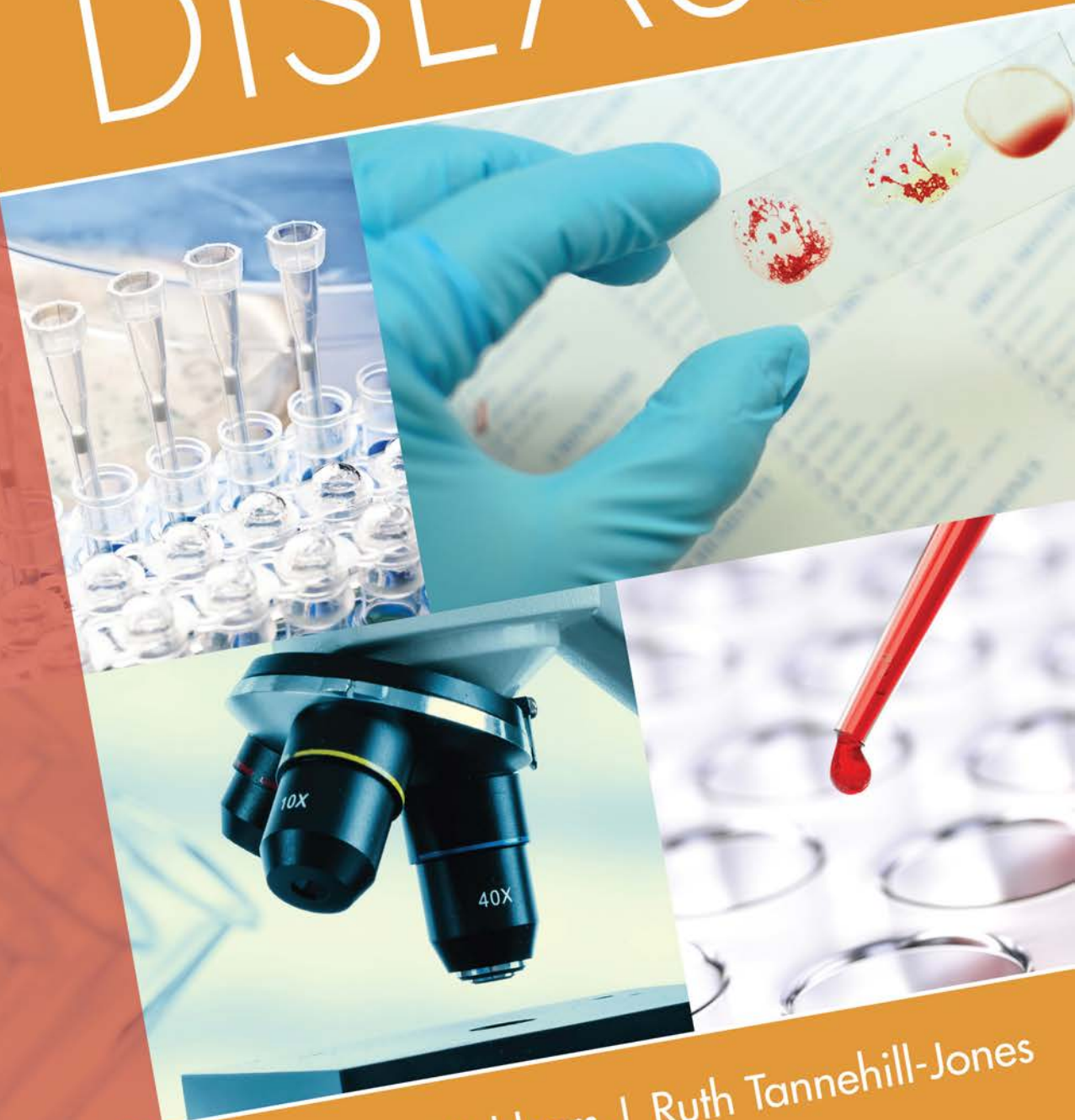


# HUMAN DISEASES

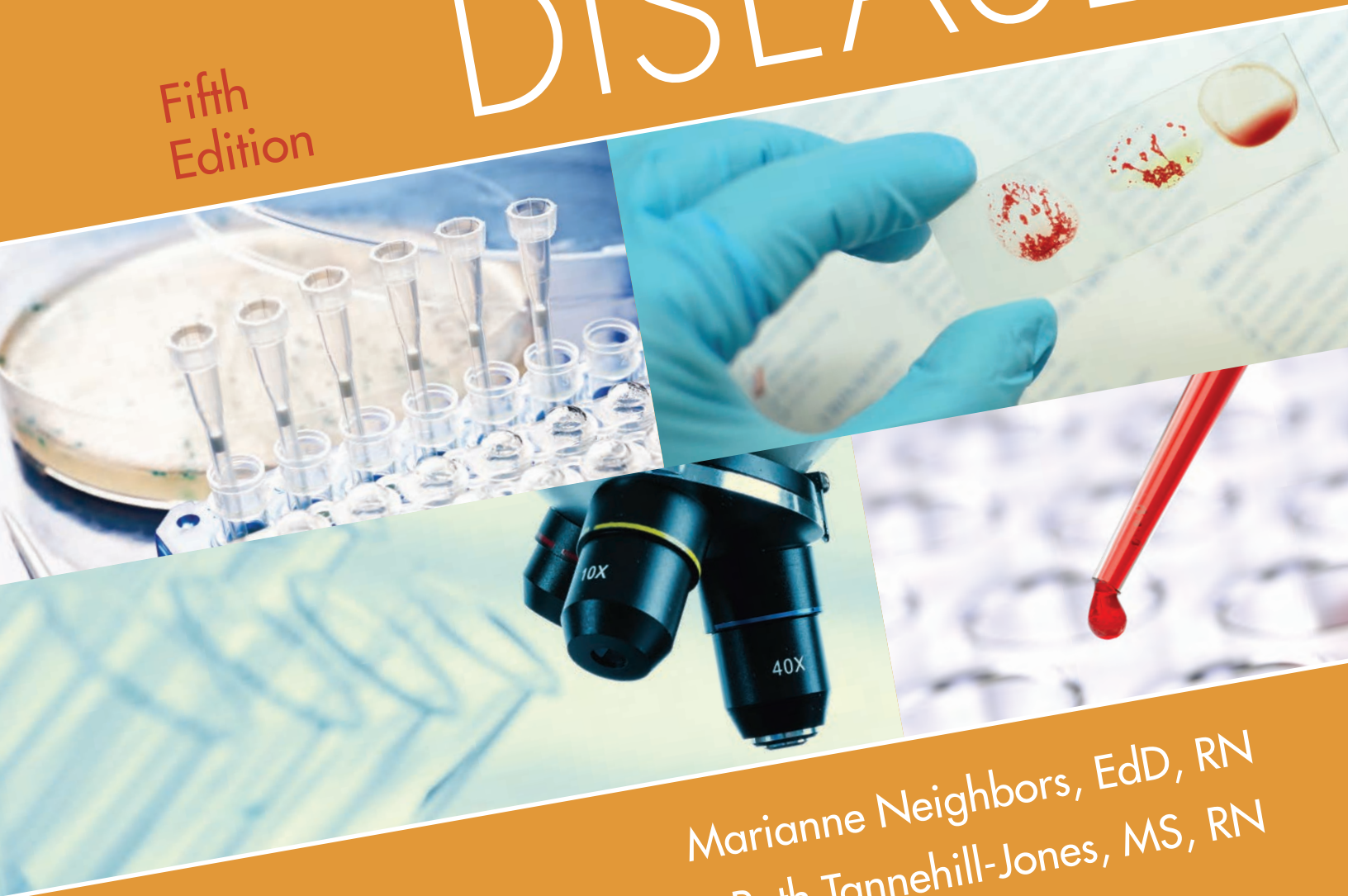
Fifth Edition



Marianne Neighbors | Ruth Tannehill-Jones

# HUMAN DISEASES

Fifth  
Edition



Marianne Neighbors, EdD, RN  
Ruth Tannehill-Jones, MS, RN



Australia • Brazil • Singapore • United Kingdom • United States

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**To my husband, Larry Butler,** *who is now with the Lord, and my son Jeremy Neighbors, his wife Misty, and my grandson Kieran. I love you all very much. Marianne*

**To my husband, Jim,** *the quiet, solid, love of my life for over 40 years, and to the other man in my life, my brother Bob Tannehill, who has always loved and supported me, “his younger, little sister.” Ruth*





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**A**s the medical field has undergone an explosion in new techniques and therapies, there has been a matching explosion in the need for technicians, patient care providers, and general health care professionals to support this growth. These new and developing careers, which include nurses, medical assistants, nursing assistants, surgical technologists, respiratory therapy assistants, physical therapy assistants, radiographic technologists, medical transcriptionists, medical office assistants, and emergency medical technicians, to name only a few, assist and support physicians in a variety of health care settings.

## APPROACH

Many pathophysiology books have been written to address the informational needs of the medical community, but few basic disease textbooks exist for the benefit of the health care professional, especially those in allied health care disciplines. This book has been designed and written specifically for this group. It is intended to meet the needs of the student in the classroom as well as serve as a valuable resource for health care professionals on the job. In addition, this text may be used as a resource on basic diseases by anyone within the medical arena or lay community. Current information for this book was based on the authors' own experiences and research sought from current literature, books, Internet resources, and physician consultations. Students will understand this text best if a basic medical terminology or anatomy and physiology course has been completed before this course of study.

Several dilemmas immediately emerge when one considers writing a textbook for such a large and diverse audience as the health care field. Questions arise as to how much content to include, what to exclude, how detailed the content should be, and how to organize the content in the most understandable manner. Another common concern is the question of the appropriate reading level.

In an attempt to resolve these dilemmas, it was decided to organize the book in such a way that blocks of material or even entire chapters could be omitted or covered in detail, depending on the format of the class

and needs of the student. At the same time, information on each disease is written in such a way that it can stand alone or be viewed as all inclusive. This concept allows the instructor, student, or individual to select and study only those specific diseases or individual disease of interest. Not all health conditions are covered in the text, so the conditions chosen to be included are those that are most common, along with the new and emerging diseases. A few rare conditions are also included. Of the conditions chosen for the text, only general information is covered. The text is designed to be a basic overview of common diseases and disorders, not an in-depth study. Thus, the diseases presented are not described on a cellular physiological level, which would be too complex for the intended audience. The intention also was to keep the reading level of the text at an easy-to-read basic level to promote understanding. We did not want to write beneath the level of the student but, at the same time, felt that a difficult reading level would only increase the complexity of the material and thus fail to promote understanding of the subject matter.

The boxed features within the chapters either add interesting information about staying healthy, present new research on the chapter topics, or present information about alternative treatments. The pharmacology boxed features list some of the possible medications for disorders in the chapter. These drugs are listed with generic names only since there are many trade names for the same generic medication. It is not intended to be an exhaustive list of possible medications, but just to give the reader some information about common medications that might be prescribed for certain disorders reviewed in the chapter. The "Consider This" feature presents interesting facts.

## ORGANIZATION OF THE TEXT

*Human Diseases*, Fifth Edition, consists of 21 chapters organized into three units. Unit I (Chapters 1 through 4) lays the foundation for some basic disease concepts, including mechanisms of disease, neoplasms, inflammation, and infection. Unit II (Chapters 5 through 18) is organized by body systems, and opens with a

basic Anatomy and Physiology review of each system before discussing that system's Common Diseases and Disorders. Included with this discussion, where appropriate, are Common Signs and Symptoms, Diagnostic Tests, Trauma, and Rare Diseases. In addition, a unique section toward the end of each chapter discusses the Effects of Aging on each system to help learners understand the natural aging process of the human body. Unit III (Chapters 19 through 21) includes specialty areas covering genetics, childhood diseases, and mental health disorders. Each disease in Units II and III is broken down (where applicable) into the following sections: Description, Etiology, Symptoms, Diagnosis, Treatment, and Prevention. Although this may appear to be very title-heavy when there is only a sentence or two in each section, this breakdown will assist the reader to clearly identify these components of each disease. It also maintains consistency throughout the textbook.

## CHANGES TO THE FIFTH EDITION

Changes to the fifth edition include:

- Some new “Glimpse of the Future” boxes, which detail cutting-edge information or treatments, have been added to the existing content.
  - “Complementary and Alternative Therapy” boxes, which discuss herbal and other nontraditional treatments, have been updated with new content.
  - Some new “Consider This” comments have been added to enlighten and entertain the reader.
  - Several new “Healthy Highlight” boxes have been added.
  - More illustrations have been replaced with color photographs to enhance understanding of the diseases and disorders presented in the text.
  - Disease statistics have been updated to reflect the latest statistics available.
  - New diagnostic tests have been added.
  - Non-Alcoholic Fatty Liver Disease (NAFLD) is added in chapter 12.
  - Respiratory Syncytial Virus (RSV) is added in chapter 20.
  - Fifth Disease is added in Chapter 20.
- Bibliographies have been updated to include the most up-to-date references to information used in each chapter.

## LEARNING RESOURCES

### WORKBOOK

ISBN 978-1-3373-9680-6

The workbook offers additional practice with exercises corresponding to each chapter in the book, including multiple choice, fill-in-the-blank, true/false, short answer, and matching questions.

## ONLINE RESOURCES

A student companion website is available to accompany the text that includes slide presentations created in Microsoft PowerPoint, and anatomy, physiology, and pathophysiology animations.

To access the student companion website:

1. Go to <http://www.CengageBrain.com>.
2. Register as a new user or log in as an existing user if you already have an account with Cengage Learning or CengageBrain.com.
3. Select **Go to MY Account**.
4. Open the product from the My Account page.

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## INSTRUCTOR RESOURCES

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- The Instructor's Manual includes a sample course syllabus and outline as a guide for setting up a course.

Additional materials for each chapter include detailed content outlines, learning objectives, expanded chapter summaries, discussion topics, learning activities, answers to the text review questions, answers to the workbook activities, and chapter tests with answer keys.

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## FEEDBACK FROM THE USER(S)

The authors would like to hear from instructors, learners, or anyone using the textbook about its strengths and/or suggestions for revisions. They are truly interested in making the textbook user-friendly and comprehensive but not too detailed or too in-depth for the reader. The authors want to know how the text is being used and what features are most helpful. Please feel free to forward comments to the authors through Cengage Learning or directly by e-mail to Dr. Neighbors at [Neighbo@cox.net](mailto:Neighbo@cox.net) and Ms. Tannehill-Jones at [rjonesn-wark@hotmail.com](mailto:rjonesn-wark@hotmail.com).

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# Unit I

# CONCEPTS OF HUMAN DISEASE







# 1

# Introduction to Human Diseases

## KEY TERMS

Acute (p. 5)  
Auscultation (p. 7)  
Chronic (p. 5)  
Complication (p. 8)  
Diagnosis (p. 7)  
Disease (p. 4)  
Disorder (p. 4)  
Etiology (p. 5)  
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Fatal (p. 8)  
Holistic medicine (p. 9)  
Homeostasis (p. 4)  
Iatrogenic (p. 5)  
Idiopathic (p. 5)  
Lethal (p. 8)  
Mortality rate (p. 8)  
Nosocomial (p. 5)  
Palliative (p. 9)

Palpation (p. 8)  
Pathogenesis (p. 4)  
Pathogens (p. 4)  
Pathologic (p. 4)  
Pathologist (p. 4)  
Pathology (p. 4)  
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Signs (p. 7)  
Symptoms (p. 7)  
Syndrome (p. 4)

## LEARNING OBJECTIVES

Upon completion of the chapter, the learner should be able to:

1. Define basic terminology used in the study of human diseases.
2. Discuss the pathogenesis of disease.
3. Describe the standard precaution guidelines for disease prevention.
4. Identify the predisposing factors to human diseases.
5. Explain the difference between diagnosis and prognosis of a disease.
6. Describe some common tests used to diagnose disease states.

## OVERVIEW

**T**he study of human diseases is important for understanding a variety of other topics in the health care field. Diseases that affect humans can range from mild to severe and can be acute (short term) or chronic (long term). Some diseases affect only one part of the body or a particular body system, whereas others affect several parts of the body or body systems at the same time. Many factors influence the body's ability to stay healthy or predispose the body to a disease process. Some of these factors are controllable, but some are strictly related to heredity. Diseases can be diagnosed by professional health care providers using a variety of techniques and tests. ■

## DISEASE, DISORDER, AND SYNDROME

In the study of human disease, several terms may be similar and often used interchangeably but might not have identical definitions.

### DISEASE

**Disease** may be defined in several ways. It may be called a change in structure or function that is considered to be abnormal within the body, or it may be defined as any change from normal. It usually refers to a condition in which symptoms occur and a pathologic state is present, such as in pneumonia or leukemia. Both of these definitions have one underlying concept: the alteration of **homeostasis** (ho-mee-oh-STAY-sis).

Homeostasis is the state of sameness or normalcy the body strives to maintain. The body is remarkable in its ability to maintain homeostasis, but when this homeostasis is no longer maintained, the body is diseased or “not at ease.”

### DISORDER

**Disorder** is defined as a derangement or abnormality of function. The term *disorder* can also refer to a pathologic condition of the body or mind but more commonly is used to refer to a problem such as a vitamin deficiency (nutritional disorder). It is also used to refer to structural problems such as a malformation of a joint (bone disorder) or a condition in which the term *disease* does not seem to apply, such as dysphagia (swallowing disorder). Because *disease* and *disorder* are so closely related, they are often used synonymously.

### SYNDROME

**Syndrome** (SIN-drome) refers to a group of symptoms, which might be caused by a specific disease but might also be caused by several interrelated problems. Examples include Tourette’s syndrome, Down syndrome, and acquired immunodeficiency syndrome (AIDS), which are discussed later in the text.

## PATHOLOGY

**Pathology** (pah-THOL-oh-jee) can be broadly defined as the study of disease (*patho* = disease, *ology* = study). A **pathologist** (pah-THOL-oh-jist) is one who studies disease. Using this strict definition of the word, even

TABLE 1-1 Types of Pathologists

Pathologist	Role or Subject
Experimental	Research
Academic	Teaching
Anatomic	Clinical examinations
Autopsy	Postmortem
Surgical	Biopsies
Clinical	Laboratory examinations
Hematology	Blood
Immunology	Antigen/antibodies
Microbiology	Microorganisms

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a student studying diseases might be considered a pathologist.

There are many types of pathologists because there are numerous ways to study disease. One of the more commonly known pathologists is the surgical pathologist, who inspects surgical tissue or biopsies for evidence of disease. The medical examiner or coroner can be a pathologist who studies human tissue to determine the cause of death and provide evidence of criminal involvement in a death. Other types of pathologists are outlined in Table 1-1.

The prefix *patho-* can be used in a variety of ways to describe disease processes or the disease itself. Microorganisms or agents that cause disease are called **pathogens** (PATH-oh-jens). These include some types of bacteria, viruses, fungi, protozoans, and helminths (worms). All pathogens have the ability to cause a disease or disorder. Fractures that are caused by a disease process that weakens the bone, such as osteoporosis, would be called **pathologic** (path-oh-LODGE-ick) fractures.

## PATHOGENESIS

The **pathogenesis** (PATH-oh-JEN-ah-sis; *patho* = disease, *genesis* = arising) is a description of how a particular disease progresses. Many of us are familiar with the pathogenesis of the common cold.

A cold begins with an inoculation of the cold virus. This can occur following a simple handshake with someone who has a cold. Afterward, the target person might rub his or her eyes or nose, allowing entry of the virus into the body. After the inoculation period comes incubation time. During this period, the virus multiplies, and the target person begins to have symptoms such as a runny nose and itchy eyes. The pathogenesis

**TABLE 1–2** Examples of Acute and Chronic Diseases/Disorders

Acute	Chronic
Upper respiratory infections	Arthritis
Lacerations	Hypertension
Middle ear infections	Diabetes mellitus
Gastroenteritis	Low back pain
Pneumonia	Heart disease
Fractures	Asthma

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of the cold then moves into full-blown illness, usually followed by recovery and return to the previous state of health.

The pathogenesis of a disease can be explained in terms of time. An **acute** (a-CUTE) disease is short term and usually has a sudden onset. If the disease lasts for an extended period of time or the healing process is progressing slowly, it is classified as a **chronic** (KRON-ick) condition. See Table 1–2 for examples of acute and chronic diseases.

## ETIOLOGY

The **etiology** (EE-tee-OL-oh-jee) of a disease means the study of cause. The term *etiology* is commonly used to mean simply “the cause.” One might say that the cause is unknown or “of unknown etiology.” The cause or etiology of pneumonia can be a virus or a bacterium.

The etiology of athlete’s foot is a fungus named *tinea pedis*.

Another term used to mean “the cause is unknown” is **idiopathic** (ID-ee-oh-PATH-ick). If an individual is diagnosed as having idiopathic gastric pain, it means the cause of the pain in the stomach is unknown.

Other terms related to cause of disease are **iatrogenic** (EYE-at-roh-JEN-ick) and **nosocomial** (NOS-oh-KOH-me-al). Iatrogenic (*iatro* = medicine, physician, *genic* = arising from) means that the problem arose from a prescribed treatment. An example of an iatrogenic problem is the development of anemia in a patient undergoing chemotherapy treatments for cancer.

Nosocomial is a closely related term; it implies that the disease was acquired from a hospital environment. An example would be a postoperative patient developing an incisional staphylococcal infection. The best way to prevent nosocomial infections is through the practice of good hand washing. A good hand-washing technique is described in the Healthy Highlight box below.

## PREDISPOSING FACTORS

**Predisposing factors**, also known as risk factors, make a person more susceptible to disease. Predisposing factors are not the cause of the disease, and people with predisposing factors do not always develop the disease. These factors include age, sex, environment, lifestyle, and heredity. Some risk factors, such as lifestyle behaviors, are controllable, whereas others such as age are not.



## HEALTHY HIGHLIGHT

### How Should You Wash Your Hands

**K**eeping your hands clean through improved hand hygiene is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean water.

To wash your hands:

- Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
- Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- Scrub your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
- Rinse your hands well under clean, running water.
- Dry your hands using a clean towel or air dry them.

Source: Centers for Disease Control and Prevention (CDC) 2016



## HEALTHY HIGHLIGHT

### Standard Precautions

Using standard precautions is recommended by the Centers for Disease Control and Prevention for the care of all patients or when administering first aid to anyone. These standards also include respiratory hygiene and cough etiquette, safe injection techniques, and wearing masks for spinal insertions.

- **Hand washing** Wash hands after touching blood, body fluids, or both, even if gloves are worn; use an antimicrobial soap.
- **Respiratory etiquette** Cover mouth, nose, or both with a tissue when coughing and dispose of used tissue immediately. Wear mask if possible. Maintain distance from others, ideally greater than 3 feet. Wash hands after contact with secretions.
- **Gloves** Wear gloves when touching blood, body fluids, and contaminated items; change gloves after patient contact or contact with contaminated items; wash hands before and after.
- **Eye wear, mask, and face shield** Wear protection for the eyes, mouth, and face when performing procedures when a risk of splashing or spraying of blood or body secretions exists. This includes insertion of catheters or injection of material into spinal or epidural spaces. A mask should also be worn if the caregiver has a respiratory infection but cannot avoid direct patient contact.
- **Gown** Wear a waterproof gown to protect the clothing from splashing or spraying blood or body fluids.
- **Equipment** Wear gloves when handling equipment contaminated with blood or body fluids; clean equipment appropriately after use; discard disposable equipment in proper containers.
- **Environment control** Follow proper procedures for cleaning and disinfecting the patient's environment after completion of a procedure.
- **Linen** Use proper procedure for disposing of linen contaminated with blood or body fluids.
- **Blood-borne pathogens** Do not recap needles; dispose of used needles and other sharp instruments in proper containers; use a mouthpiece for resuscitation; keep a mouthpiece available in areas where there is likelihood of need.

### AGE

From the beginning of life until death, our risk of disease follows our age. Newborns are at risk of disease because their immune systems are not fully developed. On the other hand, older persons are at risk because their immune systems are degenerating or wearing out. Girls in their early teens and women over the age of 30 are at high risk for a difficult or problem pregnancy. The older we become, the higher the risk for diseases such as cancer, heart disease, stroke, senile dementia, and Alzheimer's.

### SEX

Some diseases are more **prevalent** (occurring more often) in one gender or the other. Men are more at risk for diseases such as lung cancer, gout, and

Parkinsonism. Other disorders or diseases, including osteoporosis, rheumatoid arthritis, and breast cancer, occur more often in women.

### ENVIRONMENT

Air and water pollution can lead to respiratory and gastrointestinal disease. Poor sanitation, excessive noise, and stress are also environmental risk factors. Occupational diseases such as lung disease are high among miners and persons working in areas where there are increased amounts of dust or other particles in the air.


Farmers are considered to be at higher risk for diseases because of their increased exposure to dust, pesticides, and other pollutants. Farmers are also at higher risk for trauma injuries due to safety problems around

farm machinery. People living in remote, rural areas do not have health care availability comparable to that enjoyed by people living in urban areas. This increases their risk for chronic illnesses.

## LIFESTYLE

Lifestyle factors fall into a category over which the individual has some control. Choosing to improve health behaviors in these areas could lead to a reduction in risk and thus a possibility of avoiding the occurrence of the disease. Such factors include smoking, drinking alcohol, poor nutrition (excessive fat, salt, and sugar and not enough fruits, vegetables, and fiber), lack of exercise, and stress.

Practicing health behaviors to prevent contamination, and thus disease, is also an important lifestyle behavior. The Centers for Disease Control and Prevention recommends the use of standard precautions when caring for any individual when there is a chance of being contaminated with blood or body fluids (see the Healthy Highlight box “Standard Precautions”). This is an important measure to prevent transmission of any disease that can be passed between humans in blood or body fluids, such as hepatitis, *Escherichia coli* infections, and AIDS.



### Consider This...

About 90% of diseases are partially caused or affected by stress.

## HEREDITY

Although one cannot change genetic makeup, being aware of hereditary risk factors might encourage the individual to change lifestyle behaviors to reduce the risk of disease. For example, coronary heart disease has been shown to have a high familial tendency. Persons with this family inheritance are compounding their chances if they smoke, have poor nutritional intake, and do not exercise routinely.

Breast cancer and cervical cancer also have familial tendencies. Women with family members who have been diagnosed with breast cancer or cervical cancer are at a higher risk for developing these diseases. These women should be screened routinely for evidence of cancer and should complete monthly breast self-exams.

With this knowledge about hereditary factors, individuals can choose to decrease their overall risk by improving their lifestyle health behaviors.

## DIAGNOSIS

**Diagnosis** (die-ag-NO-sis) is the identification or naming of a disease or condition. When an individual seeks medical attention, it is the duty of the physician to determine a diagnosis of the problem. A diagnosis is made after a methodical study by the physician, using data collected from a medical history, physical examination, and diagnostic tests (Figure 1–1).

A medical history is a systems review that might include such information as previous illnesses, family illness, predisposing factors, medication allergies, current illnesses, and current **symptoms** (SIMP-tums, what patients report as their problem or problems). Examples of symptoms might include stomach pain, headache, and nausea.

The physician proceeds with a head-to-toe physical examination of the patient, looking for signs of the disease. **Signs** differ from symptoms in that signs are observable or measurable. Signs are what the physician sees or measures. Examples of signs could include vomiting, elevated blood pressure, and elevated temperature.

In some cases, a patient’s concern might be considered as both a symptom and a sign. Some references call this an objective or observable symptom, whereas others state that it is also a sign. An example would be a patient complaining of a runny nose. The runny nose is the patient’s symptom and, because it is observable to the physician, it is also a sign.

During the physical examination, the physician might use other skills such as **auscultation** (aws-kul-TAY-shun, using a stethoscope to listen to body



FIGURE 1–1 Physician checking a patient.

TABLE 1-3 Examples of Common Diagnostic Tests and Procedures

Test	Description
Complete blood count (CBC)	An examination of blood for cell counts and abnormalities
Urinalysis (UA)	An examination of urine for abnormalities
Chest X-ray (CXR)	X-ray examination of the chest cavity
Electrocardiography (ECG or EKG)	A procedure for recording the electrical activity of the heart
Blood glucose	A test of the blood to determine its glucose or sugar levels
Computerized axial tomography (CT or CAT)	A special X-ray examination showing detailed images of body structures and organs
Serum electrolytes	An examination of blood serum to determine the levels of the common electrolytes (sodium, potassium, chloride, and carbon dioxide)

cavities), **palpation** (pal-PAY-shun, feeling lightly or pressing firmly on internal organs or structures), and **percussion** (per-KUSH-un; tapping over various body areas to produce a vibrating sound). All the results are compared to a normal standard to identify problems.

Diagnostic tests and procedures to assist in determining a diagnosis are numerous. The routine or most common include urinalysis, complete blood count (CBC), chest X-ray (CXR), and electrocardiography (EKG or ECG). See Table 1-3 for examples of common diagnostic tests and procedures.

## PROGNOSIS

**Prognosis** (prawg-KNOW-sis) is the predicted or expected outcome of the disease. For example, the prognosis of the common cold would be that the individual should feel better in 7 to 10 days.

## ACUTE DISEASE

The duration of the disease can be described as acute in nature. An acute disease is one that usually has a sudden onset and lasts a short amount of time (days or weeks). Most acute diseases are related to the respiratory system. Again, the common cold would be a good example.

## CHRONIC DISEASE

If the disease persists for a long time, it is considered to be chronic. Chronic diseases might begin insidiously (slowly and without symptoms) and last for the entire life of the individual. As one ages, the occurrence of chronic disease increases. One of the most common chronic diseases is hypertension, or high blood pressure.

Chronic diseases often go through periods of **remission** and **exacerbation** (eg-ZAS-er-BAY-shun). Remission refers to a time when symptoms are diminished or temporarily resolved. Exacerbation refers to a time when symptoms flare up or become worse. Leukemia is a disease that progresses through periods of remission and exacerbation. Both acute and chronic diseases can range from mild to life threatening.

## COMPLICATION

The prognosis might be altered or changed at times if the individual develops a **complication**. A complication is the onset of a second disease or disorder in an individual who is already affected with a disease. An individual with a fractured arm might have a prognosis of the arm healing in 6 to 8 weeks. If the individual suffers the complication of bone infection, the prognosis might change drastically.

## MORTALITY RATE

*Mortality* is defined as the quality of being mortal, that is, destined to die. Diseases commonly leading to the death of an individual have a high **mortality rate**. The mortality rate of a disease (also called death rate) is related to the number of people who die with the disease in a certain amount of time. Other terms the medical community uses to refer to a deadly disease include **fatal** and **lethal**.



### Consider This...

The ashes of the average cremated human weigh approximately 9 pounds.

## SURVIVAL RATE

A physician's prognosis can also consider survival rate. Survival rate is the percentage of people with a particular disease who live for a set period of time. For example, the two-year survival rate of individuals with lung cancer would be the percentage of people alive 2 years after diagnosis.

## TREATMENT

After the diagnosis is established, the physician will work with the individual to explain or outline a plan of care. The physician might offer treatment options to the individual with expected outcomes or prognoses. The individual's entire being should be taken into consideration. The concept of considering the whole person rather than just the physical being is called **holistic medicine**.

From a holistic viewpoint, there is interaction between the spiritual, cognitive, social, physical, and emotional being. These areas do not work independently, but have a dynamic interaction (Figure 1–2).

Treatment interventions might include (1) medications, (2) surgery, (3) exercise, (4) nutritional modifications, (5) physical therapy, and (6) education. Individuals and family members should be educated and involved in the treatment plan. Failure to involve the individual and family can decrease compliance and lead to failure of the plan.

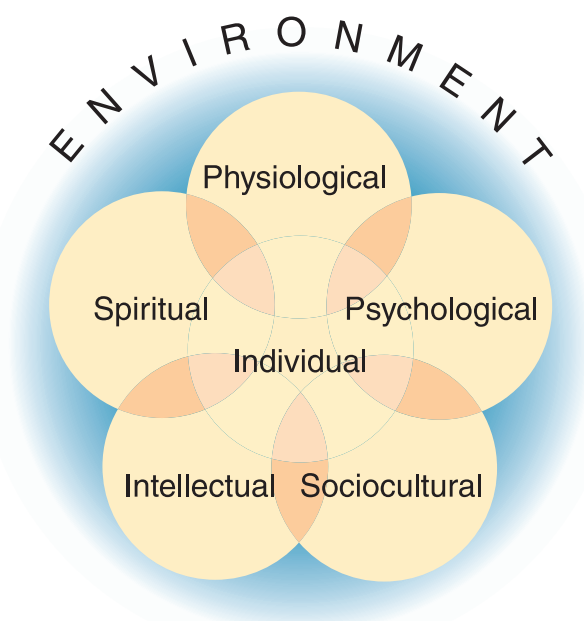


FIGURE 1–2 Holistic medicine.

After the treatment plan is implemented, the physician will follow up with the individual to determine effectiveness. The individual and physician should work together to modify the plan if it is found to be ineffective. Implementation of the plan usually requires an entire health care team. The team can include nurses, a physical therapist, a social worker, clergy, and other health care professionals as needed.

The best treatment option is a **preventive** plan. In preventive treatment, care is given to prevent disease. Examples of preventive care are breast mammograms to screen for breast cancer, blood pressure screening for hypertension, routine dental care to prevent dental caries, and a fecal occult blood test to screen for colon cancer.

Other treatment plans might include **palliative** (PAL-ee-ay-tiv) treatment. Palliative treatment is aimed at preventing pain and discomfort but does not seek to cure the disease. Treatment for end-term cancer and other serious chronic conditions can be palliative.

Decisions concerning treatment plans can be very difficult for the patient, the patient's family, and the health care team. This is especially true when those decisions involve palliative treatment and end-of-life issues. During these times, professionals often seek assistance in decision making by using their knowledge of medical ethics.

## MEDICAL ETHICS

*Webster's Dictionary* defines ethics as "the study of standards of conduct and moral judgment." More simply put, ethics deals with the "rightness and wrongness" or "goodness and badness" of human actions. Ethics covers many areas of conduct and judgment in our society.

Bioethics is a branch of ethics concerned with what is right or wrong in bio (life) decisions. Because bioethics is a study of life ethics, it covers or becomes entwined with medical ethics. Medical ethics includes the values and decisions in medical practice, including relationships to patients, patients' families, peer physicians, and society.

Part of the ethical challenge in this age of rapidly advancing technologies is actually determining what is right, wrong, good, or bad. New scientific discoveries are challenging familiar or usual human behaviors, leading to reconsideration of actions, thoughts, and emotions. Ethical dilemmas, once rare, are now common and often happen so quickly that society is unable to understand completely the impact these decisions will have on the future.