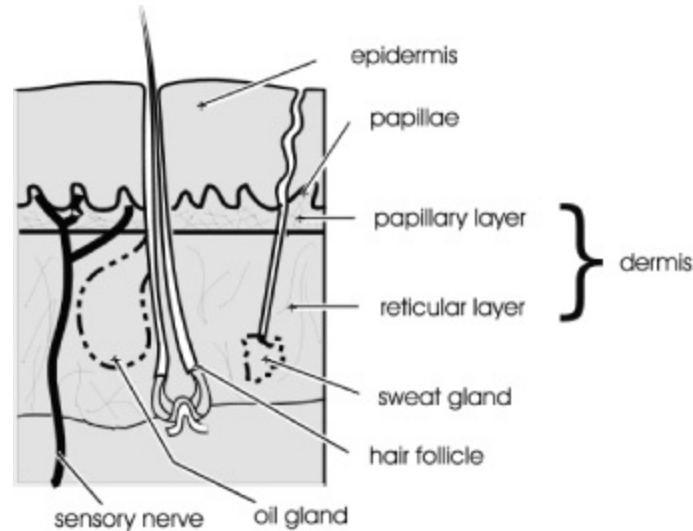
Unlike the epidermis, the dermis has a generous supply of blood vessels, nerve endings, collagen and elastic fibers, and smooth muscles. The dermis contains two layers:

- the papillary layer
- the reticular layer

The **papillary layer** has finger-like projections extending into the epidermis. These projections are called **papillae**. The dermal papillae are very vascular, and this

blood supply helps to regulate body temperature by letting heat reach the skin surface. The papillae contain many nerve endings for pain and touch.

The **reticular layer** is the deep layer of the dermis. Hair follicles, sweat glands and oil glands reach as deep as the reticular layer. Scattered throughout the dermis are **phagocytes**, cells that help fight infection by “eating” dead bacteria and debris.



*Layers of the dermis*

## Skin Appendages

There are two appendages that develop from the skin: the hair and nails.

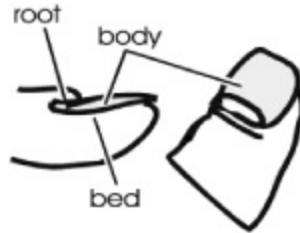
### Hair

Hair grows from the epidermal layer all over the body. Some areas are hairier than others. The texture and color depend on the area of the body, gender, age, health and heredity. Hair patterns are different in males and females.

The hair grows from an envelope called the **follicle**. The follicle extends into the epidermis from the dermis. The hair grows like a flower grows from a bulb planted in the ground. The part of the hair thread inside the follicle is called the root. The part of the hair that emerges from the follicle, like a flower emerging from the ground, is called the hair **shaft**. The outermost layer, called the **cuticle**, consists of flat, thin scale-like keratinized cells.

## Nails

Fingernails and toenails are hard, keratinized cells produced by the epidermis. They are like hooves and claws in other animals. The nail **body** is the part that attaches firmly to the skin and is not covered by skin. The nail **root** is embedded in a fold of skin. The nail **bed** is the skin under the nail.



*Fingernail or toenail*

The color of a healthy nail depends on the blood supply to the nail bed. Squeeze your thumbnail, then let go quickly. You will see that the nail bed is white, quickly filling in with pink as the blood vessels of the nail bed fill with blood. When the oxygen level of blood is very low, the resulting *cyanosis* will color the nail bed blue (*cyan/o* means *blue*). In an emergency, a simple way to see if there is blood flow or cyanosis is to squeeze the thumbnail to see how fast the blood returns and how pink it is.

## Skin Derivatives

There are a number of glands that develop in the skin. The **sudoriferous** (soo-do-rif-er-us) **glands** produce sweat. They open to the surface through openings in the epidermis called **pores**. Sweat glands are an important factor in body temperature regulation. Sweat is produced when it is hot. The evaporation of this fluid cools the body surface, allowing heat to escape through the skin.

The **sebaceous** (seh-bay-shus) **glands** are oil glands connected to hair follicles. They actually produce a substance called **sebum** which is a mixture of lipids (fats) and cellular debris. These are the glands that keep the skin from being too dry, and sometimes they can make the skin too oily.

## Example Claim Form

You may be wondering why you, as a claims specialist, need to know about follicles

and sudoriferous glands! Well, each day as a claims specialist you'll use patients' encounter forms to complete CMS claim forms. Along with completing patient and physician information, you'll code each of the diagnoses and procedures listed on the encounter form.

We'll talk more about the process of coding later, but in the meantime, take a look at this diagnosis and procedure and the corresponding codes entered onto the claim form. See if you recognize some of the terms in the diagnosis and procedure.

**Diagnosis**

**216.5 Benign neoplasm of skin, skin of trunk, except scrotum**

**code**

**Excision, benign lesion including margins, except skin tag**

**Procedure**

**11403 (unless listed elsewhere), trunk, arms or legs; lesion diameter**

**code**

**2.1 to 3.0 cm**

The term “skin” in both code explanations is a giveaway that these particular diagnosis and procedure relate to the integumentary system, right? Even without a dictionary, we know that this patient was diagnosed with a non-cancerous lesion. The procedure was a removal of the lesion.

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)										
1. <u>216.5</u>			3. _____			C.		D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E.
2. _____			4. _____			B. PLACE OF SERVICE		CPT/HCPCS		DIAGNOSIS POINTER
24. A. DATE(S) OF SERVICE						B.	C.	D.		E.
MM	DD	YY	MM	DD	YY	PLACE OF SERVICE	EMD	CPT/HCPCS	MODIFIER	DIAGNOSIS POINTER
04	06	XX	04	06	XX	22		11403		1

Don't worry if the codes don't make sense right now. They're not supposed to yet! For now, isn't it great to be able to see your knowledge go to work on a claim form?

---

## Step 4 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 14 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 12 Listen to New

## Terms Set 14.

- c. Listen to the flashterm as it is pronounced. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each flashterm in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

### Step 5 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside each word part or term.
- d. Do this for each flashcard.

---

### Step 6 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each

meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.



Please pause and complete online Practice Exercise 12-1.

---

## Step 7 Musculoskeletal System

---

- The **musculoskeletal system** is actually composed of two body systems that work closely together: the skeletal system and the muscular system. The skeletal system provides support for the body, and the muscular system allows the body to move.

### The Skeletal System

The **skeletal system** is the “backbone” of the body. The spine, or backbone, is a stack of bones that provides support for the upper body. All the other bones of the skeleton have the same basic function: to support the soft tissues of the body. Even so, the skeletal system is more than a support system. Bones are responsible for making red and white blood cells, storing fat and regulating the body’s supply of phosphorus and calcium.

The skeletal system includes other connective tissues in addition to bones. Here are the major types of connective tissue found in the skeletal system:

- bone (osseous tissue)
- cartilage
- ligaments

### Bone Tissue

Bone tissue can be dense and smooth, which is called **compact bone**, or it can contain small pieces of bone with lots of open spaces in between, called **spongy bone**. Mature bone tissue is layered, like the skin. If you look at a beef marrow bone or a rib bone, you will see a solid superficial (outer) layer and a hollow center. This center is called the **marrow cavity**. The marrow cavity contains spongy bone filled

with marrow.

Bones come in many shapes and sizes. There are **short bones** in your wrists and ankles that are cube shaped and contain mostly spongy bone tissue. The major bones in your arms and legs are called **long bones**, and they are comprised mostly of compact bone tissue. The bones in your skull and ribs are called **flat bones**. The bones that do not fit into any of these categories are called **irregular bones**. The vertebrae in your spine are examples of irregular bones.

## Cartilage

Although bone is the largest component of the skeletal system, cartilage forms a very important part of the skeletal system as well. Cartilage is a very specialized type of connective tissue. **Cartilage** is the connective tissue on which bone is built. Like bone, it is hard and provides support for other kinds of soft tissue.

As you read about other body systems, you will discover that cartilage can be found in a number of places in the body. For example, the larynx, which is considered part of the respiratory system and forms the connection between the trachea and the pharynx, contains a cartilaginous skeleton.

## Ligaments

**Ligaments** are very strong bands of dense, regularly arranged connective tissue that connect one bone to another at the joints. Like hinges on a door, they allow the joints to move enough for flexibility, but they also limit movement so that the joint is useful. Some joints, like the costochondral joints between the ribs and the sternum (breastbone), have almost no motion. Others, like the ankle, have a very wide range of motion.

Ligaments are named for the bones to which they are attached, usually naming the largest or most important bone first. For example, the ankle ligaments include the tibiotalar ligament (connecting the tibia and talus) and the talofibular ligament (connecting the weight-bearing talus with the non-weight-bearing fibula).

## Joints



Most people think of joints as parts of the body that move when you flex a muscle. But did you know there are joints in your skull? It's okay. Everyone has them. **Joints** are created when two bones come together. Cartilage or fibrous connective tissue binds the bones together at the joints and also allows movement in many cases. In fact, joints are classified according to the amount of movement they allow. Some joints are immovable, like the joints in the skull. Some joints are slightly movable, like the joints in your pelvis. The last category of joints are freely movable joints. These include the wrist, elbow, shoulder, hip and knee, among others.

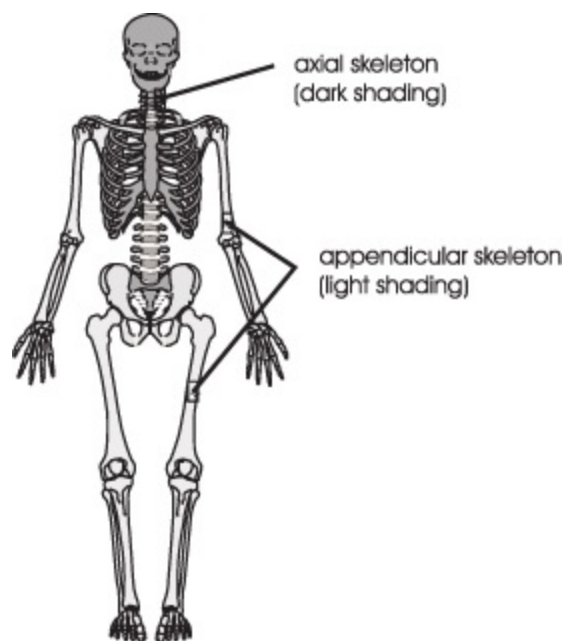
Now let's take a look at some of the bones found in the human body.

### Bones of the Axial Skeleton

The bones of the **axial skeleton** are those in the long axis of the body:

- the skull and facial bones
- the spine
- the bony thorax

The remaining bones, in the extremities and the pelvis, are called the **appendicular skeleton** because they are appendages of the axial skeleton.



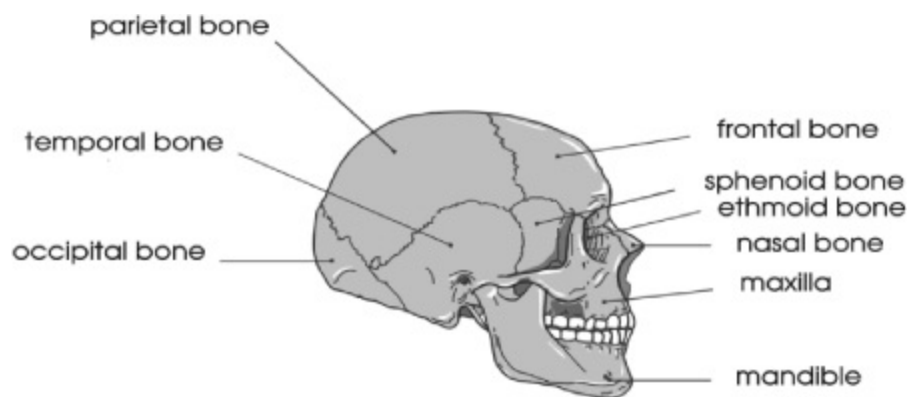
*Axial and appendicular skeletons*

### The Skull and Facial Bones

The **skull** is the part of the skeleton that encases the brain and the special sense organs and forms the face.

The bony case for the brain is called the **cranium**. The cranium is made up of eight flat bones. The **frontal bone** forms the forehead and the roof of the **orbits** (eye sockets). There are two paired **parietal bones**, which form the top and upper sides of the skull. The two paired **temporal bones** lie on the lower sides of the skull, surrounding the ear like a fan. If you put your hand over your ear, your fingers are spread out over the temporal bone. The **occipital bone** forms the back of the skull. The **sphenoid bone** forms the floor and side walls of the eye sockets. The **ethmoid bone** lies behind the nose. It makes up the roof of the nasal cavity and the medial walls of the orbits.

Major facial bones include the **mandible** (lower jaw), the **maxilla** (the upper jaw) and the **nasal bone**.

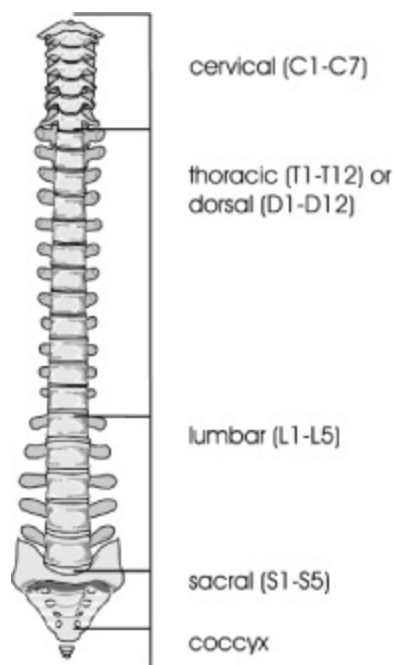


*Human skull, lateral view*

## Spine

The spine is called the **vertebral column** because it is a column of vertebral bones that supports the body. It does not help humans stand upright; after all, four-legged animals, fish and snakes have spines. However, since we *are* upright, the spine also supports the weight of the upper body. Its primary function is to protect the spinal cord as it runs from the brain all the way to the sacrum. At every level, nerves are sent to the body from the spinal cord.

The spinal column is composed of a stack of 33 bones called **vertebrae**, divided into five distinct regions.



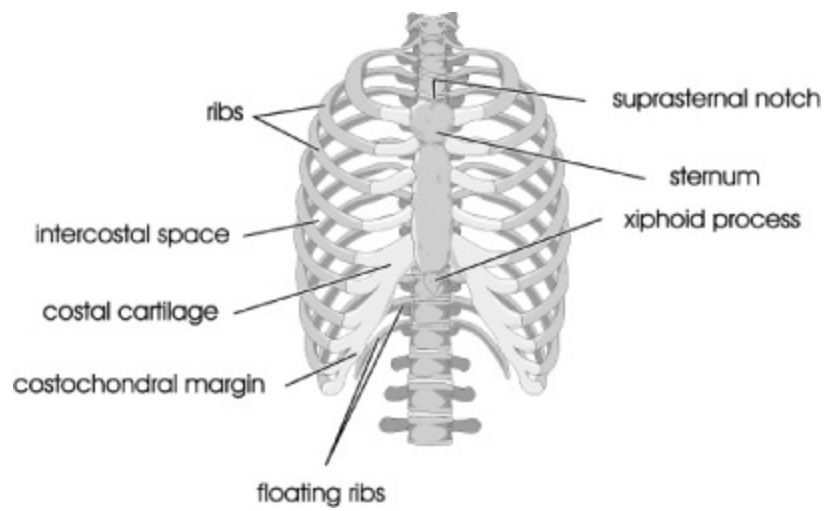
*Vertebral column*

Except for the joint between the first and second vertebrae, there are **intervertebral discs** that form the major joint at each level of the cervical, thoracic and lumbar vertebrae. These discs, up to one-half inch in thickness, cushion the vertebrae, like cushioned running shoes, from the shock of weight bearing. The discs are well-hydrated fibrocartilage, which makes them resilient when they are compressed. As the spine flexes and extends, the vertebral bodies are protected from injury by the discs.

There are seven **cervical vertebrae**, numbered C1-C7. The cervical vertebrae are smaller than the other weight-bearing vertebrae. The spine contains twelve **thoracic vertebrae** (T1-T12 or D1-D12). There are five **lumbar vertebrae** (L1-L5). The **sacrum** is a large, flat triangular-shaped bone that develops from the fusion of the five sacral vertebral segments (S1-S5). There are no intervertebral discs in the sacrum. The sacrum is the most inferior weight-bearing bone in the spine. From the sacrum, weight is transferred to the hips through the sacroiliac joint. The **coccyx** is a triangular-shaped stack of vertebral bodies, the smallest in the spine. The coccyx bears no weight.

## Bony Thorax

The bony **thorax** includes the thoracic spine, the ribs and sternum. The bony thorax protects the heart and is the bellows that inflates and deflates the lungs. Because it looks like a bird cage, it has been called the **thoracic cage** or **rib cage**.

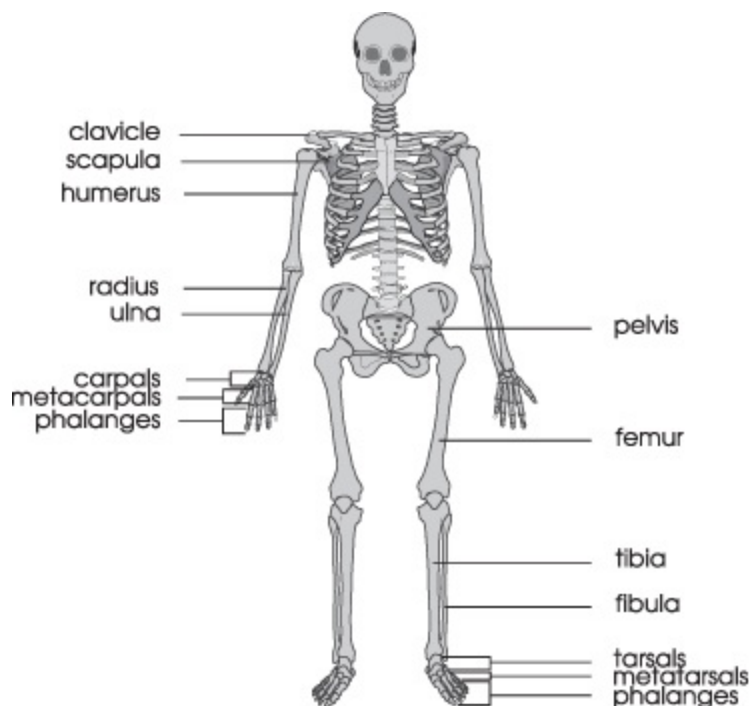


*Bony thorax*

The breastbone is called the **sternum**. The ribs are attached to the sternum. The lower edge of the costal cartilage is called the **costal margin**. There are twelve pairs of ribs. The most inferior two pairs of ribs do not connect with the costal cartilage. They are called **floating ribs**; they are almost never fractured.

## Bones of the Appendicular Skeleton

The **appendicular skeleton** includes the shoulder girdles, pelvic girdle and the extremities (limbs).



*Bones of the appendicular skeleton*

## Shoulder Girdle

The shoulder girdle attaches the upper extremity to the axial skeleton. It is also called the pectoral girdle. It is made up of two bones, the **clavicle** (collarbone) and the **scapula** (shoulder blade).

## Upper Extremity

The upper extremity includes the upper arm, the forearm, the wrist and the hand. Except for the wrist, the bones of the upper extremity are long bones.

There is only one bone in the upper arm: the **humerus**. There are two bones in the forearm: the **radius** and the **ulna**. In the anatomical position, the radius is lateral and the ulna is medial. The location of the radius is easy to remember if you remember that the radius and thumb are always on the same side of the upper extremity.

The radius is the weight-bearing bone of the forearm. The upper end of the radius is called the **radial head**. It forms a joint with the bottom of the humerus. It also forms a joint with the medial aspect of the ulna. This allows you to rotate the palm of your hand without moving your elbow from an anatomic position. The medial bone in the forearm is the ulna.

There are three groups of bones in the hand:

- The carpal bones of the wrist
- The metacarpal bones of the hand
- The phalanges in the fingers (digits)

There are eight **carpal** bones which are aligned in two rows. The five **metacarpal** bones form the palm of the hand. The fingers have three bones called **phalanges**, except for the thumb, which has only two phalanges.

## Bones of the Lower Extremity

The bones of the lower extremity are quite similar to the bones of the upper extremity except they are modified for their major physiologic function: weight

bearing.

There is a single long bone in the thigh called the **femur**. It is the largest and strongest bone in the body. At the proximal end, the **femoral head** is shaped like a ball and connects with the hip socket, the **acetabulum**. Below the head of the femur is a knob-like structure known as the **greater trochanter**.

The lower leg contains two bones, the **tibia** and the **fibula**. The tibia is the weight-bearing bone in the leg. It lies anteriorly and medially. It has a ridge running along its anterior surface called the **anterior crest**. This is the shin bone, a prominent superficial landmark.

The **fibula**, which lies posterolateral to the tibia, is not a weight-bearing bone. The fibula is probably the thinnest of the long bones, and it does not have weight-bearing function. Both the distal tibia and fibula connect with the **talus** bone in the ankle.

The **foot** and **ankle** contain seven tarsal bones, five metatarsal bones and fourteen phalanges. The **tarsal** bones are arranged differently from the carpal bones in the wrist because the function of the ankle and proximal foot is to provide a forward thrust when we walk upright.

The five **metatarsal** bones form the arch of the foot. The arches help absorb the stresses and shocks involved in upright walking.

The 14 **phalanges** make up the toes on each foot. The great toe has two phalanges, the proximal and distal phalanges. The other four toes have three each: the proximal, middle and distal phalanges.

### Example Claim Form

Let's look at some codes related to the skeletal system. This patient tripped and fractured the distal end of his radius. If you recall, *distal* means farther away from the center of the body or organ, and a *radius* is the lateral (meaning farther away from the middle) forearm bone. The physician set the fractured bone into a cast.

<b>Diagnosis code</b>	<b>813.42</b>	<b>Fracture of radius and ulna, Lower end, closed, Other fractures of distal end of radius (alone)</b>
		<b>Fall on same level from slipping, tripping or stumbling, fall</b>

## E885.9 from other slipping, tripping or stumbling

**Procedure code** 25600 **Closed treatment of distal radial fracture or epiphyseal separation, includes closed treatment of fracture of ulnar styloid, when performed; without manipulation**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)										
1.		813 .42			3. _____ . _____					
2.		E885 .9			4. _____ . _____					
24. A.		DATE(S) OF SERVICE				B.	C.	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E.
MM	DD	YY	MM	DD	YY	PLACE OF SERVICE	EMG	CPT/HCPCS	MODIFIER	DIAGNOSIS POINTER
08	11	XX	08	11	XX	23		25600		1 2

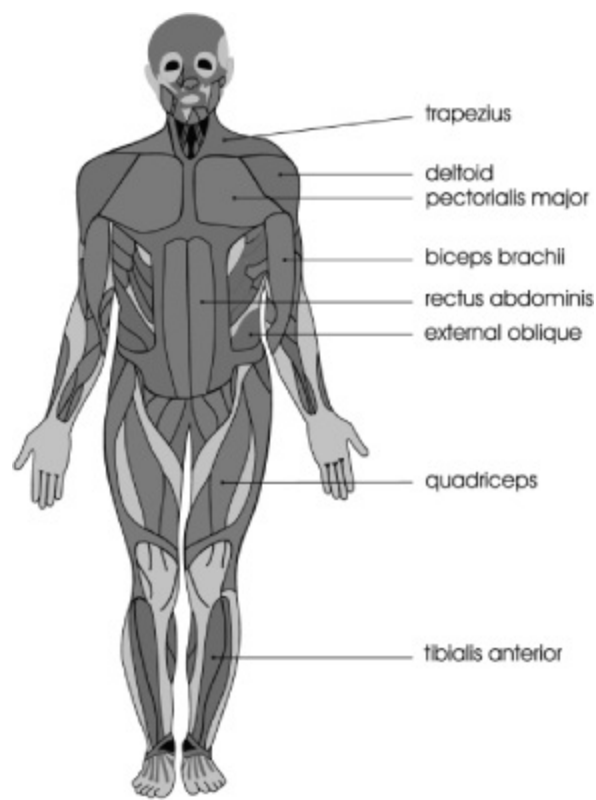
See if you can find the distal end of your radius. If you need a reminder which bone is the radius, look at the appendicular skeleton diagram given earlier. The distal end must be the end closest to your hand, right?

## The Muscular System

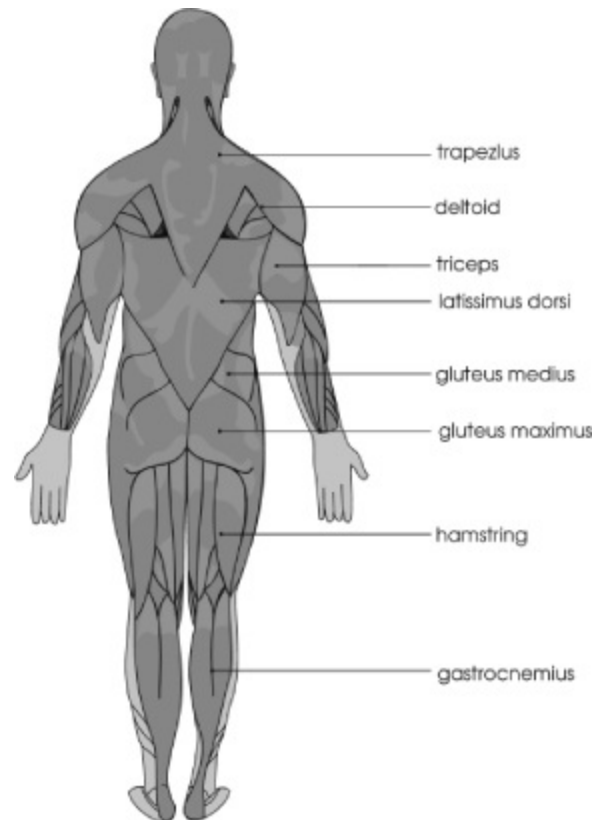
The **muscular system** consists of organs that produce movement by contracting and relaxing. Muscles account for a large part of body weight, somewhere between 35 and 45 percent. The percentage is higher in males than in females.

Muscles are not only found in the extremities, like the biceps muscle that bulges when you flex your arm, but they are found in almost every other organ system in the body, except the neurological system. Also included in the muscular system are the **tendons** and **aponeuroses**, connective tissue that attaches the ends of muscles to bones.

There are more than 600 skeletal muscles in the human body. Some of the major muscles of the body are shown in the following figures. Many of them are probably familiar to you.



*Major muscles of the anterior surface of the body*



*Major muscles of the posterior surface of the body*

## Muscle Function

There are two kinds of muscle function:



- voluntary
- involuntary

Generally, voluntary muscle function occurs when you intentionally contract a muscle, such as when you bend your leg or make a fist. Other muscle functions, such as the beating of your heart and breathing, are involuntary since they occur whether you are conscious or not.

Muscle cells have a number of special characteristics that give them their special ability to create motion. **Contractility** means that the muscle cells have the ability to become shorter. This produces motions such as flexing your arm or opening your mouth.

**Extensibility** refers to a muscle’s ability to stretch or lengthen. When one muscle flexes, another muscle extends to allow a body part to move. **Elasticity** is the property of muscle tissue that allows it to snap back to its original size and shape after stretching. Finally, the most unique property of muscle tissue is called **irritability**. This refers to the muscle’s ability to respond to a stimulus. Muscles respond to a number of different types of stimuli, including nerve impulses, hormones, touch and heat.

### Example Claim Form

Many athletes experience muscular injuries. As a claims specialist, you’re likely to encounter muscular system terms like the ones below.

**Diagnosis code 727.62 Rupture of tendon, nontraumatic, Tendons of biceps (long head)**

**Procedure code 24342 Reinsertion of ruptured biceps or triceps tendon, distal, with or without tendon graft**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)										
1.		727.62				3.				
2.						4.				
24. A.		DATE(S) OF SERVICE				B.	C.	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E.
MM	DD	YY	MM	DD	YY	PLACE OF SERVICE	EMB	CPT/HCPCS	MODIFIER	DIAGNOSIS POINTER
11	15	XX	11	15	XX	22		24342		1

We know that *tendons* are connective tissue that attach the ends of muscles to bones.

We also know that the *biceps* muscle is the large, anterior muscle of the upper arm. This patient had a ruptured biceps tendon reattached to the bone at the distal end, at the inside of the elbow. Sounds painful, doesn't it?

---

---

## Step 8 Pronounce New Terms

---

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 15 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
  - b. Access the online portion of your course, and click on Lesson 12 Listen to New Terms Set 15.
  - c. Listen to the flashterm as it is pronounced. Pause the audio.
  - d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
  - e. Do this for each flashterm in this set.
  - f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
  - g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.
- 
- 

## Step 9 Write New Terms

---

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.

d. Do this for each flashcard.

---

## Step 10 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 12-2.**

---

## Step 11 Neurological System

---

The neurologic system, or nervous system, functions a lot like a computer. For example, when you touch the key marked *K* on the keyboard, a message is sent to the central processing unit (CPU) of the computer. The CPU recognizes this message and responds with an action, printing a *K* on your computer screen.

In the same way, the central nervous system receives messages from both inside and outside your body, processes the information and then creates an action as a response to the input. For example, when your finger touches a hot burner on the stove, the nerves in your finger send a message of pain to your CPU, your brain. The brain processes this information and realizes the appropriate response is to move the finger away from the pain.

The neurologic system, like a computer, has three basic functions:

- It collects information from sensory receptors.
- It analyzes the information it collects and integrates information from many different sources.
- It responds with an action.

The **sensory receptors** are the nerve endings present all over your body as well as the special sense organs: the eyes, ears, nose and tongue. The information these sensory receptors collect is called sensory input. Your body's response to **sensory input** is called **motor output**, because the output of the nervous system activates muscles, causing you to move, and activates glands, causing them to secrete hormones or release enzymes.

The nervous system is divided into two divisions:

- the central nervous system
- the peripheral nervous system

The central nervous system (CNS) includes the brain and spinal cord. The peripheral nervous system (PNS) includes nerves coming directly from the brain to the face and special sense organs of the face as well as nerves coming from the spinal cord to the rest of the body. Like city streets, the nerves of the peripheral nervous system are usually two-way thoroughfares. The peripheral nervous system is further divided into the somatic nervous system, which sends messages to the skeletal muscles for voluntary movements, and the autonomic nervous system, which sends messages to the smooth muscles of the heart and glands for involuntary movements.

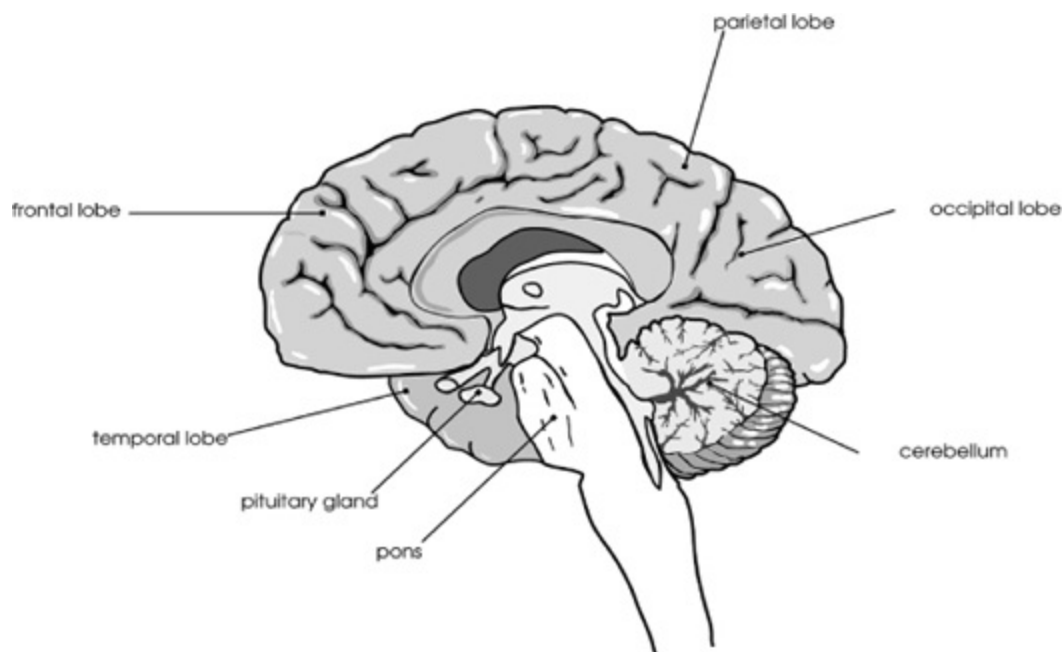
## Central Nervous System

The **central nervous system** is composed of the brain and the spinal cord.

## Brain

The uppermost part of the brain is known as the **cerebrum**. This is where almost all voluntary activity takes place. In addition, this is the thinking portion of the brain. There are four lobes of the cerebrum, and their names correspond with the bones of the skull that you have read about. The four lobes are the **temporal lobe**, the

**frontal lobe**, the **parietal lobe** and the **occipital lobe**. Below the cerebrum is the cerebellum. The cerebellum is responsible for muscle coordination and balance. The **pons** is part of the brainstem. Study the structures of the brain in the next figure.



*Midsagittal section of the brain*

## Spinal Cord

The **spinal cord** is a thick-walled hollow tube about 20 inches long. Nerves travel the length of the spinal cord and exit from it to serve the body areas close by.

## Peripheral Nervous System

The **peripheral nervous system** includes all the nerves that leave the central nervous system. There are three basic components to the peripheral nervous system:

- cranial nerves
- spinal nerves
- autonomic nervous system

There are 12 **cranial nerves** that primarily serve the head and neck. The cranial nerves are named according to the structures they control. There are 31 pairs of **spinal nerves** that are named for the region of the spinal cord from which they arise. The **autonomic nervous system** controls bodily functions that happen

automatically, such as the beating of your heart and the release of hormones from your glands.

The special sense organs, the eyes, the ears, the nose and the tongue, are also considered to be a part of the nervous system. They are highly specialized organs that send sensory input to the brain. You will be learning some terminology relating to the nervous system and special senses in the next section.

### Example Claim Form

Here are some codes relating to the neurological system. Can you identify which division, the central nervous system or peripheral nervous system, is affected here?

Diagnosis  
code

**324.0 Intracranial and intraspinal abscess, Intracranial abscess**

Procedure  
code

**61320 Craniectomy or craniotomy, drainage of Intracranial abscess**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24C by Line.)										
1. <u>324.0</u>			3. _____							
2. _____			4. _____							
24. A. DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. EMS	D. PROCEDURES, SERVICES OR SUPPLIES (Specify Unusual Circumstances)		E. DIAGNOSIS POINTER
MM	DD	YY	MM	DD	YY			CPT/HCPCS	MODIFIER	
02	03	XX	02	03	XX	21		61320		1

Whew! Let's use our medical terminology background and add a few words to our vocabulary on this example. *Intra/* is a prefix meaning *within*. *Cranial* means relating to the cranium or skull. And remember that the *cerebrum* is the uppermost part of the brain. So this patient was diagnosed with an *abscess* (an infection filled with pus) located in the cerebrum. The physician drained the abscess with a procedure called a *craniotomy*, which is an incision into the skull.

Did you recognize that the central nervous system is the system affected by the abscess? That's right—the cerebrum is a part of the brain, which is a part of the central nervous system.

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 16 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 12 Listen to New Terms Set 16.
- c. Listen to the flashterm as it is pronounced. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each flashterm in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

### **Step 13 Write New Terms**

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
- d. Do this for each flashcard.

---

### **Step 14 Meanings of New Terms**

---

❑ Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the flashterms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 12-3.**

---

## **Step 15 Cardiovascular System**

---

- ❑ Just as the neurologic system is the communication network of the body, the **cardiovascular system** is the supply and transportation network for the body. It brings nutrients like oxygen, glucose, amino acids and hormones to all the cells in the body and carries off waste products from cell metabolism throughout the body. The cardiovascular system includes the heart and blood vessels.

The heart is like the dispatcher, sending blood out in regular shipments to all the organs and cells of the body. The vascular system, which includes arteries, veins and capillaries, is like the system of highways and city streets we use for transportation. The blood vessels provide a well-planned flow to and from delivery and pickup points. And just like a delivery service, each type of cell specializes in the supplies and waste materials it transports.

### **Heart**

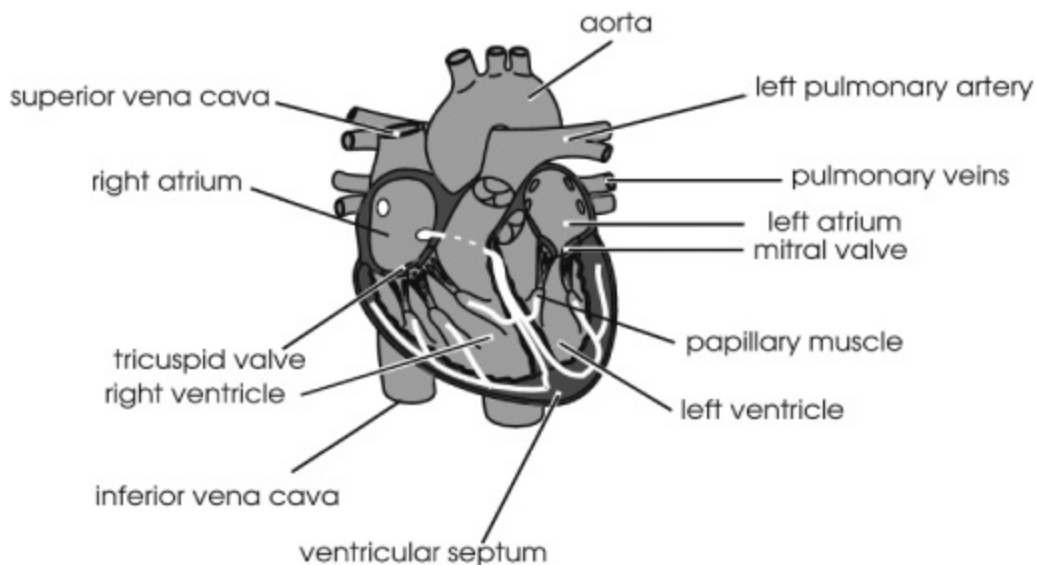
The **heart** is a specialized muscle that is a little larger than your clenched fist. It lies in your chest, just behind and to the left of the sternum. It rests on the diaphragm and is surrounded laterally and posteriorly by the lungs. The heart muscle is called



the **myocardium**.

The heart is a four-chambered organ. This means it has four cavities that contain blood, two on the left and two on the right. The right side of the heart receives blood from the organs of the body and pumps it to the lungs where it can receive oxygen from the air we breathe. The left side of the heart receives this oxygenated blood from the lungs and pumps it out to the rest of the body. This cycle repeats itself continuously so that the organs of the body always have a plentiful supply of oxygen.

The two upper chambers of the heart are called the **right atrium** and the **left atrium** (together, they are *atria*, the plural of *atrium*). The lower chambers are called the **right ventricle** and **left ventricle**. Between the chambers of the heart are **valves** that control the flow of blood. See the following figure.



*Internal cardiac anatomy*

The blood vessels that carry oxygenated blood to the body are called **arteries**. The largest artery in the body is the **aorta**, which leaves the left ventricle and then branches out into many smaller vessels. The blood vessels that return deoxygenated blood back to the heart are called **veins**. Veins throughout the body come together into the **vena cava**, which carries blood back to the right side of the heart.

The heart muscle itself must be supplied with oxygenated blood, just like all organs in the body. The arteries that carry blood to the heart muscle are called the **coronary arteries**.

## Peripheral Vascular System

The arteries and veins that supply blood to the organs of the body are part of the **peripheral vascular system**. There are three groups of vessels in the peripheral vascular system:

- arteries
- veins
- capillaries

As the **arteries** leave the heart, they branch off into smaller and smaller vessels, until they finally feed the capillaries. **Capillaries** are tiny vessels that connect the arteries with the veins. As the blood passes through the capillaries, the oxygen it carries is transported to the neighboring tissues and cells. Thus, as the blood flows into the veins and back toward the heart, it has been deoxygenated.

Most arteries and veins are named for the organs they supply, such as the pulmonary vein and the hepatic artery.

### Example Claim Form

It's likely that you'll encounter cardiovascular terminology as a claims specialist. Only knowing the basics of the cardiovascular system gives you the inside scoop to some of the diseases related to the heart.

**Diagnosis  
code**

**441.1 Aortic aneurysm and dissection, Thoracic**

**Procedure  
code**

**33877 Repair of thoracoabdominal aortic aneurysm with graft, with or without cardiopulmonary bypass**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)										
1. <u>441.1</u>			3. _____							
2. _____			4. _____							
24. A. DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. EMG	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E. DIAGNOSIS POINTER
MM	DD	YY	MM	DD	YY		CPT/HCPCS	MODIFIER		
07	27	XX	07	27	XX	21	33877		1	

As with our basic cardiovascular terminology knowledge, we know that the aorta is

the largest artery in the body. An *aneurysm* is a blood-filled dilation of a blood vessel. When an aneurysm ruptures, it often results in massive bleeding. This patient had an aortic aneurysm repaired.

---

---

## Step 16 Pronounce New Terms

---

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 17 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
  - b. Access the online portion of your course, and click on Lesson 12 Listen to New Terms Set 17.
  - c. Listen to the flashterm as it is pronounced. Pause the audio.
  - d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
  - e. Do this for each flashterm in this set.
  - f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
  - g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.
- 
- 

## Step 17 Write New Terms

---

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.

- d. Do this for each flashcard.

---

## Step 18 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times, until you are familiar with the flashterms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.

---

## Step 19 Immune System

---

The immune system is a system that is more physiologic than anatomic. Unlike other systems in the body, the “organs” of the immune system are white blood cells and chemicals. The immune system is like an army. It is made up of millions of blood cells that are divided into groups, depending on the specific tasks they perform. There are organs, such as the thymus, lymph system and bone marrow, which are involved with the immune system, but they are like command centers, issuing orders or providing more troops. They don’t directly participate in the war the army is fighting.

The **immune system** protects us from both foreign molecules, including bacteria and viruses, and from abnormal body cells, such as cancer or cells invaded by viruses. The immune system protects us from pathogenic invaders that are strong enough to have made it past superficial barriers. The foreign substances that the immune system recognizes are called **antigens**. Each type of invader is a specific antigen,

unique in itself.

The immune system forms an immune response by making **antibodies**, which are proteins that react to a specific antigen by attacking and disabling it. Antibodies circulate in the blood serum, so that immunity is **systemic**—that is, it protects the whole body, not just the original site of infection. In addition, the immune system can remember a prior infection. Each time you are exposed to an antigen, the immune system gets better and better at producing antibodies and attacking the antigen. This reaction is important to immunity, a subject we will cover next in this section.

## Immunity

Whenever the immune system is exposed to antigens that provoke an immune response, the body develops **active immunity**. That is, it responds to the antigen with a primary immune response. Memory cells provide the ability to form a secondary immune response when there is a second exposure.

## Active Immunity

*Unplanned* exposure to antigens creates **naturally acquired active immunity**. Vaccines are *planned* exposures to antigens that create **artificially acquired active immunity**. In this instance, exposure to the antigen is planned and controlled. Why, you may ask, would anyone plan to be exposed to antigens, which cause diseases? A vaccine contains dead or weakened virus that are physically identical to the stronger antigens. The immune response to these dead cells creates immunity, but the antigens themselves are virtually harmless. The medical procedure that builds artificially acquired active immunity is called **vaccination** or **immunization**.

Some common immunizations include:

- DTaP: diphtheria, tetanus (lockjaw) and pertussis (whooping cough) vaccine
- IPV: inactivated polio vaccine
- MMR vaccine: mumps, measles, rubella (German measles) vaccines
- Hib: hemophilus influenza type B vaccine

## Example Claim Form

Most American children get immunized. If you work with a general practitioner or pediatrician, you're likely to see the following procedure codes. Do you recognize the immunization terms?

**Diagnosis  
code**

**V20.2 Routine infant or child health check**

**Procedure  
codes**

**Periodic comprehensive preventive medicine reevaluation and management of an individual including an age and gender appropriate history, examination,**

**99393 counseling/anticipatory guidance/risk factor reduction interventions, and the ordering of laboratory/diagnostic procedures, established patient; late childhood (age 5 through 11 years)**

**Diphtheria, tetanus toxoids, and acellular Pertussis vaccine 90700 (DTaP), when administered to individuals younger than 7 years, for intramuscular use**

**90460 Immunization administration through 18 years of age via any route of administration, with counseling by physician or other qualified health care professional; first or only component of each vaccine or toxoid administered**

**90713 Poliovirus vaccine, inactivated (IPV), for subcutaneous or intramuscular use**

**90461 Immunization administration through 18 years of age via any route of administration, with counseling by physician or other qualified health care professional; each additional vaccine or toxoid component administered**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)												
1. <u>V20 . 2</u>			3. _____									
2. _____			4. _____									
24. A.	DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. EMG	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)			E. DIAGNOSIS POINTER
	MM	DD	YY	MM	DD	YY			CPT/HCPCS	MODIFIER		
1.	07	27	XX	07	27	XX	11		99393			1
2.	07	27	XX	07	27	XX	11		90700			1
3.	07	27	XX	07	27	XX	11		90460			1
4.	07	27	XX	07	27	XX	11		90713			1
5.	07	27	XX	07	27	XX	11		90461			1
6.												

## Passive Immunity

Sometimes there isn't time to build active immunity or there may not be any vaccines available to stimulate acquired active immunity. In these cases, antibodies from an immune donor can be administered to provide passive immunity. In **passive immunity**, the antibody is made by an external source and only provides freely circulating antibodies, but no active cellular component, such as T cells or memory cells.

There are two types of passive immunity: natural passive immunity and artificial passive immunity. **Natural passive immunity** occurs when a fetus receives maternal (the mother's) antibodies across the placenta and when an infant receives antibodies through its mother's breast milk.

Naturally acquired immunity	
Active naturally acquired immunity	Passive naturally acquired immunity
Source of antigen: Exposure to disease invaders or toxins	Source of antigen: None
Source of antibodies: Plasma cells in secondary response	Source of antibodies: Maternal immune system, crossing placenta or in breast milk
Artificially acquired immunity	
Active artificially acquired immunity	Passive artificially acquired immunity
Source of antigen: Injection of killed or attenuated (weakened) invaders or toxins	Source of antigen: None
Source of antibodies: Plasma cells in primary or secondary (booster) response	Source of antibodies: Gamma globulin injection

*Comparison of different types of immunity*

## Immune System Components

There are two basic cell lines in the immune system: **lymphocytes** and **macrophages**. Lymphocytes are formed in the bone marrow in humans and are further divided into B lymphocytes (B cells) and T lymphocytes (T cells).

## Lymphocytes

The development of a lymphocyte determines whether it is a B cell or T cell. B cells migrate from the bone marrow to the spleen to develop and mature. T cells migrate from the bone marrow to the thymus to develop and mature.

B cells are the first lymphocytes to respond to the presence of antigens. The B cells secrete antibodies into the blood serum that then will bind with the antigens. This is called the **primary response** of the B cells.

T cells and macrophages form a second type of immune response in the body called **cellular immunity**. The effects of a T cell attack on an antigen can have different results, including:

- stimulating B cells to produce more antibody
- directly killing an antigenic cell
- suppressing antibody production to end the immune reaction

These differing reactions are carried out by different types of T cells.

## Immunodeficiencies

**Immunodeficiencies** occur when the body lacks the ability to defend itself against invading antigens. There are two types of immunodeficiencies: congenital and acquired. **Congenital immunodeficiencies** exist from birth and are often fatal because they lead to repeated, severe infections early in life. **Acquired immunodeficiencies** are deficiencies in immune cell production or function, which decreases the effectiveness of an immune system that was normal at birth. Examples of acquired immune deficiencies are leukemia, lymphoma and AIDS (acquired immunodeficiency syndrome).



*AIDS (acquired immunodeficiency syndrome)* has become a major, world-wide health problem. This condition is a sexually transmitted disease (STD). This means it is transmitted by bodily fluids such as blood and semen. The disease is also transmittable through intravenous drug use by people who share contaminated needles.

AIDS is associated with an immune response to HIV (human immunodeficiency virus). Apparently, the immunodeficiency is caused by the destruction of helper T cells, and a loss of the kind of immunity T cells provide. Tests for AIDS measure the presence an immune response for HIV. If there is such a response in a person, that person will test positive for HIV.

AIDS is a syndrome, which means it is a collection of different symptoms or diseases. HIV infection can progress to a severe immunodeficient state, resulting in the body becoming susceptible to unusual infections and malignancies (cancers). Some AIDS patients develop *pneumocystis carinii pneumonia (PCP)*, which is only seen in humans whose immune systems are suppressed or deficient. A rare skin cancer called *Kaposi's sarcoma* can also occur.

Once T cell levels begin a sharp downward spiral, AIDS seems to be invariably fatal. The mechanisms of this disease, as with cancer, are not fully understood.

---

## Step 20 Pronounce New Terms

---

□ Follow these steps:

- a. Take your Quick-learn Tutor and your Set 18 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 12 Listen to New

## Terms Set 18.

- c. Listen to the flashterm as it is pronounced. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each flashterm in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

### Step 21 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the flashterm.
- d. Do this for each flashcard.

---

### Step 22 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each

meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.

- c. Practice with the flashcards several times. Remember, you are not attempting to memorize these terms, just to become familiar with them. You may use your flashcards for Practice Exercises and Quizzes.

---

## Step 23 Lesson Summary

---

- ❑ As you now know, the body consists of complex systems. So far, you've learned about five of these systems: the integumentary, musculoskeletal, neurological, cardiovascular and immune systems. Each of these systems is essential to the body, and they function both individually and in cooperation with the other systems.

You've also seen how you will encounter some of the organ system terminology in your new career as a claims specialist. In the next lesson, you'll wrap up your journey through the organ systems.



**Please pause and complete an online Quiz. Good luck!**

# Lesson 13

# Organ Systems II

---

## Step 1 Learning Objectives for Lesson 13

---

- ❑ When you have completed the instruction in this lesson, you will be trained to do the following:
    - Describe the gross anatomy and conditions of the respiratory system.
    - Explain gastrointestinal tract anatomy.
    - Describe the anatomy and function of the urinary system.
    - Explain the structure and function of the male reproductive system.
    - Briefly describe the purpose of each organ that makes up the female reproductive system.
    - Describe how the endocrine system works.
    - Identify organ system terminology as it is used in a medical setting.
- 

## Step 2 Lesson Preview

---

- ❑ In this lesson, you will continue to learn medical terms that relate to organ systems of the body. This lesson presents five more organ systems. You will learn about the respiratory system, gastrointestinal system, genitourinary system, reproductive system and endocrine system. You'll also learn to recognize many terms relating to these systems that you will encounter on the job as a claims specialist.

You have likely discovered at this point that there are close functional interrelationships between and among the body systems. By identifying what these interrelationships (and interdependencies) are, you will gain increased understanding of the terms presented and the functioning of the human body as a whole.



*You'll study the reproductive system in this lesson.*

---

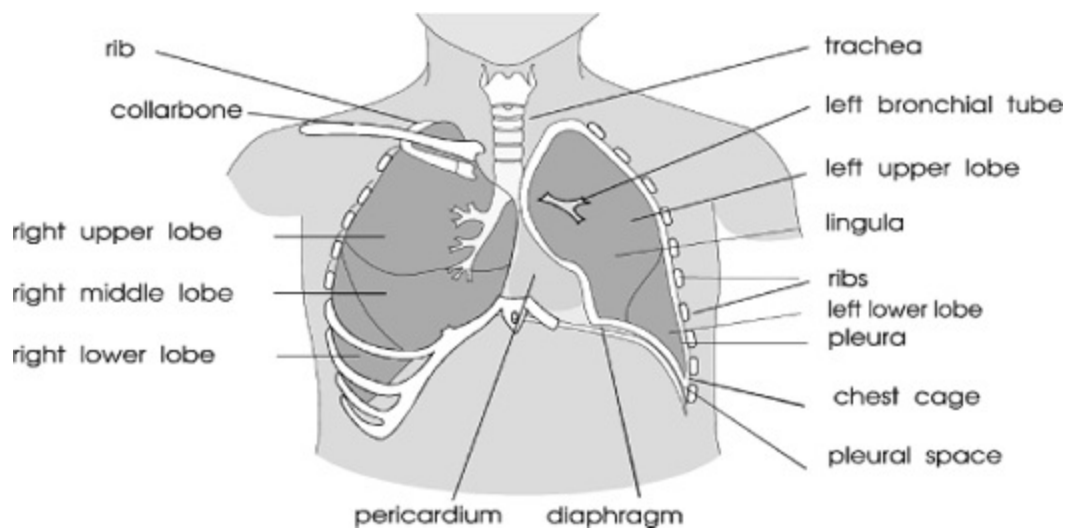
## **Step 3 Respiratory System**

---

- ❑ There are two basic nutrients that every cell requires: oxygen and glucose. Glucose is provided through the food we eat, and it is the responsibility of the digestive system to get glucose to the cells. Oxygen is transported to the cells through the work of the respiratory system and the cardiovascular system. You already know that the cardiovascular system carries oxygenated blood to the organs. The respiratory system has the job of bringing the oxygen into contact with the blood stream in the lungs. The body as a whole cannot do without oxygen for more than three to five minutes. That is why respiratory arrest (failure of the lungs) or cardiac arrest (failure of the heart) can lead to death.

### **Gross Anatomy of the Respiratory System**

The respiratory system not only includes the lungs, but also the organs in the pathway of air through the body. These airway organs include the nose, the pharynx, the larynx, and the airways of the lungs, the trachea, bronchi, bronchiole and alveoli (small air sacs). See the following figure.



*The lungs and chest cavity (cross section)*

As you breathe air in through your nose and mouth, it passes into the pharynx. The **pharynx** is the tube that carries air and food into your body. Air is channeled into the **larynx** and toward the lungs. Food and water is channeled into the esophagus and toward the stomach.

After the air passes through the larynx, it enters the trachea, also known as the windpipe. The **trachea** is a long tube that travels from your neck into your chest cavity. When it reaches the lungs it splits into two branches, the right and left **bronchi** (singular is **bronchus**). Just as the veins and arteries branch off into smaller and smaller vessels, so the airways in the lungs branch off from bronchi to **bronchioles** and finally into **alveoli** (singular is **alveolus**), which are the actual air sacs in the lungs. The alveoli cluster around the bronchioles like buds on a tree.

It is at the level of the alveoli that gas exchange occurs across the respiratory membrane into the capillaries. The red blood cells capture the oxygen from the air and transport it back to the heart so it can be pumped to the rest of the body.

### Example Claim Form

In the winter, you might encounter many diagnoses for respiratory problems. Below is one of the most common.

**Diagnosis code 465.9 Acute upper respiratory infections, Unspecified site**

**Procedure code 99201 New patient, office or other outpatient visit**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)											
1. 465 . 9			3. _____ - _____								
2. _____ - _____			4. _____ - _____								
24. A.	DATE(S) OF SERVICE					B.	C.	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)			E.
	FROM				TO	PLACE OF SERVICE	DRG	CPT/HCPCS	MODIFIER	DIAGNOSIS POINTER	
	MM	DD	YY	MM	DD	YY					
1.	02	02	XX	02	02	XX	11	99201	:	1	

You may already know that *acute* means a condition with a rapid onset and a short, severe duration. So an *acute upper respiratory infection* can be one of those nasty cold-type illnesses that attack just at the most inopportune moments!

## Step 4 Pronounce New Terms

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 19 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 13 Listen to New Terms Set 19.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

## Step 5 Write New Terms

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.



- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part or term.
- d. Do this for each flashcard.

---

## Step 6 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 13-1.**

---

## Step 7 Gastrointestinal System

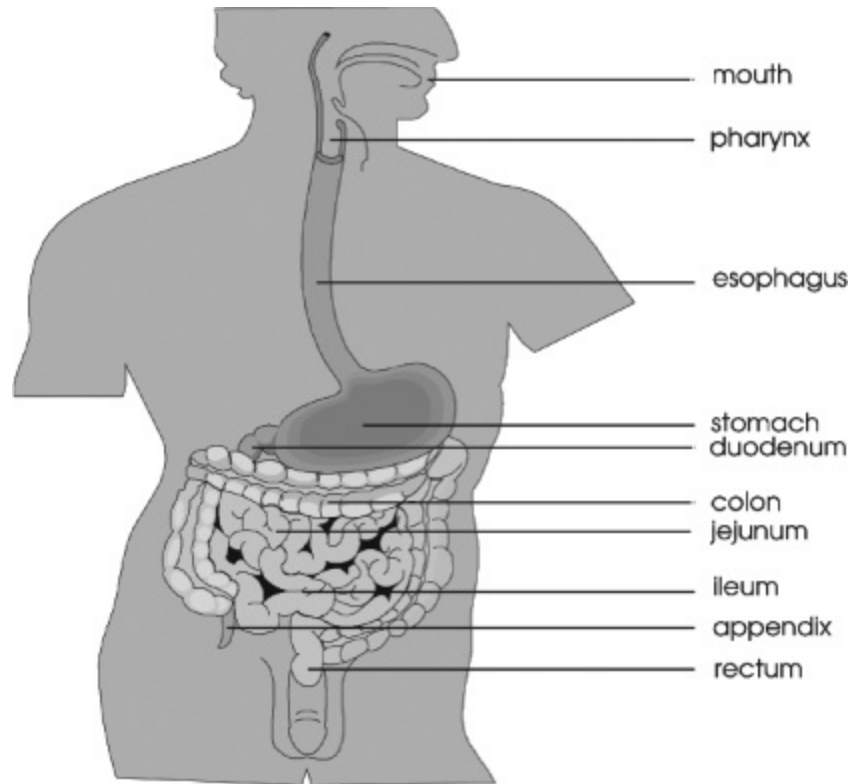
---

- The gastrointestinal system is also called the digestive system because it is this system that digests food. Anything we ingest (swallow) can be broken down into its component chemical parts (carbohydrates, fats and proteins) to become building blocks for every cell in the body. The digestive system sorts through the materials ingested, removes the nutrients necessary for proper cell functioning and passes the rest on through the digestive system, eliminating it as a bowel movement.

The digestive system is made up of a long tube extending from the mouth to the anus

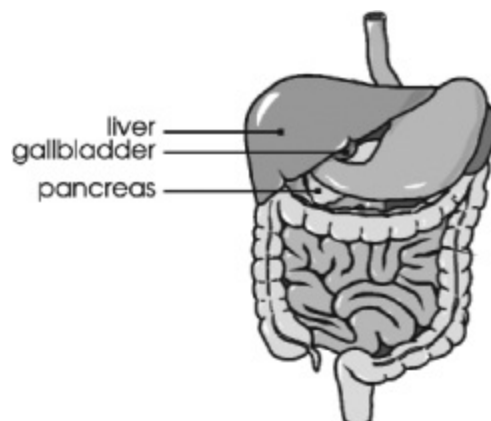
called the gastrointestinal (GI) tract. The other organs of the digestive system are the accessory digestive organs that process whatever is absorbed from the GI tract.

The **GI tract** includes the mouth, pharynx, esophagus, stomach, small intestine (which includes the duodenum, jejunum and ileum), and large intestine (which includes the colon, rectum and anus). See the following figure.



*Organs of the GI tract*

As food travels through the GI tract, it is broken down by the various chemicals produced by the digestive organs. There are a number of accessory digestive organs that aid in the digestive process by supplying enzymes to help break down food. The major accessory digestive organs are the **liver**, the **gallbladder** and the **pancreas**. See the following figure.



When food enters the mouth, it is ground into smaller pieces by the teeth. The food is then transferred from the mouth to the esophagus by swallowing. The food travels the length of the esophagus and then enters the stomach. The stomach then begins a churning motion, mixing the food with the digestive enzymes in the stomach until it has reached a paste-like consistency. The food then enters the first part of the small intestine, the duodenum. It is here that the accessory digestive organs release their enzymes to aid in the digestive process. After the food has been broken down into its nutrients, it is absorbed into the blood stream for transport to the body's cells. Any unneeded material continues on to the large intestine. Here, water is reabsorbed from the liquid waste material, forming solid feces. This completes the digestive process.

### Example Claim Form

Having an appendix removed is a fairly common procedure. Look at the code explanations below. Would you have recognized that this diagnosis and procedure belonged to the gastrointestinal system?

**Diagnosis code 540.0 Acute appendicitis, With generalized peritonitis**

**Procedure code 44950 Appendectomy**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)													
1. 540 . 0			3. _____ - _____										
2. _____ - _____			4. _____ - _____										
24. A.		DATE(S) OF SERVICE				B.	C.	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E.			
		FROM		TO		PLACE OF SERVICE	EMG	CPT/HCPCS	MODIFIER	DIAGNOSIS POINTER			
		MM	DD	YY	MM	DD	YY						
1.													
		03	12	XX	03	12	XX	22	44950	:	:	:	1

---

## Step 8 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 20 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.

- b. Access the online portion of your course, and click on Lesson 13 Listen to New Terms Set 20.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each term in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

## **Step 9 Write New Terms**

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part or term.
- d. Do this for each flashcard.

---

## **Step 10 Meanings of New Terms**

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up

until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.

- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



Please pause and complete online Practice Exercise 13-2.

---

## Step 11 Genitourinary System

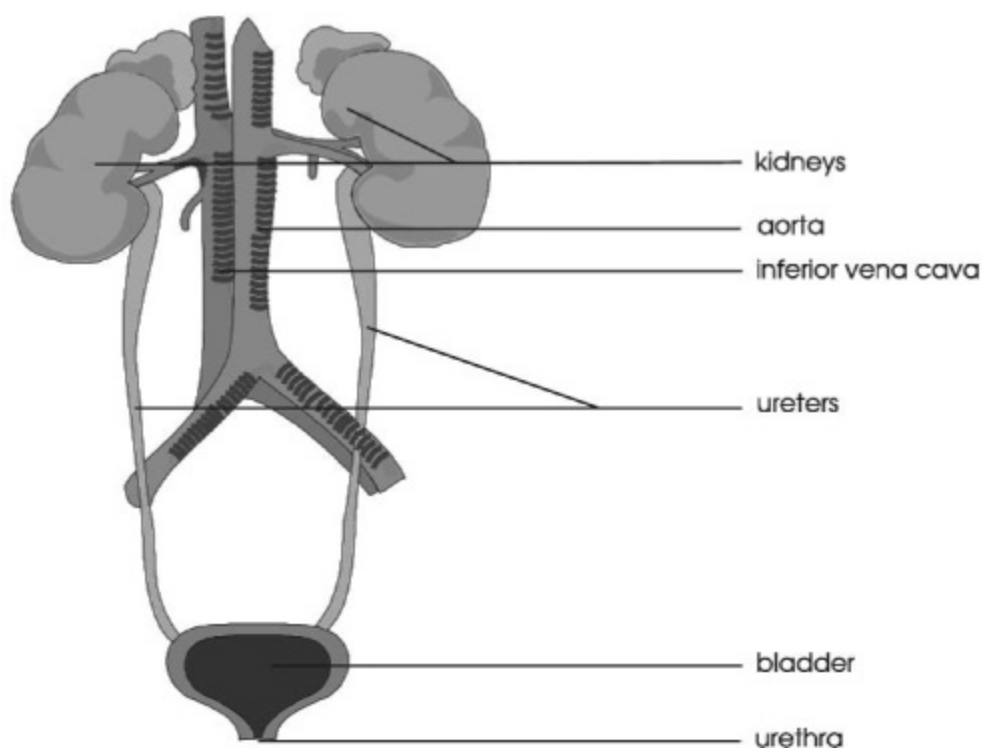
---

- The genital and urinary systems are usually considered together because of the way they develop. In a human fetus, the ovaries or testicles develop from the same tissue that the kidneys develop from. Thus, irregularities in the urinary tract and genital tracts are often interrelated. In addition, in the male, the genital tract and urinary tract use the same external organ, the penis. For this reason, urologists treat diseases of the urinary tract as well as diseases of the male reproductive system. In this section, we will study the urinary system and the male reproductive system. We will study the female reproductive system in the next section of this lesson.

### The Urinary System

The **urinary system** includes the kidneys, ureters, bladder and urethra. It is a small system that has a very important function. The **kidneys** work to remove wastes and toxins from the blood and eliminate liquid waste from the body. In addition, the kidneys help regulate blood pressure and stimulate red blood cell production in the bone marrow.

Urine is transported from the kidneys to the **bladder** through the two **ureters**. From the bladder, urine exits the body through the **urethra**.



Anterior view of urinary organs

You may have heard of someone having a kidney stone. Take a look at the “medical-ese” version of a kidney stone diagnosis and removal.

**Diagnosis code 592.0 Calculus of kidney**

**Procedure code 50060 Nephrolithotomy; removal of calculus**

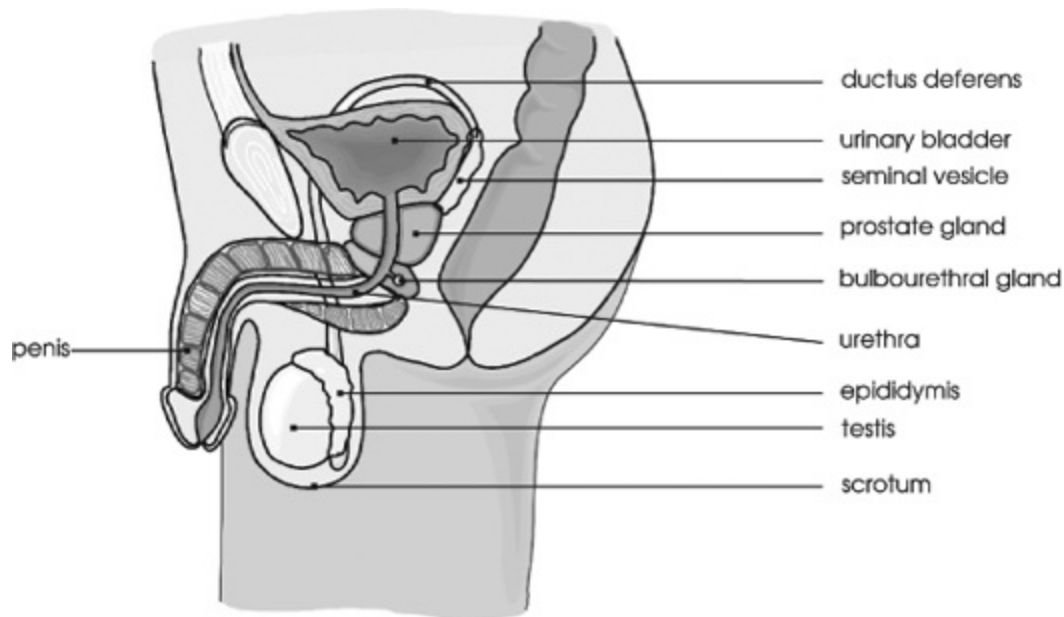
21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)												
1. 592.0			3. _____ - _____									
2. _____ - _____			4. _____ - _____									
24. A.	DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. ICD-9-CM	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)			E. DIAGNOSIS POINTER
	FROM	TO				CPT/HCPCS			MODIFIER			
	MM	DD	YY	MM	DD	YY						
1.	04	01	XX	04	01	XX	22	50060	:	:	:	1

*Calculus* refers to a buildup of mineral salts or other substance in an organ. These *stones*, as they’re often called, commonly occur in the gallbladder, kidney and bladder. A *nephrolithotomy* is simply the medical term for the incision into a kidney to remove the stone. Ouch.

## Male Reproductive System

The primary reproductive organ in the male is the **testis** (testicle). The job of the two testes is to produce sperm for reproduction and to produce the male hormone, testosterone. The external organs of the male reproductive system include the **penis**

and **scrotum**, which contains the testes. The only portions of the male reproductive system that are internal are the accessory glands and the reproductive ducts. The **accessory glands** include the seminal vesicle, the prostate gland and the bulbourethral gland. These glands make semen. The **reproductive duct system** includes the epididymis, the ductus deferens and the urethra. These ducts carry the sperm and semen on their way out of the body. See the figure.



*Male reproductive system*

---

## Step 12 Pronounce New Terms

---

□ Follow these steps:

- Take your Quick-learn Tutor and your Set 21 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- Access the online portion of your course, and click on Lesson 13 Listen to New Terms Set 21.
- Listen to the flashterm. Pause the audio.
- Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- Do this for each flashterm in this set.
- Put the flashcards in order and play the audio again, pronouncing each word part

or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.

- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

## Step 13 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part or term.
- d. Do this for each flashcard.

---

## Step 14 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 13-3.**



---

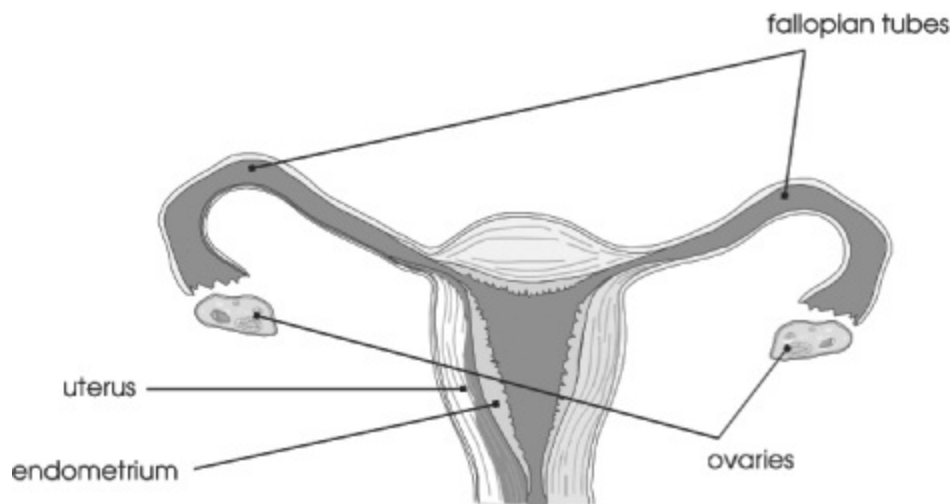
## Step 15 Female Reproductive System

---

□ The female reproductive system has three main functions:

- producing reproductive cells called ova
- providing an environment for conception (uniting the sperm and ova to produce life)
- nurturing the developing fetus both before and after birth

In females, the primary sex organs are the ovaries, fallopian tubes, uterus and vagina. See the following figure. The secondary sex organs are the **mammary glands** (breasts).



*Female reproductive organs*

The ovaries, like the testes, are paired organs. It is the job of the **ovaries** to produce the egg cells needed for reproduction. When the eggs are mature, they are released by the ovaries and travel along the **fallopian tubes** into the **uterus**. If fertilized, the egg implants itself into the lining of the uterus, called the **endometrium**, where it grows and develops. Unfertilized eggs are disposed of along with the endometrium once a month during a woman's menstrual period, also called **menses**.

### Example Claim Form

Do the following female reproductive terms look familiar to you?

**Diagnosis code** 112.1 Candidiasis, of vulva and vagina

**Procedure code** 57150 Irrigation of vagina and/or application of medicament for treatment of bacterial, parasitic or fungoid disease

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)											
1. 112.1			3. _____ - _____								
2. _____ - _____			4. _____ - _____								
24. A.	DATE(S) OF SERVICE						B. PLACE OF SERVICE	C. EMS	D. PROCEDURES, SERVICES, OR SUPPLIES (Explain Unusual Circumstances)		E. DIAGNOSIS POINTER
	MM	DD	YY	MM	DD	YY			CPT/HCPCS	MODIFIER	
1.	05	12	XX	05	12	XX	11	57150		1	
2.											

*Cervix, vagina* and *vulva* are all parts of the female reproductive system. *Candidiasis*, as the procedure code explanation implies, refers to a fungal infection.

---

## Step 16 Pronounce New Terms

---

Follow these steps:

- Take your Quick-learn Tutor and your Set 22 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
  - Access the online portion of your course, and click on Lesson 13 Listen to New Terms Set 22.
  - Listen to the flashterm. Pause the audio.
  - Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
  - Do this for each flashterm in this set.
  - Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.
  - Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.
-

## Step 17 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part or term.
- d. Do this for each flashcard.

---

## Step 18 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 13-4.**

---

## Step 19 Endocrine System

---

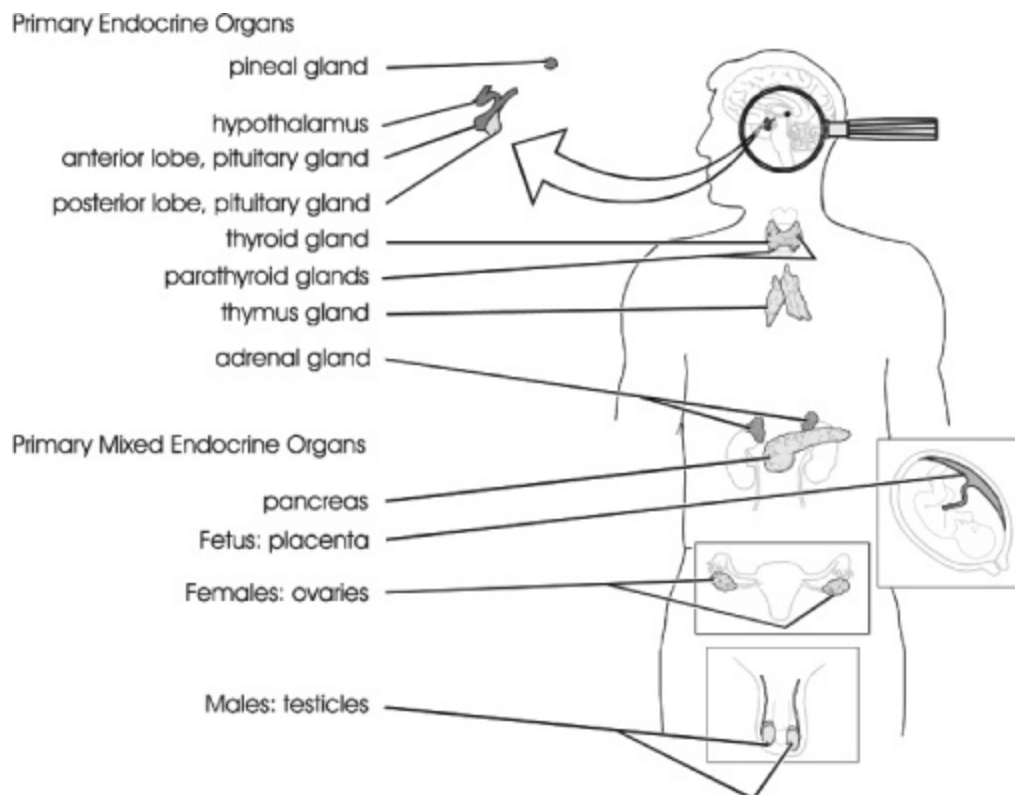
There are two systems in the body for transmitting messages that regulate the

activities of the body. We've already covered one of these systems—the nervous system. This section covers the second system that transmits messages to the body: the endocrine system. The endocrine system uses chemicals called hormones that are transported through the body in the blood stream. Some organs, when they receive these hormonal messages, will “respond” by releasing chemicals of their own.

## Endocrine Glands

The organs of the endocrine system are called **endocrine glands** because their secretions are discharged into the blood stream or lymph. Unlike exocrine organs, endocrine glands are not drained by ducts. There are five main areas of endocrine glands in humans:

- the pineal gland, hypothalamus and pituitary gland of the central nervous system
- the thyroid and parathyroid glands in the neck
- the thymus gland in the chest
- the pancreas and adrenal glands in the gastrointestinal tract
- the testes, ovaries and trophoblastic “organs” in the reproductive tract



*Endocrine organs*

Many of these organs have dual functions, acting as endocrine and exocrine organs. The pancreas, for example, secretes enzymes into the pancreatic duct. However, the cells of the pancreas that secrete into that duct are not part of the endocrine system. You see, the pancreas is both an exocrine organ (the part that secretes enzymes into the pancreatic duct) and an endocrine gland.

The endocrine glands regulate a wide variety of functions in the body, including calcium metabolism (parathyroid gland), glucose metabolism (pancreas) and reproduction (ovaries and testes). Most hormones released by endocrine glands act only on a single organ. This organ is called the **target organ** of the hormone. Hormones may have one of two effects: They either stimulate an activity or suppress an activity. In addition, a hormone is a chemical that has a very specific effect on tissues far away from the organ that produced it. For example, progesterone (from the ovary) suppresses contractions in the uterus, but oxytocin (from the brain) stimulates them.

## Regulating Hormonal Secretion

Most hormonal secretion is regulated by nerve impulses to stimulate or inhibit hormonal secretion. There are two types of feedback systems that regulate hormonal levels between the producer of a hormone and its target organ. A negative feedback system is the most common feedback system in the endocrine system. In a **negative feedback system**, a stimulus (for example, low serum calcium) starts the secretion of a hormone. As hormone levels rise, the level of another hormone or chemical changes, inhibiting more hormone release. For example, parathyroid hormone secretion is stimulated by decreasing blood calcium levels. However, the parathyroid hormone raises blood calcium levels. The increasing blood calcium level now inhibits parathyroid release and parathyroid secretion stops. A negative feedback system causes a rhythmic rise and fall of hormone levels.

A **positive feedback system** is one where the triggering event or chemical causes a rise in the hormone level, which doesn't decrease until the triggering substance decreases. The interaction of insulin and blood sugar is a good example of the positive feedback system. Insulin only rises when blood sugar rises. As long as the blood sugar stays elevated, insulin is produced. Insulin makes the liver store sugar and glucagon and makes target cells take up more sugar. Because of the activity of the target cells, the blood sugar level falls and the pancreas stops secreting insulin.

This is the opposite of a negative feedback system, where decreasing levels of the triggering substance increase the secretion of a hormone.

When looking at any hormonal system, it is important to look at:

- the form of the stimulus, whether neural, hormonal or chemical
- the target organ of the hormone and the effect on that target organ
- whether there is a positive or negative feedback mechanism

## The Hypothalamus and the Neopituitary Axis

The **hypothalamus** is located at the base of the brain. The hypothalamus uses stimulating factors (releasing factors), hormones that control the output of the anterior pituitary lobe. Because the hypothalamus is part of the brain, it can respond to nervous stimulation and translate that to hormonal activity. The hormones of the hypothalamus include prolactin, as well as releasing factors for the tropic (growth) hormones of the anterior pituitary. These releasing factors increase production of the anterior pituitary hormones. In addition, the hypothalamus also has inhibiting factors that decrease the release of growth hormone and prolactin from the anterior pituitary. The hypothalamus also regulates a part of the pituitary that provides melanocyte stimulating hormone (MSH). These releasing and inhibiting hormones travel to the anterior pituitary lobe in a true endocrine fashion, through a small local blood supply called the hypophyseal portal vein.

The hypothalamus makes two hormones itself, oxytocin and vasopressin (antidiuretic hormone, ADH), but doesn't release the hormones directly. Instead, these hormones are transmitted along neuronal cell axons to the posterior pituitary. These two hormones are stored in the posterior pituitary and later released into the blood stream. Vasopressin elevates blood pressure by acting on smooth muscle cells in blood vessel walls, and it also prevents excessive urination, an antidiuretic effect.

The connections of the hypothalamus to the anterior and posterior lobes demonstrate the types of tissue found in each of these lobes of the pituitary. The hypothalamus sends its releasing hormones to the anterior pituitary lobe by way of the pituitary portal circulation. This makes the anterior lobe a purely endocrine organ, since it is controlled by hormones it receives through the bloodstream, and in turn, releases hormones into the blood stream to their target organs. On the other hand, the

hypothalamus sends vasopressin and oxytocin to the posterior pituitary lobe along the axons of neurosecretory cells. The posterior pituitary lobe is a neuroendocrine storage site.

## Other Endocrine Organs and Their Functions

### The Pituitary Gland

The **pituitary gland** is a small round gland that hangs by its stalk from the inferior surface of the hypothalamus. It is divided into two lobes: The anterior pituitary is primarily gland tissue while the posterior pituitary is primarily nervous tissue. The **anterior pituitary** releases the following hormones:

- adrenocorticotropin (ACTH, adrenal cortex stimulating hormone)
- thyrotropin (TSH, thyroid stimulating hormone)
- gonadotropins: Follicle stimulating hormone (FSH); the female luteinizing hormone (LH); or the male interstitial cell stimulating hormone (ICSH)

The **posterior pituitary** does not make its own hormones; it only releases them after nerve stimulation by the hypothalamus. Oxytocin and vasopressin are stored in the posterior pituitary gland until they are ready to be released into the bloodstream.

### The Thyroid Gland

The **thyroid gland** is a butterfly-shaped gland that lies just inferior to the Adam's apple and anterior to the trachea. The thyroid gland produces **thyroxine**, which regulates body metabolism, growth and development.

### Parathyroid Glands

The parathyroid glands are four tiny glands found in the far corners of the thyroid gland. **Parathyroid glands** secrete parathyroid hormone (PTH, parathormone). PTH stimulates bone osteoclasts to break down bone matrix, releasing calcium into the blood.

## Pancreas

The **pancreas** is a mixed gland, having both endocrine and exocrine functions. The exocrine function is part of the gastrointestinal system. The cells involved with endocrine function are the islets of Langerhans, which produce insulin and glucagon.

## Adrenal Glands

The **adrenal glands** are two adenomatous glands shaped like flattened pyramids, capping each kidney. For this reason, they are often called **suprarenal glands**. Adrenal glands have an inner and outer layer. The outer layer is adenomatous (glandular) tissue called the **cortex**. The inner layer is neural tissue called the **medulla**. The **adrenal cortex** produces steroid hormones called **corticosteroids**. These hormones are produced in three different layers of the cortex:

- outer layer: mineralocorticoids (aldosterone)
- middle layer: glucocorticoids (cortisone, cortisol)
- inner layer: sex hormones (androgens, estrogens)

The **adrenal medulla** is a neuroendocrine organ, like the posterior lobe of the pituitary. The hormones of the adrenal medulla are **epinephrine** (adrenaline) and **norepinephrine** (nonadrenaline).

## The Pineal Gland

The **pineal gland** is a small, thumb-like gland that lies centrally in the brain. In adulthood, the pineal gland often calcifies. The calcified pineal identifies the midline of the brain on a skull x-ray. The pineal gland produces melatonin and serotonin. **Melatonin** secretion is inversely related to the day/night cycle called the **circadian rhythm**. Melatonin levels decrease as light increases. When you are exposed to less light (such as at night), melatonin levels rise.

## The Thymus Gland

The **thymus gland** is located in the anterior mediastinum of the thorax. It is shaped like the billowing sail of a sailboat. It is large in healthy infants, but decreases



dramatically in size in later childhood and adulthood. The thymus produces a number of hormones. The most important is **thymosin**. Thymosin stimulates the maturation of T cells, white blood cells that are part of the immune response system. Other thymic hormones include thymic factor and lymphocytosis stimulating hormones (LSH), which stimulate white blood cell production.

## Reproductive Endocrine Organs

Both the ovaries (female gonads) and testes (male gonads) produce sex hormones. Male hormones are called **androgens**. Female hormones are **estrogen** and **progesterone**. Both male and female hormones are produced by both sexes. After puberty, the testes in males produce much higher levels of testosterone, tipping the balance to favor male characteristics. Similarly, after puberty, the female ovaries secrete much higher levels of estrogen and progesterone, which tips the balance in favor of female characteristics in the target organs.

### Ovaries

The **ovaries** are paired, walnut-sized organs lying low in the pelvis on either side of the uterus. Ovarian hormones are produced in the **graafian follicle** and the **corpus luteum**. A graafian follicle is a cellular sac within which an ovum develops. Graafian follicles produce two types of estrogen: **estrone** and **estradiol**. Alternating elevations in levels of estrogen and progesterone control the menstrual cycle.

### Testes

The **testes** are ovoid shaped, like the ovaries, but they lie outside the pelvic cavity, in the scrotum. In the ovaries, the structures that produced ova also produce hormones. In the testes, sperm are produced in **tubules**, and hormones are produced in a separate part of the testis called interstitial cells. **Interstitial cells** produce **testosterone**, the androgenic male hormone.

### Trophoblastic

The **trophoblastic** layer of the embryo during pregnancy forms the placenta. The

**placenta** provides all materials needed by the fetus, filtering these materials from the maternal blood supply in the uterine wall. The placenta produces a hormone called **human chorionic gonadotropin (HCG)**, along with other hormones, all of which aid in the normal development and delivery of the fetus.

### Example Claim Form

As you can see, the endocrine system consists of quite a few organs. Here's an example of a diagnosis and procedure relating to the endocrine system.

**Diagnosis code 246.2 Cyst of thyroid**

**Procedure code 60300 Aspiration and/or injection, thyroid cyst**

21. DIAGNOSIS OR NATURE OF ILLNESS OR INJURY (Relate Items 1, 2, 3, or 4 to Item 24E by Line.)														
1. <u>246.2</u>			3. _____ - _____											
2. _____ - _____			4. _____ - _____											
24. A.		DATE(S) OF SERVICE				B.	C.	D. PROCEDURES, SERVICES, OR SUPPLIES		E.				
		FROM		TO		PLACE OF		(Explain Unusual Circumstances)		DIAGNOSIS				
		MM	DD	YY	MM	DD	YY	SERVICE	EMG	CPT/HCPCS	MODIFIER	POINTER		
1.														
		06	25	XX	06	25	XX	11		60300	:	:	:	1

---

## Step 20 Pronounce New Terms

---

Follow these steps:

- a. Take your Quick-learn Tutor and your Set 23 flashcards out of your Quick-learn Kit. Insert the first flashcard into Side A of the Tutor.
- b. Access the online portion of your course, and click on Lesson 13 Listen to New Terms Set 23.
- c. Listen to the flashterm. Pause the audio.
- d. Practice pronouncing the term out loud. Take your time. Push the flashcard up and read the meaning of the word part or term.
- e. Do this for each flashterm in this set.
- f. Put the flashcards in order and play the audio again, pronouncing each word part or term after you hear it. Don't forget to listen to your own pronunciation of each term. If you mispronounce one, put a check mark next to that flashterm.

- g. Practice the terms you mispronounced by listening again. Be sure you can pronounce the terms clearly and easily.

---

## Step 21 Write New Terms

---

Follow these steps:

- a. Insert the first flashcard into Side A of your Quick-learn Tutor.
- b. Look at each term as it appears in the window and say it out loud. Write the flashterm on blank paper. Remember to include the slash if it is a word part.
- c. Push the card up until the meaning appears in the right window and read the meaning out loud. Write the meaning beside the word part or term.
- d. Do this for each flashcard.

---

## Step 22 Meanings of New Terms

---

Follow these steps:

- a. Again insert the first flashcard into Side A of your Quick-learn Tutor. Pronounce each term out loud and then say the meaning. Check yourself by pushing the flashcard up until you can see the meaning in the right window.
- b. Now insert the flashcard into Side B of your Quick-learn Tutor. Push the card up until you see the meaning of the first flashterm in the right window. Read each meaning out loud, and then say the term. Again, check yourself by pushing the flashcard up until you can see the term in the left window.
- c. Practice with the flashcards several times until you are familiar with the terms and their meanings. You may use your flashcards for Practice Exercises and Quizzes.



**Please pause and complete online Practice Exercise 13-5.**

---

## Step 23 Lesson Summary

---

□ Over the past two lessons, we have covered 10 different body systems. By now, you have a better understanding of how the body works. The five systems in Lesson 13 have completed your overview of human anatomy and physiology. This section is important because you now have the foundation to communicate effectively with health care providers and office staff and to recognize basic organ system terminology when you encounter it as a claims specialist.



**Please pause and complete an online Quiz. Good luck!**

Once again, congratulations are in order! You've completed your instruction in medical terminology by learning the ins and outs of medical abbreviations. You've also become somewhat of an anatomy and physiology whiz, right? You know the basics of all the organ systems—and now you've experienced how you will encounter this terminology in your new career as a claims specialist. Did you ever think you'd know so much about how the human body functions? You have your start in learning about different insurance programs (Medicaid and Medicare).

Each day as a claims specialist, you'll see diagnosis and procedural explanations and encounter new “medical-ese.” It won't take long, however, until you'll be a “medical-ese” pro!

Now that you have a solid foundation in medical terminology and understand the basics of how the human body is organized, it's time to move into the insurance world! In the next book, you'll learn what it's like to work with PPOs, HMOs and managed care providers. (More acronyms!) You'll also learn the distinguishing characteristics between private and military insurance and how workers' compensation functions.

Remember the diagnosis codes and explanations you saw in earlier lessons? Well, the next set of lessons will teach you where and how to find those codes. So if you see that a patient is diagnosed with appendicitis, you'll learn to correctly code that diagnosis and transfer that code to the CMS claim form.

Again, keep up the good work! And remember, your instructor is always available if you have questions.



U.S. Career Institute  
Fort Collins, CO 80525 • 1-800-347-7899

0201494TB01B-22

# Table of Contents

Title Page	2
Copyright	3
Acknowledgments	4
Table of Contents	5
Lesson 1—Welcome to the Exciting World of Medicine and Medical Claims	15
Step 1: Learning Objectives for Lesson 1	16
Step 2: Lesson Preview	16
Step 3: Welcome to Your Career as a Medical Claims and Billing Specialist!	18
What Does a Medical Claims and Billing Specialist Do?	18
Step 4: Everyday Procedures for the Front Office Professional	24
A Day in the Life of the Front Office Professional	24
Step 5: The Medical Claims and Billing Specialist’s Daily Routine	27
Step 6: The Responsibilities of the Medical Claims Specialist	29
Step 7: Confidentiality	30
Step 8: Lesson Summary	32
Lesson 2—The Third-party Payer: How Insurance Works	35
Step 1: Learning Objectives for Lesson 2	36
Step 2: Lesson Preview	36
Step 3: Insurance	37
Step 4: Common Insurance Terms	38
Provider	39
Claim Form	39
Deductible	39
Co-payment	39
Reasonable and Customary	40
Explanation of Benefits	40
Step 5: Types of Health Insurance	42
Government Insurance	42
Private, Traditional Insurance	43
Managed Care	44
Step 6: Lesson Summary	44
Lesson 3—Handling Claims	46
Step 1: Learning Objectives for Lesson 3	47
Step 2: Lesson Preview	47

Step 3: The Preauthorization Requirement	48
Step 4: Diagnostic Codes	49
Step 5: Procedure Coding	51
Step 6: Claims Follow-up	53
Step 7: Lesson Summary	55
<b>Lesson 4—Private Insurance and Managed Care Programs</b>	<b>56</b>
Step 1: Learning Objectives for Lesson 4	57
Step 2: Lesson Preview	57
Step 3: Private and Group Health Insurance	58
Insurance Contracts	59
Level of Payments	60
Step 4: Insurance Basics	60
Identification Cards	61
Time Limits	62
Explanation of Benefits	63
Step 5: Managed Care	64
Step 6: Health Maintenance Organizations (HMOs)	65
Step 7: Preferred Provider Organizations (PPOs)	66
Step 8: Point of Service (POS) Plans	67
Step 9: Physician Provider Groups (PPGs)	67
Step 10: Health Savings Accounts	68
High Deductible Health Plan	68
Step 11: Managed Care Concepts	69
Preauthorization	70
Peer Review Organizations	71
Capitation	71
Visitation Limits	71
Step 12: Working with Managed Care	72
The Managed Care Quick Reference Card	72
Explanation of Benefits	73
Appealing Benefits	74
Managed Care Programs and Medicare	75
Managed Care Programs and Medicaid	75
Step 13: Lesson Summary	75
<b>Lesson 5—Medicaid and Medicare</b>	<b>77</b>
Step 1: Learning Objectives for Lesson 5	78
Step 2: Lesson Preview	78
Step 3: CMS	79



Step 4: Medicaid	81
Who is Eligible for Medicaid?	81
Medicaid Identification Cards	83
Services that Medicaid Covers	83
Step 5: Filing Medicaid Claims	86
Preauthorization	87
Time Limits and Appeals	88
Reciprocity	89
Explanation of Benefits	89
Third Party Liability	90
Step 6: Medicare	90
Who is Eligible for Medicare?	91
Medicare Identification Card	92
Step 7: Services that Medicare Covers	93
Medicare Part A	93
Medicare Part B	94
Medicare Part D	95
Step 8: Filing Medicare Claims	96
Fiscal Agents and Fiscal Intermediaries	97
Participating Physicians	97
National Provider Identifier (NPI)	98
The Claim Form	98
Preauthorization	99
Time Limits and Appeals	100
Explanation of Benefits	100
Advance Beneficiary Notice (ABN)	101
Medicare Preventive Services	102
Medicare Fraud and Abuse	103
Step 9: Supplemental Insurance	104
Medigap or Supplemental Insurance	105
Medi-Medi (Medicare/Medicaid)	106
Step 10: State Children’s Health Insurance Program (SCHIP)	106
Step 11: Lesson Summary	106
<b>Lesson 6—Military Insurance, Workers’ Compensation and COBRA</b>	<b>108</b>
Step 1: Learning Objectives for Lesson 6	109
Step 2: Lesson Preview	109
Step 3: TRICARE	110
CHAMPUS	111

Step 4: CHAMPVA	111
Step 5: Common Words and Terms	
Authorized Provider	112
Catastrophic Cap	112
Cost-Share	112
Deductible	112
DEERS	112
Medically Necessary	113
Network Providers	113
Nonavailability Statement	113
Participating TRICARE Providers	114
TRICARE Standard Supplemental Insurance	114
Step 6: TRICARE Options	114
TRICARE Standard	114
TRICARE Extra	115
TRICARE Prime	115
Point-of-Service	116
Step 7: Eligibility Requirements for TRICARE and CHAMPVA	116
TRICARE Eligibility Requirements—Who is Eligible?	116
CHAMPVA Eligibility Requirements—Who is Eligible?	118
Step 8: Identification Cards	118
Step 9: Services Covered	120
Step 10: Filing TRICARE and CHAMPVA Claims	121
Nonavailability Statement	121
Filing Claims	122
Claims for Physicians Who Have Accepted Assignment	122
Claims for Physicians Who Have Not Accepted Assignment	123
Which Claim Form to Use?	123
What Documentation to Include With the Claim?	123
Time Limits and Appeals	124
TRICARE or CHAMPVA and Other Insurance	124
Summary Payment Voucher	125
Step 11: Workers' Compensation	126
Classification of On-The-Job Injuries	127
Step 12: Filing a Workers' Compensation Claim	128
First Report of Injury	128
Progress Reports	129
FECA	129
A Note About Patient Records	131

Step 13: Disability Insurance	131
Step 14: The Consolidated Omnibus Budget Reconciliation Act (COBRA)	133
Step 15: Lesson Summary	133

## Lesson 7—Medical Terminology—Word Parts 137

Step 1: Learning Objectives for Lesson 7	138
Step 2: Lesson Preview	138
Step 3: Word Parts	139
Step 4: Root Words and Word Parts	140
Step 5: Medical Terms and Word Parts	142
Step 6: Root Words	143
The Functions of Root Words	144
Compound Words as Root Words	145
Combining Forms of Root Words	146
Step 7: Pronounce Root Words	146
Step 8: Write Root Words	147
Step 9: Meanings of Root Words	148
Step 10: Prefixes	149
Step 11: Pronounce Prefixes	152
Step 12: Write Prefixes	153
Step 13: Meaning of Prefixes	153
Step 14: Suffixes	154
Step 15: Pronounce Suffixes	158
Step 16: Write Suffixes	159
Step 17: Meanings of Suffixes	159
Step 18: Lesson Summary	160

## Lesson 8—Medical Terminology—Dividing and Combining Terms 164

Step 1: Learning Objectives for Lesson 8	165
Step 2: Lesson Preview	165
Step 3: Dividing Medical Terms	166
Step 4: Pronounce Word Parts	174
Step 5: Write Word Parts	175
Step 6: Meanings of Word Parts	175
Step 7: Combining Medical Terms	176
Step 8: Pronounce Word Parts	179
Step 9: Write Word Parts	179
Step 10: Meanings of Word Parts	180
Step 11: Lesson Summary	180

## Lesson 9—Abbreviations, Symbols and Special Terms 182

Step 1: Learning Objectives for Lesson 9	183
Step 2: Lesson Preview	183
Step 3: Abbreviations	184
Abbreviations in Hospitals	184
Office Records	185
Doctors	185
Pharmacies	185
Step 4: Learn Abbreviations	185
Step 5: Meanings of Abbreviations	186
Step 6: Slang	186
Medical Slang	186
English Slang	187
Step 7: Slang Terms	188
Step 8: Meanings of Slang Terms	188
Step 9: Symbols	189
Step 10: Special Terms	189
Eponyms	190
Brand Names	191
Acronyms	192
Step 11: Pronounce Acronyms	194
Step 12: Sound-alikes and Opposites	194
Homophones (Sound-alikes)	195
Antonyms (Opposites)	195
Step 13: Medical Plurals	196
Medical Rules for Plurals	196
Step 14: Lesson Summary	197
Just for Fun	197
<b>Lesson 10—Introduction to Anatomy</b>	<b>200</b>
Step 1: Learning Objectives for Lesson 10	201
Step 2: Lesson Preview	201
Step 3: Human Biology	202
What is Human Biology?	202
Anatomy	203
Gross Anatomy	204
Microscopic Anatomy	205
Physiology	205
Step 4: Pathology	206
How do Anatomy, Physiology and Pathology Relate to One Another?	207

Step 5: Beginning Anatomy and Physiology Concepts	209
The Anatomic Position	209
Planes and Sections of the Human Body	210
Transverse Planes and Sections	211
Sagittal Planes and Sections	212
Coronal Planes and Sections	212
Step 6: Location Terms	213
Step 7: Pronounce New Terms	218
Step 8: Write New Terms	219
Step 9: Meanings of New Terms	219
Step 10: Lesson Summary	220
Lesson 11—The Anatomy of the Human Body	221
Step 1: Learning Objectives for Lesson 11	222
Step 2: Lesson Preview	222
Step 3: Gross Anatomy	223
Landmarks and Divisions	223
Superficial (Surface) Landmarks, Face Up	223
Superficial (Surface) Landmarks, Face Down	225
Step 4: Pronounce New Terms	227
Step 5: Write New Terms	227
Step 6: Meanings of New Terms	228
Step 7: Adjective Forms for Landmark Names	228
Step 8: Divisions of the Abdomen	229
Step 9: Internal Landmarks: The Body Cavities	230
Step 10: Membranes That Line the Body Cavities	232
Epithelial Tissue Membranes	232
Connective Tissue Membranes	233
Step 11: Retroperitoneal Organs	234
Step 12: Pronounce New Terms	235
Step 13: Write New Terms	235
Step 14: Meanings of New Terms	236
Step 15: Organization of the Body	236
Step 16: Pronounce New Terms	237
Step 17: Write New Terms	238
Step 18: Meanings of New Terms	238
Step 19: Organs and Organ Systems	239
Respiratory System	240
Circulatory/Cardiovascular System	240

Nervous System	240
Muscular System	241
Skeletal System	241
Integumentary System	241
Endocrine System	242
Digestive System	242
Urinary System	242
Reproductive System	242
The Immune System	242
Step 20: Pronounce New Terms	243
Step 21: Write New Terms	243
Step 22: Meanings Of New Terms	243
Step 23: Lesson Summary	244
<b>Lesson 12—Organ Systems I</b>	<b>246</b>
Step 1: Learning Objectives for Lesson 12	247
Step 2: Lesson Preview	247
Step 3: Integumentary System	248
Skin	248
The Epidermis	249
Skin Appendages	251
Skin Derivatives	252
Example Claim Form	252
Step 4: Pronounce New Terms	253
Step 5: Write New Terms	254
Step 6: Meanings of New Terms	254
Step 7: Musculoskeletal System	255
The Skeletal System	255
Bones of the Axial Skeleton	257
Bones of the Appendicular Skeleton	260
Example Claim Form	262
The Muscular System	263
Example Claim Form	265
Step 8: Pronounce New Terms	266
Step 9: Write New Terms	266
Step 10: Meanings of New Terms	267
Step 11: Neurological System	267
Central Nervous System	268
Peripheral Nervous System	269
Example Claim Form	270

Step 12: Pronounce New Terms	270
Step 13: Write New Terms	271
Step 14: Meanings of New Terms	271
Step 15: Cardiovascular System	272
Heart	272
Peripheral Vascular System	274
Example Claim Form	274
Step 16: Pronounce New Terms	275
Step 17: Write New Terms	275
Step 18: Meanings of New Terms	276
Step 19: Immune System	276
Immunity	277
Example Claim Form	278
Immune System Components	279
Immunodeficiencies	280
Step 20: Pronounce New Terms	281
Step 21: Write New Terms	282
Step 22: Meanings of New Terms	282
Step 23: Lesson Summary	283
<b>Lesson 13—Organ Systems II</b>	<b>284</b>
Step 1: Learning Objectives for Lesson 13	285
Step 2: Lesson Preview	285
Step 3: Respiratory System	286
Gross Anatomy of the Respiratory System	286
Example Claim Form	287
Step 4: Pronounce New Terms	288
Step 5: Write New Terms	288
Step 6: Meanings of New Terms	289
Step 7: Gastrointestinal System	289
Example Claim Form	291
Step 8: Pronounce New Terms	291
Step 9: Write New Terms	292
Step 10: Meanings of New Terms	292
Step 11: Genitourinary System	293
The Urinary System	293
Male Reproductive System	294
Step 12: Pronounce New Terms	295
Step 13: Write New Terms	296

Step 14: Meanings of New Terms	296
Step 15: Female Reproductive System	297
Example Claim Form	297
Step 16: Pronounce New Terms	298
Step 17: Write New Terms	299
Step 18: Meanings of New Terms	299
Step 19: Endocrine System	299
Endocrine Glands	300
Other Endocrine Organs and Their Functions	303
Reproductive Endocrine Organs	305
Example Claim Form	306
Step 20: Pronounce New Terms	306
Step 21: Write New Terms	307
Step 22: Meanings of New Terms	307
Step 23: Lesson Summary	307