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CHAPTER 17

Human Development

After studying this chapter, you will be able to

17.1 Describe each stage of human development
17.2 Name medical specialists that treat the disorders in each stage of the lifespan
17.3 List the diseases and disorders common to each stage of the lifespan

Stages of Development

The time between conception and death is the period of an individual's development. The average lifespan (length of life) varies from country to country. Each stage (see Table 17-1) is described in this chapter, as are the specialists who typically treat patients in a particular time in the lifespan. Pathology of the lifespan is also discussed.

Fertilization, Pregnancy, and Birth

Fertilization can occur as the result of sexual intercourse between a male and a female. It may also occur in a laboratory in cases of infertility. However it occurs, fertilization is the union of an egg cell (ovum) with a spermatozoon. (On occasion, more than one egg is fertilized by more than one sperm—producing fraternal twins or triplets—or a single egg divides into identical twins, triplets, quadruplets, and so on.) After traveling through the fallopian tube, the fertilized ovum (also called a zygote) is implanted or attached to the wall of the uterus. Once attached, the ovum (now called an embryo until it reaches 2 1/2 months or 10 weeks) remains in utero, or within the uterus, until development and birth. It takes an average of 40 weeks from the time that the ovum is fertilized until birth. This period of development is known as gestation. The embryo begins to change during the first 8 weeks of gestation. After 2 1/2 months, the embryo becomes a fetus, the developing product of conception prior to birth. For the mother, the 40-week period of gestation is the period known as pregnancy. Chapters 10 and 11 cover the female and male reproductive systems.

The birth process usually includes a period of labor, the process of expelling the fetus and the placenta from the uterus. Labor may end in a vaginal birth. If not, a cesarean section, removal of the fetus surgically through the abdomen, is performed. The reasons for performing a cesarean section vary widely, but may include fetal or maternal distress, complications (as in multiple births or premature birth), or extended labor without adequate dilation of the cervix. The fetus, in the majority of circumstances, is in a cephalic position.
or head down in the birth canal. A fetus may be positioned in a **breech** position (infant in birth canal with feet or buttocks first) or may be transverse, sideways. Obstetricians, specialists in **obstetrics**, which includes fertility, pregnancy, and birth, assist in the vaginal birth of a breech baby, or turn a transverse baby so that it can be born vaginally. A breech or tranverse baby cannot exit the vagina without being harmed unless it is maneuvered into a position to allow it to come through the birth canal. Often, infants in such positions are at risk during the birth process and are much more likely to be born by cesarean section. Figure 17-1 shows cephalic and breech birth positions.

The period of time immediately after the birth (parturition) of the infant is known as **postpartum**. During this time, a woman may begin to experience a number of symptoms such as sadness, lack of energy, trouble concentrating, anxiety, and feelings of guilt and worthlessness. If these symptoms occur during anytime within the first year after childbirth, it is known as **postpartum depression**. The difference between postpartum depression and the baby blues is that postpartum depression often affects a woman’s well-being and keeps her from functioning well for a longer period of time. Postpartum depression needs to be treated by a doctor. Counseling, support groups, and medicines are things that can help. **Postpartum psychosis** is rare. It occurs in 1 or 2 out of every 1000 births and usually begins in

<table>
<thead>
<tr>
<th>Lifespan Period</th>
<th>Average Time</th>
<th>Developmental Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>fetus</td>
<td>period from 10 weeks of gestation to birth</td>
<td>development of all body systems that are present at birth</td>
</tr>
<tr>
<td>neonate</td>
<td>first 4 weeks of infancy</td>
<td>adjustment to life outside the uterus</td>
</tr>
<tr>
<td>infancy</td>
<td>first year of life</td>
<td>many physical and emotional developmental strides</td>
</tr>
<tr>
<td>toddler</td>
<td>ages 1 to 3</td>
<td>walking, talking, and becoming somewhat independent from caretakers</td>
</tr>
<tr>
<td>childhood</td>
<td>ages 3 to puberty</td>
<td>cognitive and physical development, usually including schooling</td>
</tr>
<tr>
<td>puberty</td>
<td>about ages 8 to 12</td>
<td>development of secondary sex characteristics</td>
</tr>
<tr>
<td>adolescence</td>
<td>period from puberty to full physical maturity</td>
<td>physical maturation and often psychological separation from the family leading to independence</td>
</tr>
<tr>
<td>young adulthood</td>
<td>ages 20–39</td>
<td>period of establishment of adult work and lifestyle situations</td>
</tr>
<tr>
<td>middle adulthood</td>
<td>ages 40–59</td>
<td>often stressful period of continued career and family development</td>
</tr>
<tr>
<td>old age</td>
<td>ages 60 on</td>
<td>period of diminishing physical and, sometimes, mental faculties</td>
</tr>
<tr>
<td>oldest old age</td>
<td>ages 90 on</td>
<td>period of late life, often with many physical and emotional difficulties</td>
</tr>
<tr>
<td>death</td>
<td>end of life</td>
<td>cessation of cardiovascular, respiratory, and nervous system functions</td>
</tr>
</tbody>
</table>
the first 6 weeks postpartum. Women who have bipolar disorder or another psychiatric problem called schizoaffective disorder have a higher risk for developing postpartum psychosis.

**Infancy**

A baby, also referred to as a newborn or *infant*, is born. At birth, personnel in the delivery room give the baby an Apgar score, a rating at both 1 and 5 minutes after birth for the following: A (activity); P (pulse); G (grimace or reflex); A (appearance of the skin); and R (respiration). The scoring is from 1 to 10. A total score of 7–10 is considered normal; below that, there may be need for special help from medical personnel.

For the first four weeks of life, the infant is referred to as a *neonate* (Figure 17-2). During the neonate period, body functions adjust to living outside the womb: temperature control, digestive system, respiratory system, sensory system, and the beginning of social development all start to change during this period. Neonatology is the medical specialty concerned with the care and treatment of neonates with severe health problems or who may have been born prematurely. Neonatologists are specialists in neonatology.

The remainder of the infancy period lasts the first year. During the next period, the child is often referred to as a *toddler*. The toddler is a young child who becomes competent at walking, begins to speak, and begins to handle some of the activities of daily living by himself or herself. This occurs in the period between the end of the first year and age three. Pediatrics is the specialty that treats children from the neonate stage through adolescence. Pediatricians are the practitioners of this specialty.

**Childhood**

Childhood is the period of life from infancy to puberty. Puberty is a sequence of development of secondary sex characteristics beginning around ages 8 to 12. Childhood years vary because puberty may start very early or very late. Also, the onset of puberty is generally earlier in girls than in boys.
Adolescence

Adolescence is the period of physical maturation, usually between ages 13 and 19. During this time, the secondary sex characteristics fully develop (girls develop breasts, underarm hair, and pubic hair; boys develop facial hair, pubic hair, and underarm hair, and go through a voice change). It is the period when most people start to take the emotional steps that will lead them to be independent of their parents. Adolescents often experience the conflict of being more physically mature than emotionally ready to handle such things as pregnancy and parenthood.

Adulthood

Young adulthood comprises the period from ages 20 to 40. This is usually the period in which adults set up their first homes, become parents, and build their careers. Middle adulthood or middle age is the period from ages 40 to 60. Young adults may choose an internist or family practitioner as their primary physician. Many people start to look at alternative or preventive medicine at this stage of their lives (see Chapter 23). During middle adulthood, many physical changes (i.e., menopause, diminution of strength, reduction in hearing ability) occur. Middle adulthood is often the time that disorders are discovered and treatments are begun.

Old Age

Old age, also known as the geriatric period, begins at age 60 (or at age 65 depending on who is defining the age groups) and encompasses the years until death. The period of old age is sometimes further divided into young old (ages 60-74); middle old (75-84) and oldest old (ages 85 and older). The quality of life in old age usually reflects your family’s genetic history, general health, and emotional attitudes. Some people live well into their 90s or early 100s independently and in good health. People who have such longevity, length of life beyond the average, are often referred to as the oldest old (Figure 17-3). Others may have heart attacks or other illnesses during middle age that lead to an old age that includes many periods of illness and may even include early death. Gerontology is the medical specialty that diagnoses and treats disorders present in old age. Gerontologists are specialists in treating ailments of the aging.

Death

Death, the end of life, occurs when the heart, respiratory system, and central nervous system cease functioning. This definition of death is being changed by life-support machines that are able to keep someone with respiratory or other body failure alive indefinitely. Because of the controversies surrounding the use of life-support machines near the end of life, several legal changes have been made in recent years. The actively dying body, without the aid of life support systems, will pass through predictable and symptoms and signs as the systems of the body decline. Palliative measures are comfort measures to provide pain relief comfort as this process progresses.

The practice of euthanasia, or assisted suicide, is allowed in certain countries in the world. In the United States, most states forbid this method.
of helping very sick people die comfortably. The field of bioethics, study of ethical medical treatment and research, has grown in the last part of the twentieth century.

Many people express their wishes regarding care at the end of life. Two legal documents called advanced directives state the patient’s wishes about decisions for future health care. The first directive, a living will, is signed by a patient who prefers to be allowed to die rather than be kept alive by artificial means if there is no reasonable expectation of recovery. The second is a durable power of attorney, a document which appoints a health care proxy, a person to make decisions for the patient in case of disability. These directives may also include a DNR (do not resuscitate) order, which means that the patient is not to be resuscitated if breathing stops at a certain stage of illness. The movement toward hospice, a program of supportive care for dying patients in a nonhospital setting, has spread to all parts of the country. Hospice provides end-of-life pain relief (called palliation) and care (called palliative care), but does not try to artificially prolong life or resuscitate a patient who has stopped breathing.

**Vocabulary Review**

In the previous section, you learned terms about stages of development. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Apgar score</strong></td>
<td>After Virginia Apgar [ÀP-går] (1909-1974), U.S. physician A rating of a newborn’s Activity, Pulse, Grimace, Appearance, and Respiration.</td>
</tr>
<tr>
<td><strong>breech</strong></td>
<td>Birth canal position with feet or buttocks first.</td>
</tr>
<tr>
<td><strong>cesarean</strong></td>
<td>Surgical removal of the fetus through the abdomen.</td>
</tr>
<tr>
<td><strong>embryo</strong></td>
<td>Fertilized ovum until about 10 weeks of gestation.</td>
</tr>
<tr>
<td><strong>euthanasia</strong></td>
<td>Assisting in the suicide of or putting a person with an incurable or painful disease to death.</td>
</tr>
<tr>
<td><strong>fertilization</strong></td>
<td>Union of an egg cell(s) with sperm.</td>
</tr>
<tr>
<td><strong>fetus</strong></td>
<td>Developing product of conception from 8 weeks to birth.</td>
</tr>
<tr>
<td><strong>geriatric</strong></td>
<td>Of or relating to old age.</td>
</tr>
<tr>
<td><strong>gerontology</strong></td>
<td>Medical specialty that diagnoses and treats disorders of old age.</td>
</tr>
<tr>
<td><strong>gestation</strong></td>
<td>Period of fetal development from fertilization until delivery.</td>
</tr>
</tbody>
</table>
### Term and Definition Table

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>implant [im-PLÄNT]</td>
<td>To attach to the lining of the uterus in the first stage of pregnancy.</td>
</tr>
<tr>
<td>labor [LÄ-bör]</td>
<td>Process of expelling the fetus and placenta from the uterus.</td>
</tr>
<tr>
<td>neonate [NÉ-ō-nät]</td>
<td>Infant under 4 weeks old.</td>
</tr>
<tr>
<td>neo-, new + Latin natus, born</td>
<td></td>
</tr>
<tr>
<td>obstetrics [ōb-STÊT-rīks]</td>
<td>Medical specialty that guides women throughout fertilization, pregnancy, and birth.</td>
</tr>
<tr>
<td>pediatrics [PÉ-de-ÄT-rīks]</td>
<td>Medical specialty that diagnoses and treats disorders in children from infancy through adolescence.</td>
</tr>
<tr>
<td>Maria and Paul Adams were overjoyed upon discovering Maria’s pregnancy at age 36. Maria’s mother had had her children later in life. She was now turning 77, living alone since her husband died. Maria and Paul are part of what is called the “sandwich” generation—those people caring for their young children and their older parents at the same time. Maria’s mother had a myocardial infarction a few years ago. She lives in the same town as Maria, who does her grocery shopping, takes her to doctors, and visits with her about four times a week. Maria also works as a systems analyst. Her paycheck is important to the couple, and Maria plans to go back to work after several months of pregnancy leave.</td>
<td></td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>1. What stages of life will Maria and her child be going through simultaneously?</td>
</tr>
<tr>
<td></td>
<td>2. Will Paul and Maria need a neonatologist for their child?</td>
</tr>
</tbody>
</table>

### Stages of Development Exercises

#### Know the Lifespan

Write the stage of development of lifespan period(s) that best fits each description or profession.

3. In utero ______________

4. Neonatologist ____________

5. Secondary sex characteristics ____________

6. First walking ______________

7. Early schooling ____________

8. Cessation of body functions ____________

9. Establishment of adult work ____________

10. Physical maturation ___________

11. Two weeks old ____________

12. Obstetrician ______________

13. Gerontologist ____________
Pathology of the Lifespan

The majority of diseases occur at the beginning (infancy) and at the end (old age) of life. Diseases or disorders may be determined or caused by genes (biological inheritance), environmental causes (as exposure to a virus or bacteria), or trauma (sudden, massive injury). A geneticist is a specialist in genetics (the science of biological inheritance) who can counsel people with genetic abnormalities who wish to have children. Some congenital diseases (severe spina bifida, anencephaly) are devastating. In some cases, geneticists can predict the odds of the newborn inheriting a gene. It is also possible to observe (via ultrasound) the fetus during its development. Fetuses are treated in utero (while in the uterus), either with medication or surgically, for a number of conditions. In addition, blood tests reveal genetic clues to disorders carried by the parents (Figure 17-4).

Table 17-2 lists some diseases common to the various stages of the lifespan. Some of these diseases appear at all stages of the lifespan, but occur most frequently in a particular stage.

<table>
<thead>
<tr>
<th>Lifespan Period</th>
<th>Average Time</th>
<th>Some Diseases Most Prevalent at Each Stage (See body systems chapters for further discussion of pathology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>fetus</td>
<td>during 40 weeks of gestation</td>
<td>hydrocephaly, spina bifida, Rh incompatibility (erythroblastosis fetalis)</td>
</tr>
<tr>
<td>neonate</td>
<td>first 4 weeks of infancy</td>
<td>jaundice, diarrhea, allergies, SIDS, hydrocephaly, spina bifida, premature birth, hyaline membrane disease, Down syndrome, Tay-Sach's disease, sickle cell anemia, pyloric stenosis</td>
</tr>
<tr>
<td>infancy</td>
<td>first year of life</td>
<td>Down syndrome, SIDS, otitis media, strep throat, allergies, diarrhea</td>
</tr>
<tr>
<td>toddler</td>
<td>ages 1 to 3</td>
<td>otitis media, strep throat, roseola, allergies, diarrhea</td>
</tr>
<tr>
<td>childhood</td>
<td>ages 3 to puberty</td>
<td>strep throat, otitis media, and if not vaccinated, measles, mumps, chicken pox, polio</td>
</tr>
<tr>
<td>puberty</td>
<td>about ages 8 to 12</td>
<td>same as during childhood</td>
</tr>
<tr>
<td>adolescence</td>
<td>period from puberty to full physical maturity</td>
<td>some childhood diseases, plus emotional problems (such as depression and anxiety)</td>
</tr>
<tr>
<td>young adulthood</td>
<td>ages 20-39</td>
<td>schizophrenia, multiple sclerosis, early cancers (prostate, cervical, uterine, and breast)</td>
</tr>
<tr>
<td>middle adulthood</td>
<td>ages 40-59</td>
<td>heart disease, stroke, cancer, Parkinson's disease, Alzheimer's disease, osteoporosis</td>
</tr>
<tr>
<td>old age</td>
<td>ages 60 on</td>
<td>same as middle adulthood plus senile dementia, depression</td>
</tr>
<tr>
<td>oldest old age</td>
<td>ages 90 on</td>
<td>same as old age</td>
</tr>
<tr>
<td>death</td>
<td>end of life</td>
<td>cessation of cardiovascular, respiratory, and nervous system functions</td>
</tr>
</tbody>
</table>
Diseases of Infancy and Childhood

Neonates born prematurely, after less than 37 weeks of gestation, often have underdeveloped lungs and other problems. Advances in neonatology save many premature infants. Birth after 40 weeks of gestation may also cause or indicate fetal problems, including high fetal weight.

Infants may die suddenly in an unknown manner (sudden infant death syndrome or SIDS), usually while sleeping. Safety measures that can prevent some suffocation deaths and/or respiratory problems are to place the infant on its back to sleep, avoid pillows or stuffed animals in the crib, and to avoid smoking in the house. Infants may also experience trauma (as in falls) or may contract infections (such as streptococcus or strep throat).

As children grow, they experience many of the diseases of the body systems covered in each of the body systems chapters in this book. Some childhood diseases help to strengthen the immune system for later life. For example, a childhood bout with chicken pox usually offers lifelong immunity against a disease that can have much more devastating effects in older people.

Diseases of Adulthood

Middle age is often the period during which the stress and wear and tear of daily life begin to take their toll. In this period, particularly, an unhealthy lifestyle can bring on major diseases. A high-fat diet can raise cholesterol, a major risk factor for coronary artery disease. Smoking increases the risk of heart disease and lung cancer. Lack of exercise can be a major factor in cardiovascular disease. Many diseases in this period can be prevented with systematic attention to lifestyle issues and to early warning tests, such as mammograms and PSA tests. The diseases of middle age usually worsen in the next stage of life.

Diseases of Old Age

Most of the pathology in life takes place in old age, with the wearing down of bone, the weakening of the musculoskeletal structure, and the diminishing of the central nervous system. Many doctors and patients focus on preventive medicine, a medical specialty concerned with preventing disease. Prevention may include lifestyle changes, medications (as tamoxifen for women with a family history of breast cancer), or frequent checkups (as for people with previous cancers). Newer drugs based on stem cells are helping to cure or manage some devastating diseases.

At the end of life, death is declared by a medical person. The exact definition of death varies but most states use the standards set forth in the federal Uniform Determination of Death Act that was proposed by a presidential commission. Most states have adopted two criteria for brain death—cessation of circulatory and respiratory functions, and irreversible cessation of brain function, including brain stem function. A physician checks for reflexes and responses before declaring brain death.

Vocabulary Review

In the previous section, you learned terms relating to the pathology of the lifespan. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.
### PATHOLOGY OF THE LIFESPAN EXERCISES

#### Following the Stages of Life

Write the lifespan stage(s) during which each disease is most likely to occur. You may want to review Table 17-2 before proceeding with this exercise.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Greek genesis, origin</td>
<td></td>
</tr>
<tr>
<td>in utero [in YÜ-têr-ô]</td>
<td>Within the uterus; unborn.</td>
</tr>
<tr>
<td>Latin</td>
<td></td>
</tr>
<tr>
<td>premature [PRÉ-mâ-chûr]</td>
<td>Born before 37 weeks of gestation.</td>
</tr>
<tr>
<td>Latin præmaturus, too early</td>
<td></td>
</tr>
<tr>
<td>preventive medicine</td>
<td>Medical specialty concerned with preventing disease.</td>
</tr>
<tr>
<td>sudden infant death syndrome (SIDS)</td>
<td>Death of an infant, usually while sleeping, of unknown cause.</td>
</tr>
</tbody>
</table>

---

**CASE STUDY**

**Dealing with Complications**

Maria's age prompted her obstetrician to ask whether she wanted amniocentesis, a test for fetal abnormalities. Maria decided to have the test. It came back normal. Meanwhile, Maria's mother had another heart attack. Maria and her mother decided to look for a living situation that would provide independence for her mother while providing care as necessary. They settled on an assisted living complex in the next town. This seemed to be ideal—Maria would have fewer tasks, and her mother would be around people all the time.

Around the beginning of Maria's seventh month of pregnancy, a routine visit to the doctor showed that her blood pressure had spiked to dangerous levels. Maria had a kidney infection and was dealing with a very stressful situation. She also had noticed some vague cramps. The kidney infection was treated, but, in addition, Maria was told to cut her work hours and spend more time resting in bed in preparation for the final stage of pregnancy. The cramps were a sign of possible early labor.

**Critical Thinking**

14. What is the danger to the fetus if Maria’s obstetrician is not able to prevent early labor?

15. What are some of the abnormalities that might be seen on an ultrasound as opposed to those tested for in amniotic fluid?

---

**PATHOLOGY OF THE LIFESPAN EXERCISES**

#### Following the Stages of Life

Write the lifespan stage(s) during which each disease is most likely to occur. You may want to review Table 17-2 before proceeding with this exercise.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>senile dementia [sé-nil]</td>
<td></td>
</tr>
<tr>
<td>chicken pox [kë-chën]</td>
<td></td>
</tr>
<tr>
<td>SIDS</td>
<td></td>
</tr>
<tr>
<td>Alzheimer’s disease</td>
<td></td>
</tr>
<tr>
<td>erythroblastosis fetalis [ë-THRÔ-blas-TÖ-sis]</td>
<td></td>
</tr>
<tr>
<td>Down syndrome [dûn]</td>
<td></td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td></td>
</tr>
<tr>
<td>spina bifida [SPî-nə BÎ-fî-də]</td>
<td></td>
</tr>
</tbody>
</table>

---

Maria’s age prompted her obstetrician to ask whether she wanted amniocentesis, a test for fetal abnormalities. Maria decided to have the test. It came back normal. Meanwhile, Maria’s mother had another heart attack. Maria and her mother decided to look for a living situation that would provide independence for her mother while providing care as necessary. They settled on an assisted living complex in the next town. This seemed to be ideal—Maria would have fewer tasks, and her mother would be around people all the time.

Around the beginning of Maria’s seventh month of pregnancy, a routine visit to the doctor showed that her blood pressure had spiked to dangerous levels. Maria had a kidney infection and was dealing with a very stressful situation. She also had noticed some vague cramps. The kidney infection was treated, but, in addition, Maria was told to cut her work hours and spend more time resting in bed in preparation for the final stage of pregnancy. The cramps were a sign of possible early labor.

**Critical Thinking**

14. What is the danger to the fetus if Maria’s obstetrician is not able to prevent early labor?

15. What are some of the abnormalities that might be seen on an ultrasound as opposed to those tested for in amniotic fluid?
**Terminology in Action**

For each of the following events, conditions, or diseases, put a number in the space to match the period of the lifespan (1 = birth to age 3; 2 = ages 3–12; 3 = ages 13–19; 4 = ages 20–40; 5 = ages 41 to 59; and 6 = 60 and older) in which it most often occurs. You may have to refer to earlier chapters on body systems if you do not know some of the answers.

24. osteoporosis
25. SIDS
26. menopause
27. acne
28. chicken pox

**Using the Internet**

Go to the Hospice Foundation of America’s Web site (http://www.hospicefoundation.org) and write a short paragraph on the goals of hospice.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

Find a Match
Match the terms in the left-hand column with the correct definition in the right-hand column.

29. ____ preventive medicine

30. ____ neonatology

31. ____ pediatrics

32. ____ obstetrics

33. ____ gerontology

a. diagnoses and treats disorders of infants up to four weeks old

b. diagnoses and treats disorders of old age

c. guides women throughout fertilization, pregnancy and birth

d. diagnoses and treats disorders from infancy through adolescence

e. concerned with preventing disease

Know the Meaning
Write the definitions for each of the following terms.

34. bioethics: _____________

35. advanced directives: _____________

36. living will: _____________

37. durable power of attorney: _____________

38. health care proxy: _____________

Check Your Knowledge
Circle T for true or F for false.

39. The birth process usually includes a period of implantation, the process of expelling the fetus and the placenta from the uterus. T F

40. At birth, a baby is rated using an Apgar score, which is assessed at 1 and 10 minutes after birth. T F

41. The practice of euthanasia, or assisted suicide, is allowed in certain countries of the world. T F

42. A neonate that is born after less than 37 weeks of gestation is considered premature. T F

43. A fetus presenting in a cephalic presentation must always be delivered by Caesarean section. T F

Find a Match
Match the terms in the left-hand column with the correct definition in the right-hand column.

44. ____ puberty

45. ____ oldest old age

46. ____ childhood

47. ____ death

48. ____ toddler

49. ____ adolescence

50. ____ neonate

a. first 4 weeks of infancy

b. end of life

c. ages 90 on

d. ages 1 to 3

e. period from puberty to full physical maturity

f. ages 3 to puberty

g. ages 8 to 12
# Definitions

Define the following terms. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.

## Word

<table>
<thead>
<tr>
<th>Term</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>51. Apgar score</td>
<td>[Ă-p-găr]</td>
</tr>
<tr>
<td>52. breech</td>
<td>[brēch]</td>
</tr>
<tr>
<td>53. cesarean section</td>
<td>[sē-ZĀ-rē-ān]</td>
</tr>
<tr>
<td>54. embryo</td>
<td>[ÉM-brē-ō]</td>
</tr>
<tr>
<td>55. euthanasia</td>
<td>[yū-thā-NĀ-zhē-ā]</td>
</tr>
<tr>
<td>56. fertilization</td>
<td>[FĒR-ti-lī-ZĀ-shūn]</td>
</tr>
<tr>
<td>57. fetus</td>
<td>[FĒ-tūs]</td>
</tr>
<tr>
<td>58. genetics</td>
<td>[jē-NĒT-iks]</td>
</tr>
<tr>
<td>59. geriatric</td>
<td>[JĒR-ē-Ă-trĭk]</td>
</tr>
<tr>
<td>60. gerontology</td>
<td>[JĒR-ŏn-TÔL-ŏ-jē]</td>
</tr>
<tr>
<td>61. gestation</td>
<td>[jēs-TĀ-shūn]</td>
</tr>
<tr>
<td>62. implant</td>
<td>[ĭm-PLĀNT]</td>
</tr>
<tr>
<td>63. in utero</td>
<td>[ĭn YŪ-tĕr-ō]</td>
</tr>
<tr>
<td>64. labor</td>
<td>[LĀ-bōr]</td>
</tr>
<tr>
<td>65. neonate</td>
<td>[NĒ-ō-nāt]</td>
</tr>
<tr>
<td>66. neonatology</td>
<td>[NĒ-ō-nā-TÔL-ŏ-jē]</td>
</tr>
<tr>
<td>67. obstetrics</td>
<td>[ŏb-STĒT-riks]</td>
</tr>
<tr>
<td>68. pediatrics</td>
<td>[PĒ-de-ĂT-riks]</td>
</tr>
<tr>
<td>69. premature</td>
<td>[PRĒ-mā-chūr]</td>
</tr>
<tr>
<td>70. preventive medicine</td>
<td></td>
</tr>
<tr>
<td>71. sudden infant death syndrome (SIDS)</td>
<td></td>
</tr>
</tbody>
</table>
Answers to Chapter Exercises

1. Maria will be in the young adulthood stage up to the time her child will finish the toddler stage. Then middle adulthood will coincide with the child’s development through to young adulthood.

2. Not necessarily. Although Maria’s age puts the fetus at higher risk for certain abnormalities, such as Down syndrome, only testing can determine if a fetus needs a specialist in neonatology.

3. fetus
4. neonate
5. puberty
6. toddler
7. childhood
8. death
9. young adulthood
10. adolescence
11. neonate
12. pregnancy
13. old age, oldest old age
14. Maria’s baby might be born prematurely with physical problems due to underdevelopment.

15. limb abnormalities, spina bifida, hydrocephaly, and others that show up externally on the fetus
16. old age, oldest old age
17. childhood, puberty
18. infancy
19. middle adulthood, old age, oldest old age
20. fetus
21. neonate, infancy
22. middle adulthood, old age
23. fetus, neonate
24. 6
25. 1
26. 5
27. 3
28. 2
29. e
30. a
31. d
32. c
33. b
34. the study of the ethics of medical treatment and research
35. documents that state the patient’s wishes about decisions of future health care

36. one of the advanced directive documents signed by the patient who prefers to be allowed to die than be kept alive by artificial means
37. a second advanced directive document which appoints a health care proxy
38. a person designated to make decisions for the patient in case of disability
39. F
40. F
41. T
42. T
43. F
44. g
45. c
46. f
47. b
48. d
49. e
50. a
51–71. Answers are available in the vocabulary reviews in this chapter.
Tumors: Types and Causes

Tumors

Oncology is the study, diagnosis, and treatment of tumors. Tumors or neoplasms are growths made up of cells that reproduce abnormally. Cells in the body normally reproduce only at a rate to replace cells that have died. Cells also have a mechanism that signals them to die when they have passed a certain point of usefulness. Tumors are made up of cells that seem to be missing the mechanism that tells them either to stop reproducing or to die. The death of normal cells in a normal time cycle is called apoptosis.

Tumors can be benign (massed but containing cells that resemble the site of origin) or malignant (consisting of abnormal or mutated cells). Figure 18-1 shows a benign encapsulated tumor (a) and a malignant tumor (b). Tumors can be encapsulated (retained within a border of connective tissue) or they may reproduce in uncontrolled patterns. Most benign tumors are not life-threatening unless they grow in such a way that they damage essential organs. Malignant tumors can be life-threatening if they are not treated and they spread.

A carcinoma, the most common type of cancer, originates from epithelial tissue. Also called solid tumors, carcinomas make up about 90 percent of all tumors. Common sites are in the skin, lungs, breasts, colon, stomach, mouth, and uterus. Carcinomas spread by way of the lymphatic system.

A sarcoma, which is fairly rare, originates in muscle or connective tissue and lymph. A mixed-tissue tumor derives from tissue that is capable of
separating into either epithelial or connective tissue because it is composed of several types of cells. Such a tumor can be found in the kidneys, ovaries, or testes. Mixed-tissue tumors can be teratomas, growths containing bone, muscle, skin, and glandular tissue as well as other types of cells. There is also a class of cancers that arise from blood, lymph, or nervous system cells. Cancers such as leukemia fall into this category. As mentioned in Chapter 12, some leukemias are also sarcomas. Benign tumors are not life-threatening unless they impact organs (Figure 18-1a). They are made up of differentiated cells that reproduce abnormally but in an orderly fashion. Some benign tumors can cause pain from pressure exerted on an organ or tissue. Often, removal cures the problem.

Malignant tumors are invasive, extending beyond the tissue to infiltrate other organs (Figure 18-1b). Malignant tumors can be life-threatening. These tumors are made up of dedifferentiated cells, which lack the normal orderly arrangement of the cells from which they arise. Undifferentiated cells lack a defined mature cell structure. This loss of cell differentiation is called anaplasia.

Any abnormal tissue development is known as dysplasia or heteroplasia. The first stages of cancer development may be classified as dysplasia because they represent the beginning of abnormal tissue development. Detection of cancers at this early stage plays a vital role in treatment. The next stage may be a carcinoma in situ, a tumor in one place that affects all
layers of tissue. Finally, a malignancy occurs when the cells break loose and become invasive to surrounding tissue. The spread of a malignancy to other areas of the body is called metastasis. In earlier chapters, you learned about homeostasis, the maintaining of balance throughout the body. Metastasis is a state of imbalance, with cells spreading uncontrollably.

**Causes of Cancer**

Tumors appear under a number of different circumstances or combination of circumstances. One such is the exposure to carcinogens, cancer-causing agents. Carcinogens include environmental agents, such as chemicals, radiation, and viruses. Many chemicals, environmental factors, and viruses may be carcinogens, but they have not been tested thoroughly, and may not be for years. The process of proving a link between an agent and a resulting cancer is a long and tedious process. In some localities, cancer clusters (an unusually high number of cancers in a limited area) have led researchers to classify certain chemicals as carcinogens. Other agents, such as tobacco in any form, food additives, pharmaceutical agents, asbestos, insecticides, some dyes, and certain hormones, are also known carcinogens. Figure 18-2 is a chart giving the percentages of cancer deaths from preventable factors.

Another cause of cancer is from an inherited defect transmitted from parent(s) to child in the genetic material of the cell, DNA (deoxyribonucleic acid). Figure 18-3 shows DNA in the nucleus of a cell. DNA contains coded material called genes that direct the growth of cells and the production of new proteins. When a cell divides into two cells in normal cell growth, exactly the same DNA appears in both cells. The body is constantly producing new cells. This process is called mitosis. Some genes in DNA may become defective in a process of change, called mutation. Most mutated cells either do not survive or are destroyed by the normal immune system. However, each new generation of malignant cells will increase the mutation of
the cell. The longer the malignancy has been established, the more mutated. A pathologist will assess this.

Mutations that do survive are then replicated over and over again and can lead to malignancies. Mutated DNA can predispose someone to cancer through heredity. Breast cancer and ovarian cancer are examples of largely inherited cancers. People with a family history of cancers are more likely to develop cancer. That does not mean, however, that people with no family history of a certain cancer (such as breast cancer) should ignore regular checkups. Nor does it mean that if your mother had breast cancer, you and your sisters are destined to have breast cancer. The other function of DNA is to copy its code onto another molecule called RNA (ribonucleic acid). RNA carries coded messages from the nucleus to the outer material of the cell, the cytoplasm. The messages signal what proteins are needed. Viruses heighten cancer risk (such as Kaposi’s sarcoma from HIV). A virus that causes cancer is known as an oncogenic agent. An oncogene is a DNA fragment that converts normal cells into malignancies.

**Vocabulary Review**

In the previous section, you learned terms relating to oncology. Before going on to the exercises, review the terms below and refer to the previous section if you have questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>anaplasia</td>
<td>Loss of cell differentiation.</td>
</tr>
<tr>
<td>apoptosis</td>
<td>Normal death of cells.</td>
</tr>
<tr>
<td>benign</td>
<td>Encapsulated; not malignant.</td>
</tr>
<tr>
<td>cytoplasm</td>
<td>Outer portion of a cell surrounding the nucleus.</td>
</tr>
<tr>
<td>dedifferentiated</td>
<td>Lacking in normal orderly cell arrangement.</td>
</tr>
<tr>
<td>differentiated</td>
<td>Growing in an orderly fashion.</td>
</tr>
<tr>
<td>dysplasia</td>
<td>Abnormal tissue growth.</td>
</tr>
<tr>
<td>encapsulated</td>
<td>Held within a capsule; benign.</td>
</tr>
<tr>
<td>heteroplasia</td>
<td>Dysplasia.</td>
</tr>
<tr>
<td>invasive</td>
<td>Infiltrating other organs; spreading.</td>
</tr>
<tr>
<td>malignant</td>
<td>Growing uncontrollably.</td>
</tr>
<tr>
<td>metastasis</td>
<td>Spread of malignant cells to other parts of the body.</td>
</tr>
</tbody>
</table>
### Term Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>mitosis [mi-TO-sis]</td>
<td>From Greek mitos, thread Cell division.</td>
</tr>
<tr>
<td>mutation [myu-TA-shun]</td>
<td>Alteration in DNA to produce defective cells.</td>
</tr>
<tr>
<td>neoplasm [NE-o-plazm]</td>
<td>neo-, new + plasm Tumor; new growth.</td>
</tr>
<tr>
<td>oncogene [ONG-koh-jen]</td>
<td>onco-, tumor + gene DNA fragment that causes malignancies.</td>
</tr>
<tr>
<td>solid tumor</td>
<td>Carcinoma; most common type of tumor.</td>
</tr>
<tr>
<td>teratoma [ter-uh-TO-ma]</td>
<td>Greek teras, monster + -oma, tumor Growth containing several types of tissue and various types of cells.</td>
</tr>
<tr>
<td>tumor [TU-more]</td>
<td>Latin, a swelling Growth made up of cells that reproduce abnormally.</td>
</tr>
</tbody>
</table>

### CASE STUDY

**Finding a Symptom**

Alicia Alvarez is fifty years old, has no family history of cancer, and is having her annual gynecological examination. Dr. Josiah Williams is a gynecologist specializing in the care of menopausal women. He notices a grayish area on the left side of Alicia’s vulva. He recommends an immediate biopsy be taken in his office. Alicia expresses surprise and mentions that there is no cancer history in her family. Dr. Williams explains to Alicia that family history is just one factor in cancer of the female reproductive system. He also points out that a biopsy does not necessarily mean the tissue is cancerous; the discoloration may also be the result of an infection or irritation. Alicia agrees to have the biopsy.

**Critical Thinking**

1. The discoloration on Alicia’s vulva is possibly a type of skin cancer appearing on a part of the female reproductive system. Skin discolorations are usually not cancer. If you have a biopsy and the results are negative, should you still examine the skin area every few months? Why?
2. Name two cancers of the female reproductive system.

### TUMORS: TYPES AND CAUSES EXERCISES

**Find a Match**

Write the word from this list that matches each statement.

- benign
- deoxyribonucleic acid
- anaplasia
- teratoma
- carcinogen
- metastasis
- differentiated
- malignant
- dedifferentiated
- invasive
- sarcoma
- oncogene

3. Lacking in normal orderly cell arrangement _____________
4. Encapsulated, not malignant _____________
5. Infiltrating other organs; spreading _____________
6. Growing uncontrollably _____________
7. Genetic material of a cell _____________
8. DNA fragment that causes malignancies _____________
9. Growth containing several types of tissue and various types of cells _____________
10. Tumor that originates in muscle, connective tissue, and lymph; fairly rare _____________
11. Spread of malignant cells _____________
12. Cancer-causing agent _____________

Spell It Correctly
For each of the following words, write C if the spelling is correct. If it is not correct, write the correct spelling.

13. metastasis _____________ C 16. dedifferentiated _____________
14. apoptosis _____________ C 17. deoxirebonuclaic _____________
15. carcinoma _____________ C 18. citoplasm _____________

Match the Term
Write the letter of the meaning of the term in the space provided. These terms describe tumor appearance:

19. verrucous a. filled with fluid
20. polypoid b. wartlike in appearance
21. inflammatory c. containing glandular sacs
22. cystic d. having open wounds
23. follicular e. large and fleshy
24. ulcerating f. containing dead tissue
25. medullary g. containing polyps
26. necrotic h. having a red and swollen appearance

Combining Forms and Abbreviations
The lists below include combining forms, suffixes, and abbreviations that relate specifically to oncology. Pronunciations are provided for the examples.

<table>
<thead>
<tr>
<th>COMBINING FORM</th>
<th>MEANING</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>blast(o)</td>
<td>immature cell</td>
<td>blastoma [blās-TÔ-mā], tumor arising from an immature cell</td>
</tr>
<tr>
<td>carcin(o)</td>
<td>cancer</td>
<td>carcinogen [kār-SĬN-ŏ-jĕn], cancer-causing agent</td>
</tr>
<tr>
<td>muta</td>
<td>genetic change</td>
<td>mutation [myŭ-TĀ-shŭn], process of genetic change</td>
</tr>
<tr>
<td>mutagen(o)</td>
<td>genetic change</td>
<td>mutagenic [myŭ-ta-JĔN-ĭk], causing genetic change</td>
</tr>
<tr>
<td>onc(o)</td>
<td>tumor</td>
<td>oncology [ŏn-KŎL-ŏ-jĕ], treatment and study of tumors</td>
</tr>
<tr>
<td>radi(o)</td>
<td>radiation, X rays</td>
<td>radiation [rā-dĕ-Ā-shŭn], process of exposure to or treatment with above-normal levels of radiation</td>
</tr>
</tbody>
</table>
### Suffixes

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-blast</td>
<td>immature cell</td>
<td>leukoblast [Lű-kō-blāst], immature</td>
</tr>
<tr>
<td>-oma (pl., -omata)</td>
<td>tumor</td>
<td>fibroma [fī-BRŌ-mā], benign tumor arising from connective tissue</td>
</tr>
<tr>
<td>-plasia</td>
<td>formation (as of cells)</td>
<td>dysplasia [dis-PLĀ-zhē-ā], abnormal tissue development</td>
</tr>
<tr>
<td>-plasm</td>
<td>formation (as of cells)</td>
<td>neoplasm [NĒ-ō-plāsm], abnormal tissue formed by abnormal cell growth</td>
</tr>
<tr>
<td>-plastic</td>
<td>formative</td>
<td>neoplastic [nē-ō-PLĀS-tīk], growing abnormally (as a neoplasm)</td>
</tr>
</tbody>
</table>

### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>acute lymphocytic leukemia</td>
<td>ER</td>
<td>estrogen receptor</td>
</tr>
<tr>
<td>AML</td>
<td>acute myelogenous leukemia</td>
<td>METS, mets</td>
<td>metastases</td>
</tr>
<tr>
<td>bx</td>
<td>biopsy</td>
<td>NHL</td>
<td>non-Hodgkin's lymphoma</td>
</tr>
<tr>
<td>CA</td>
<td>carcinoma</td>
<td>PSA</td>
<td>prostate-specific antigen</td>
</tr>
<tr>
<td>CEA</td>
<td>carcinogenic embryonic antigen</td>
<td>rad</td>
<td>radiation absorbed dose</td>
</tr>
<tr>
<td>chemo</td>
<td>chemotherapy</td>
<td>RNA</td>
<td>ribonucleic acid</td>
</tr>
<tr>
<td>CLL</td>
<td>chronic lymphocytic leukemia</td>
<td>RT</td>
<td>radiation therapy</td>
</tr>
<tr>
<td>CML</td>
<td>chronic myelogenous leukemia</td>
<td>TNM</td>
<td>tumor, nodes, metastasis</td>
</tr>
<tr>
<td>DES</td>
<td>diethylstilbestrol</td>
<td>Tx</td>
<td>treatment</td>
</tr>
<tr>
<td>DNA</td>
<td>deoxyriibonucleic acid</td>
<td>XRT</td>
<td>x-ray or radiation therapy</td>
</tr>
<tr>
<td>DRE</td>
<td>digital rectal exam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Case Study

**Being Careful**

Frightened by Alicia’s news of possible cancer, Peter Alvarez, her husband, went to Dr. John Chin, an internist, for a physical. He had not had a physical in the last five years, but felt now that he should. Peter is 50 years old and has no history of cancer. Dr. Chin had the nurse draw blood for various tests.

Dr. Chin explained that one of the tests that should be done on a yearly basis for males over the age of 45 is the PSA.

### Critical Thinking

27. What part of the body does the PSA test evaluate?
28. Peter had not had a physical in five years. Why is it important to be checked on a yearly basis for certain types of cancer when you reach certain ages?
Combining Forms and Abbreviations Exercises

Build Your Medical Vocabulary

Using the combining forms and suffixes in this chapter and in Chapter 3, write a term for each definition.

29. therapy using radiation _____________
30. bone tumor _____________
31. immature red blood cell _____________
32. fluid-filled glandular carcinoma _____________
33. tumor of the meninges _____________
34. cancer of the lymph system _____________

Check Your Knowledge

For each of the following cancers, name the body part involved. Refer to Chapter 3 if you need to review combining forms for body parts.

35. adenoma _____________
36. neuroblastoma _____________
37. myoma _____________
38. retinoblastoma _____________
39. lymphocytoma _____________

Find the Terms

Use the combining forms above to complete the following words.

40. tumor consisting of immature cells: _____________ oma
41. treatment of tumors: _____________ therapy
42. agent that promotes a genetic change: _____________ gen
43. impenetrable by radiation: _____________ opaque
44. destructive to cancer cells: _____________ lytic

Root Out the Meaning

Divide each of the following words into word parts. Give the definition of the whole word and of each part.

45. androblastoma _____________
46. carcinogenesis _____________
47. mutagenesis _____________
48. oncosine _____________
49. radiotherapy _____________
50. radionecrosis _____________
51. hypernephroma _____________
52. leiomyosarcoma _____________
53. adenocarcinoma _____________
54. oncologist _____________
55. oncocyte _____________
56. adenoma _____________
57. astrocytoma _____________
58. chondrosarcoma _____________
59. liposarcoma _____________
60. lymphoma _____________

Diagnostic, Procedural, and Laboratory Terms

Cancer is a general term referring to any of various diseases with uncontrolled cell growth. Researchers have developed tests to detect many cancers and, in some cases, to detect cancer at its earliest stages. Survival rates have
improved because of diagnostic techniques. The sooner cell growth can be normalized, the greater the possibility of survival.

Routine medical checkups often include tests for cancer. Adult females usually have a pap smear, a test for cervical and uterine cancer (Figure 18-4), along with a breast examination, including palpation of the breasts for lumps. Adult males usually have a blood test called a PSA (prostate-specific antigen) that can detect prostate cancer. A digital rectal exam (DRE) is also a prostate cancer screening method. Doctors also check male testicles for any signs of tumors. Testicular cancer occurs fairly commonly.

Normal adult checkups usually include auscultation of the lungs, palpation of the abdomen, inspection of the rectum and an occult stool test (particularly if the patient has a family history of colon cancer or has some possible symptoms), and a discussion of any symptoms that may need further investigation. Some blood tests indicate a particular type of cancer. For example, patients with gastrointestinal tumors usually have carcinoembryonic antigens (CEA) in their bloodstream. An alphafetoprotein test (AFP) is given to detect the presence of liver or testicular cancer. HCG or human chorionic gonadotropin is usually present in the blood of patients with testicular cancer. CA-125 (cancer antigen 125) is a protein produced by ovarian cancer cells. Colorectal cancers can be detected by a colonoscopy.

With advances in understanding genetic markers for certain diseases, preventive measures can be offered to patients who have a genetic marker for a certain cancer. This has been used effectively, for example, in the prevention of breast cancer for people with Her-2nu genes, which indicate a high likelihood of developing breast cancer.

Imaging techniques now provide a detailed picture of various parts of the body. MRIs, CAT scans, mammograms, and the insertion of lighted instruments to view various body parts have advanced diagnostic techniques. Any tumors that are found are categorized by grade, the maturity of the tumor, and stage, the degree of spread or metastasis of the tumor. A common method for grading is the TNM (tumor, node, metastasis) system, which numbers the extent of the tumor, the extent of lymph nodes affected, and the degree of metastasis. This grading is most often done by examination under a microscope. Table 18-1 describes the grading used in the TNM system.
Tumors are also characterized by appearance under the microscope, and by observations made on visual examination. Some of the classifications of tumors are:

- **alveolar**, forming small sacs shaped like alveoli
- **anaplastic**, reverting to a more immature form
- **carcinoma in situ**, contained at a site without spreading
- **diffuse**, spreading evenly
- **dysplastic**, abnormal in cell appearance
- **epidermoid**, resembling epithelial cells
- **follicular**, containing glandlike sacs
- **hyperchromatic**, intensely colored
- **hyperplastic**, excessive in development (of cells)
- **hypoplastic**, underdeveloped as tissue
- **nodular**, formed in tight cell clusters
- **papillary**, having small papillae projecting from cells
- **pleomorphic**, having many types of cells
- **scirrhous**, made up of hard, densely packed cells
- **undifferentiated**, lacking a defined cell structure

Tumors are also described by their appearance during visual examination. Tumors can be described as:

- **cystic**, filled with fluid
- **fungating**, projecting from a surface in a mushroomlike pattern
- **inflammatory**, having an inflamed appearance (swollen and red)
- **medullary**, large and fleshy
- **necrotic**, containing dead tissue
- **polypoid**, containing polyps
- **ulcerating**, having open wounds
- **verrucous**, having wartlike, irregular growths

Once a tumor is confirmed as malignant, doctor and patient discuss and agree on a **protocol**, a course of treatment. One of the possible treatments is **radiation**, the bombarding of the tumor with rays that damage the DNA of the tumor cells. Most radiation treatment is carefully pinpointed, but some surrounding cells usually suffer damage as well. Radiation can cause many unpleasant side effects, such as hair loss, nausea, and skin damage. Some cancerous tumors will respond to radiation better than others. A **radiosensitive tumor** will absorb the damaging radiation and respond by dying or shrinking. With a **radioresistant tumor**, the radiation has little effect on the growth of the tumor. The use of a drug called a **radiosensitizer** prior to the radiation treatments will increase the radiosensitivity of the tumor. Among the other possible treatments are the use of drugs and surgery.

---

**TABLE 18-1 The TNM System of Grading**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Size Indicator</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>T (tumor)</td>
<td>0–4</td>
<td>0 means no tumor; 1–4 means progressively larger tumors.</td>
</tr>
<tr>
<td>N (node)</td>
<td>0–4</td>
<td>0 means no lymph node involvement; 1–4 indicates extent to which cancer affects nodes.</td>
</tr>
<tr>
<td>M (metastasis)</td>
<td>0–3</td>
<td>0 means no metastasis. 1–3 are the stages of metastasis.</td>
</tr>
</tbody>
</table>

The Cancer Group Institute (www.cancer-group.com) is a commercial site that categorizes types of cancers.
In the previous section, you learned terms relating to oncological diagnosis, clinical procedures, and laboratory tests. Before going on to the exercises, review the terms below and refer to the previous section if you have questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>anaplastic [ān-ā-PLÄS-tık]</td>
<td>Reverting to a more immature form.</td>
</tr>
<tr>
<td>cystic [SİS-tık]</td>
<td>Filled with fluid.</td>
</tr>
<tr>
<td>diffuse [dĭ-FYŪS]</td>
<td>Spreading evenly.</td>
</tr>
<tr>
<td>follicular [fŏl-LİK-ˌyū-lär]</td>
<td>Containing glandular sacs.</td>
</tr>
<tr>
<td>grade</td>
<td>Level of maturity of a tumor.</td>
</tr>
<tr>
<td>hyperplastic [hĭ-për-PLÄS-tık]</td>
<td>Excessive in development (of cells).</td>
</tr>
<tr>
<td>hypoplastic [HĬ-pō-PLÄS-tık]</td>
<td>Underdeveloped, as tissue.</td>
</tr>
<tr>
<td>medullary [MĔD-ū-lär-ē]</td>
<td>Large and fleshy.</td>
</tr>
<tr>
<td>necrotic [nē-KRŎT-ık]</td>
<td>Containing dead tissue.</td>
</tr>
<tr>
<td>nodular [NŎD-ˌyū-lär]</td>
<td>Formed in tight clusters.</td>
</tr>
<tr>
<td>papillary [PĀP-ˌi-lär-ē]</td>
<td>Having papillae projecting from cells.</td>
</tr>
<tr>
<td>pleomorphic [plē-ō-MŎR-ťık]</td>
<td>Having many types of cells.</td>
</tr>
<tr>
<td>polypoid [PŎL-ĭ-pōyd]</td>
<td>Containing polyps.</td>
</tr>
</tbody>
</table>
Term | Meaning
--- | ---
radiation [RĀ-dē-Ā-shūn] | Bombarding of tumors with rays that damage the DNA of cells.
stage | Degree of tumor spread.
TNM system | Tumor, node, metastasis system of categorizing tumors.
undifferentiated [ŪN-diff-ěr-ÉN-shē-ă-tĕd] un-, not + differentiated | Lacking a defined cell structure.
verrucous [vĕ-RŬ-kŏs] Latin verrucosus | Wartlike in appearance.

### CASE STUDY

**Getting a Diagnosis**

Dr. Williams sent Alicia’s biopsy to Medical Center Pathologists. He received the following report.

**Critical Thinking**

61. Does the report cite any unusual growth of cells?
62. Have any of the cells invaded neighboring tissue?

**Microscopic:** A single slide containing sections through the submitted material is reviewed. This biopsy of skin is centrally ulcerated. The area of ulceration is surrounded by keratinizing squamous epithelium, which exhibits a full-thickness dysplasia. This dysplastic change is characterized by cells that have a vertical growth pattern, somewhat hyperchromatic nuclei, and an increased mitotic rate. Mitoses do extend to the surface. The lesion does not appear to invade the underlying and associated stroma. Mild-to-moderate dysplastic changes are seen peripherally and do extend to the surgical margins.

### DIAGNOSTIC, PROCEDURAL, AND LABORATORY TERMS EXERCISES

**Find the Part**

Write the body part(s) being tested for cancer by each of the following procedures:

63. mammogram: ____________
64. DRE: ____________
65. PSA: ____________
66. pap smear: ____________

**Check Your Knowledge**

Complete the sentences below by filling in the blanks.

67. A tumor filled with liquid is referred to as ____________.
68. Some melanomas are ____________, or intensely colored.
69. Chemotherapy is one _____________ for treatment of cancer.
70. Tissue that is dead is referred to as _____________.
71. Some cancers are _____________, or wartlike in appearance.

**Pathological Terms**

Cancer is a pathological term. It can affect people from the fetal stage until old age. Many advances have been made in cancer prevention and treatment, but some cancers have had no increase in cure rates for many years, and others have increased within the population, which may be due in part to an increase in detection. Table 18-2 lists some common cancers. Figure 18-5 shows one of those cancers (Burkitt’s lymphoma).


**TABLE 18-2  Common Cancers**

<table>
<thead>
<tr>
<th>Type of Cancer</th>
<th>Where Cancer Starts</th>
<th>Common Sites in the Body</th>
<th>Specific Risk Groups (most cancers can affect anyone)</th>
<th>Prevention and Early Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>adenocarcinoma</td>
<td>gland</td>
<td>colon, stomach</td>
<td></td>
<td>high fiber diet; colonoscopy</td>
</tr>
<tr>
<td>adenoma</td>
<td>glandular epithelium</td>
<td>pituitary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>astrocytoma</td>
<td>neuroglia</td>
<td>brain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>basal cell carcinoma</td>
<td>skin</td>
<td>skin</td>
<td></td>
<td>avoiding sun exposure; examination of skin</td>
</tr>
<tr>
<td>Burkitt’s lymphoma</td>
<td>lymph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>carcinoma</td>
<td>epithelial tissue</td>
<td>glands, lungs, kidney, breast</td>
<td>avoidance of carcinogens such as tobacco, asbestos; early checkups</td>
<td></td>
</tr>
<tr>
<td>carcinoma in situ</td>
<td>encapsulated tumor</td>
<td>breast, cervix</td>
<td>self-examination; mammography</td>
<td></td>
</tr>
<tr>
<td>chondrosarcoma</td>
<td>cartilage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewing’s sarcoma</td>
<td>connective tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fibrosarcoma</td>
<td>connective tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glioblastoma</td>
<td>neurological tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glioma</td>
<td>neurological</td>
<td>brain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
TABLE 18-2 Common Cancers (cont.)

<table>
<thead>
<tr>
<th>Type of Cancer</th>
<th>Where Cancer Starts</th>
<th>Common Sites in the Body</th>
<th>Specific Risk Groups (most cancers can affect anyone)</th>
<th>Prevention and Early Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hodgkin’s disease</td>
<td>lymph system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hypernephroma</td>
<td>kidneys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaposi’s sarcoma</td>
<td>first seen in skin of AIDS patient, then other organs</td>
<td></td>
<td>patients with HIV</td>
<td>preventative measures (such as safe sex)</td>
</tr>
<tr>
<td>leiomyosarcoma</td>
<td>smooth muscle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leukemia</td>
<td>stem cells</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>leukoplakia</td>
<td>tongue or cheeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liposarcoma</td>
<td>fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lymphoma</td>
<td>lymph system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>medulloblastoma</td>
<td>brain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>melanoma</td>
<td>skin</td>
<td></td>
<td></td>
<td>avoidance of sun; skin examination</td>
</tr>
<tr>
<td>nephrosarcoma</td>
<td>kidney</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>neuroblastoma</td>
<td>adrenal glands</td>
<td>adrenal glands of infants and children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>non-Hodgkin’s lymphoma</td>
<td>lymph tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>osteosarcoma</td>
<td>bone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>retinoblastoma</td>
<td>retina</td>
<td>eye</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rhabdomyosarcoma</td>
<td>striated muscle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sarcoma</td>
<td>connective tissue</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CASE STUDY**

**Seeing a Specialist**

Alicia’s cancer is a carcinoma in situ. Dr. Williams refers Alicia to a surgical oncologist who performs the surgery to remove the tumor. The surgeon, Dr. Wilma Grant, examines surrounding tissue during the surgery and decides that Alicia does not need further treatment. The surgeon cautioned Alicia to make sure she has regular six-month checkups.

**Critical Thinking**

72. Why did the doctor recommend six-month checkups?

73. Dr. Grant did not recommend radiation or chemotherapy. Does that mean that Alicia’s cancer has metastasized?
PATHOLOGICAL TERMS EXERCISES

Find the Disease

Using Table 18-2, write at least one type of cancer for each location.

74. breast _____________
75. colon _____________
76. kidney _____________
77. skin _____________
78. brain _____________
79. stem cells _____________
80. lymph system _____________
81. bone _____________
82. fat _____________
83. neurological tissue _____________
84. neuroglia _____________

Preventing and Detecting Cancers

Answer the following questions.

85. Using Table 18-2 as a guide, write a brief paragraph about how you can minimize the risk of contracting certain cancers.

86. What two types of cancer are detectable by self-examination at an early stage? _____________ and _____________

Spell It Correctly

For each of the following words, write C if the spelling is correct. If it is not, write the correct spelling.

87. aveolar _____________
88. follicular _____________
89. displastic _____________
90. medulary _____________
91. pleomorphic _____________

Surgical Terms

Many cancers can be diagnosed and treated with surgery. First, however, tissue is usually examined in a biopsy, the removal of a small amount of living tissue for diagnosis (under a microscope in most cases). There are many types of biopsies depending on the type of cancer suspected. Some common ones are:

- An incisional biopsy is the removal of a part of a tumor for examination.
- An excisional biopsy is one in which the tumor is removed and surrounding tissue is examined for spread of the tumor.
- A brush biopsy is the passing of a catheter with bristles on it into the ureter or other areas to remove cells for examination.
• A **needle biopsy** is any biopsy in which cells are aspirated through a needle.

• An **exfoliative biopsy** is one in which cells are scraped off of the skin for examination.

If a tumor is found to be malignant, the tumor is usually removed to an established **surgical margin** or to the point where it abuts normal tissue. A localized tumor can be removed in a **lumpectomy** or **tylectomy**. Some surgeries involve **resectioning**, removal of the tumor and a large amount of the surrounding tissue, including lymph nodes; others involve **exenteration**, removal of an organ, tumor, and surrounding tissue. Other surgical procedures are **cryosurgery**, destruction by freezing; **electrocauterization**, destruction by burning; or **fulguration**, destruction by high-frequency electrical current.

**Vocabulary Review**

In the previous section, you learned terms relating to surgery. Before going on to the exercises, review the terms below and refer to the previous section if you have questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>brush biopsy</td>
<td>The passing of a catheter with bristles into the ureter to gather cells for examination.</td>
</tr>
<tr>
<td>cryo-, cold + surgery</td>
<td></td>
</tr>
<tr>
<td>electro-, electrical + cauterization</td>
<td></td>
</tr>
<tr>
<td>ex-, out of + Greek enteron, bowel</td>
<td></td>
</tr>
<tr>
<td>exfoliative [ēx-FŌ-lē-ā-tūv] biopsy</td>
<td>The scraping of skin cells from the skin surface for examination.</td>
</tr>
<tr>
<td>fulguration [fūl-gū-RĀ-shūn]</td>
<td>Destruction by high-frequency current.</td>
</tr>
<tr>
<td>lump + -ectomy</td>
<td></td>
</tr>
<tr>
<td>needle biopsy</td>
<td>Removal of cells for examination by aspirating them with a needle.</td>
</tr>
<tr>
<td>resectioning [rē-SĒK-shūn-īng]</td>
<td>Removal of a tumor and a large amount of surrounding tissue.</td>
</tr>
</tbody>
</table>
SURGICAL TERMS EXERCISES

Find a Match

Match the correct term in the right-hand column with its definition in the left-hand column.

92. ____ removal of part of a tumor for examination
93. ____ removal of a tumor and surrounding tissue for examination
94. ____ form of surgery using freezing
95. ____ form of surgery using burning
96. ____ form of surgery using high-frequency current

a. fulguration
b. cryosurgery
c. electrocauterization
d. incisional biopsy
e. excisional biopsy

CASE STUDY

Getting Information

Alicia was concerned about the possibility of a recurrence of cancer. She asked Dr. Williams for a copy of the pathologist’s report. Alicia did not understand some of the language in it, so she asked Dr. Williams for an explanation.

Critical Thinking

97. How might Dr. Williams explain “The lesion does not appear to invade the underlying and associated . . .”? 98. The dysplastic changes extend to the surgical margin, which is the outline out to which the removal of the cancer will take place. What determines the surgical margin?

Pharmacological Terms

Aside from surgery and radiation, cancer treatment includes three other modalities (methods)—chemotherapy, use of drugs to treat cancer, biological therapy, use of agents that enhance the body’s own immune response in fighting tumor growth, and gene therapy, the use of cells from a laboratory to change the course of a disease (much of this is still experimental). Both chemotherapy and biological therapy have side effects, such as hair loss, nausea, and so on. Gene therapy is just in its beginning stages and long-term results are not known yet. The other four cancer treatments may be used together or separately during the course of a protocol. There are many researchers working on new cancer therapies, such as the inhibition of angiogenesis, the process in the body of supplying blood to tumors.

Radiation and chemotherapy must be specifically directed so as not to harm healthy cells while destroying unhealthy ones. Biological therapy targets cells that are receptive to the substances being injected.

For more information on gene therapy, go to the Human Genome Project Web site (http://www.ornl.gov/sci/techresources/Human_Genome/medicine/genetherapy.shtml).
Angiogenesis Inhibitor Therapy

Angiogenesis is the formation of new blood vessels controlled by chemicals produced in the body. Because tumors cannot grow or spread without the formation of new blood vessels and a blood supply, scientists are trying to find ways to stop angiogenesis. Angiogenesis is not a frequent process in adults, but it does occur in women each month as new vessels form in the lining of the uterus during the menstrual cycle. In addition, angiogenesis is necessary for the regeneration of tissue during wound healing. Unfortunately new blood vessel generation can provide cancer cells with oxygen and nutrients, allowing these cells to grow and spread to other parts of the body.

The objective of angiogenesis inhibitor therapy in cancer treatment is to arrest and/or block the chemicals responsible for beginning the new blood vessel formation process. Some drugs block vascular endothelial cell production directly or by obstructing the endothelial cells’ ability to break down the extracellular matrix, allowing cancer cells to migrate. Researchers have answered many questions about angiogenesis, but many questions still remain. Studies continue trying to determine if inhibiting angiogenesis can be a long-term solution to slowing down or preventing the growth and spread of cancer in humans. Currently, new drugs being tested are in clinical trials and a few drugs have been approved by the U.S. Food and Drug Administration (FDA) for use on certain types of cancers.

VOCABULARY REVIEW

In the previous section, you learned terms relating to pharmacology. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>biological therapy</td>
<td>Treatment of cancer with agents from the body that increase immune response.</td>
</tr>
<tr>
<td>gene therapy</td>
<td>Method of treatment using genetically changed cells to cure or lessen the symptoms of disease.</td>
</tr>
</tbody>
</table>
Finding Another Cancer

Alicia went for a six-month gynecological checkup. Her pap smear was normal. She encouraged her sister, Margo, to see Dr. Williams. Margo is 15 years younger than Alicia. Margo goes to the gynecologist only when she has a problem. She has never had a mammogram. Dr. Williams shows Margo how to do breast self-examination and tells her that he feels a small lump on the side of her breast. This was confirmed with a mammogram and a biopsy. After a lumpectomy, Margo was told that the cancer had spread to one lymph node, which was also removed. Chemotherapy is recommended, along with biological therapy in the form of a weekly injection.

Critical Thinking

99. Why did the surgeon recommend chemotherapy?
100. How might the biological therapy help Margo?

TERMINOLOGY IN ACTION

A male patient has a blood test. It indicates there is an unusually high PSA level. His doctor recommends a biopsy to see if he has cancer. What type of cancer does the doctor suspect might be present. A female patient has a normal Pap smear. If it had been abnormal, what type of cancer would be suspected? Name the most virulent type of skin cancer. What type of cancer is most often caused by smoking?

USING THE INTERNET

Go to the American Cancer Society’s Web site (www.cancer.org) and write a paragraph about cancer prevention. Also, list three types of treatment for cancer discussed at that site.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

Complete the Sentence

Circle the term that best describes the italicized description of the correct answer.

101. The patient was treated with a bombarding of tumors with rays that damage the DNA of cells and had positive result after the treatment was completed. (chemotherapy, protocol, radiation)

102. The physician remarked that the lesion appeared to be formed in tight clusters and was found to be abnormal. (necrotic, nodular, verrucous)

103. A biopsy revealed that the tumor was hard and densely packed just as the pathologist suspected. (scirrhous, papillary, pleomorphic)

104. Dr. Jacobs noted that the dysplastic lesion appeared intensely colored and this concern warranted further evaluation. (hyperplastic, hypoplastic, hyperchromatic)

105. One of the purposes of the TNM system of categorizing tumors is to determine the degree of tumor spread within the body. (carcinoma in situ, stage, grade)

Root Out the Meaning

Separate the following terms into word parts and define each word as well as each word part.

106. carcinogenic _____________

107. carcinolytic _____________

108. carcinoma _____________

109. carcinophobia _____________

110. mutagen _____________

111. oncogenesis _____________

112. oncogenic _____________

113. oncogenous _____________

114. oncofetal _____________

115. oncology _____________

116. oncolysis _____________

117. oncosis _____________

118. radioactive _____________

119. radiodiagnosis _____________

120. radiograph _____________

121. radiographer _____________

122. radiographic _____________

123. radiogram _____________

124. radiography _____________

125. radiology _____________

126. radiologist _____________

127. radiometer _____________

128. radiopaque _____________

129. radiopathology _____________

130. radioreistant _____________

131. radiopharmaceutical _____________

132. radiosensitive _____________

133. radiotoxiemia _____________

134. genoblast _____________

135. glioblastoma _____________

136. glioma _____________

137. fibrosarcoma _____________

138. medulloblastoma _____________

139. melanoma _____________

140. nephrosarcoma _____________

141. neuroblastoma _____________

142. osteosarcoma _____________

143. retinoblastoma _____________

144. rhabdomyosarcoma _____________

145. sarcoma _____________
Complete the Sentence

Circle the term that best describes the italicized description of the correct answer.

146. Timothy Clemons’ physician indicated that the skin cancer on his forehead would be removed by fulguration. (destruction by burning tissue, destruction by freezing tissue, destruction by high-frequency current)

147. Karen Smartley has to make a decision about how her breast tumor will be removed before she has surgery. Her physician is recommending the surgical removal of a localized tumor. (resectioning, excisional biopsy, lumpectomy)

148. The tumor was found to be growing uncontrollably through out the body. (encapsulating, metastasizing, mutating)

149. The medical term for abnormal tissue growth is _____________. (anaplasia, apoptosis, dysplasia)

Check Your Spelling

For each of the following terms, place a C if the spelling is correct. If it is not, write the correct spelling in the space provided.

150. chondocarcinoma _____________
151. milanocytoma _____________
152. astrocytoma _____________
153. rhabdomyosarcoma _____________
154. neuroblastoma _____________
155. inflammatory _____________

Definitions

Define the following terms, combining forms and suffixes. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.

<table>
<thead>
<tr>
<th>Term</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>156. alveolar [āl-VÉ-ō-lär]</td>
<td>cytoplasm [SI-tō-plāz-m]</td>
</tr>
<tr>
<td>158. anaplastic [ān-ā-PLĀS-tōk]</td>
<td>differentiated [diff-ēr-EN-shē-ā-tēd]</td>
</tr>
<tr>
<td>159. apoptosis [ā-pōp-TŌ-sīs]</td>
<td>diffuse [dī-FYŪs]</td>
</tr>
<tr>
<td>160. benign [bē-NĪN]</td>
<td>dysplasia [dīs-PLĀ-zhē-ā]</td>
</tr>
<tr>
<td>161. biological therapy</td>
<td>dysplastic [dīs-PLĀS-tīk]</td>
</tr>
<tr>
<td>162. blast(o)</td>
<td>electrocauterization [ē-LĒK-trō-CĀW-tēr-ī-Za-shūn]</td>
</tr>
<tr>
<td>163. -blast</td>
<td>encapsulated [ēn-KĀP-sū-lā-tēd]</td>
</tr>
<tr>
<td>164. brush biopsy</td>
<td>epidermoid [ēp-ī-DĒR-mōyd]</td>
</tr>
<tr>
<td>165. carcin(o)</td>
<td>excisional biopsy [ēk-SĪZH-shūn-ī Bl-ōp-sē]</td>
</tr>
<tr>
<td>166. carcinoma in situ</td>
<td>exenteration [ēk-ēn-tēr-Ā-shūn]</td>
</tr>
<tr>
<td>169. cystic [SI-S-tīk]</td>
<td>fungating [FUNG-ät-ing]</td>
</tr>
<tr>
<td>170. cytoplasm [SI-tō-plāz-m]</td>
<td>gene therapy</td>
</tr>
<tr>
<td>171. dedifferentiated</td>
<td>grade</td>
</tr>
<tr>
<td>172. differentiated</td>
<td>hyperplastic [HI-pēr-PLĀS-tīk]</td>
</tr>
<tr>
<td>[diff-ēr-EN-shē-ā-tēd]</td>
<td>hyperchromatic [HI-pēr-krō-MĀT-īk]</td>
</tr>
<tr>
<td>173. diffuse [dī-FYŪs]</td>
<td>hyperplastic [HI-pēr-PLĀS-tīk]</td>
</tr>
<tr>
<td>176. electrocauterization</td>
<td>incisional [in-SĪZH-ūn-ī] biopsy</td>
</tr>
</tbody>
</table>
TERM
192. inflammatory [ihn-FLÄM-ə-tōr-ē]
193. invasive [ihn-VÄ-siv]
194. lumpectomy [luhm-PĒK-tō-mē]
195. malignant [mā-LIG-nant]
196. medullary [MED-ū-lär-ē]
197. metastasis [mē-TĀS-tā-sēs]
198. mitosis [mī-TŌ-sēs]
199. modality [mō-DĀL-i-tē]
200. muta
201. mutagen(o)
202. mutation [myū-TĀ-shūn]
203. necrotic [nē-KRŌT-īk]
204. needle biopsy
205. neoplasm [NĒ-ō-plāzm]
206. nodular [NÖD-yū-lār]
207. -oma (plural -omata)
208. onc(o)
209. oncogene [ÕNG-kō-jēn]
210. papillary [PĀP-ī-lär-ē]
211. -plasia
212. -plasm
213. -plastic
214. pleomorphic [plē-ō-MŎR-fīk]
215. polypoid [PŌL-ī-pōyd]
216. protocol [PRŌ-tō-kōl]
217. radi(o)
218. radiation [RĀ-dē-Ā-shūn]
219. resectioning [rē-SĒK-shūn-īng]
220. sarcoma [sār-KŌ-mā]
221. scirrhous [SKĪR-ūs]
222. solid tumor
223. stage
224. teratoma [tēr-ā-TŌ-mā]
225. TNM system
226. tumor [TŬ-mōr]
227. tylectomy [tī-LĒK-tō-mē]
228. ulcerating [ÜL-sēr-ā-tīng]
229. undifferentiated [UN-dif-ēr-EN-shē-ā-tēd]
230. verrucous [vē-RŬ-kōs]

Abbreviations
Write the full meaning of each abbreviation.

ABBREVIATION
231. ALL
232. AML
233. bx
234. CA
235. CEA
236. chemo
237. CLL
238. CML
239. DES
240. DNA
241. DRE
242. ER
243. METS, mets
244. NHL
245. PSA
246. rad
247. RNA
248. RT
249. TNM
250. Tₓ
251. XRT
Answers to Chapter Exercises

1. Yes. Early detection is important; and skin changes can occur fairly rapidly.
2. breast and uterine, cervical, or ovarian
3. dedifferentiated
4. benign
5. invasive
6. malignant
7. deoxyribonucleic acid (DNA)
8. oncogene
9. teratoma
10. sarcoma
11. metastasis
12. carcinogen
13. metastasis
14. C
15. carcinoma
16. C
17. deoxyribonucleic acid (DNA)
18. cytoplasm
19. b
20. g
21. h
22. a
23. c
24. d
25. e
26. f
27. prostate
28. Early detection improves the chances of survival.
29. radiotherapy
30. osteoma
31. erythroblast
32. cystadenocarcinoma
33. meningioma
34. lymphoma
35. gland
36. immature nerve cell
37. muscle tissue
38. retina (eye)
39. lymph cells
40. blast
41. onco
42. muta
43. radi
44. carcino
45. andr(o), masculine + blast(o), immature cell (testicular) + oma, tumor
46. carcino, cancer + -genesis, production of
47. mut(a), genetic change + -genesis, production of
48. onc(o), tumor + -gene, element that controls inherited traits
49. radi(o)- x-rays + -therapy, treatment
50. radi(o), x-ray + -necr(o), death + -osis abnormal condition
51. hyper-, above normal + nephr(o), kidney + -oma, tumor
52. lei(o), smooth + my(o), muscle + sarc(o), connective tissue + -oma, tumor
53. aden(o), gland + carmin(o), cancer + -oma, tumor
54. onc(o), tumor + -logist, one who practices
55. onc(o), tumor + -cyte, cell
56. aden(o), gland + -oma, tumor
57. astr(o), star shaped + cyt(o), cell + -oma, tumor
58. chondr(o), cartilage + sarc(o), connective tissue + -oma
59. lip(o), fatty + sarc(o), connective tissue + -oma
60. lymph(o), lymph + -oma, tumor
61. yes, dysplasia
62. no, carcinoma in situ
63. breast
64. prostate
65. prostate
66. uterus and cervix
67. cystic
68. hyperchromatic
69. protocol
70. nécrotic
71. verrucous
72. to find further cancer early
73. no, because metastasized cancer needs aggressive treatment
74. carcinoma in situ, carcinoma
75. adenocarcinoma
76. nephroblastoma
77. basal cell carcinoma or melanoma
78. medulloblastoma, glioma, astrocytoma
79. leukemia
80. lymphoma, Burkitt’s lymphoma, Hodgkin’s disease, non-Hodgkin’s lymphoma
81. osteosarcoma
82. liposarcoma
83. glioblastoma
84. astrocytoma
85. Self-examination, regular check-ups, colonoscopy, mammogram, and avoidance of carcinogens should be in each student’s paragraph.
86. breast, skin
87. alveolar
88. C
89. dysplastic
90. medullary
91. C
92. d
93. e
94. b
95. c
96. a
97. This means the cancer has not spread.
98. how far the cancer extends out to healthy tissue
99. Margo’s cancer had metastasized. There was no guarantee that all the cancer was removed.
100. Increased immune responses might attack cancer cells.
101. radiation
102. nodular
103. scirrhous
104. hyperchromatic
105. stage
106. carcin(o), cancer + -gen, producing + -ic, pertaining to
107. carcin(o), cancer + -lytic, destroying
108. carcin(o), cancer + -oma, tumor
109. carcin(o), cancer + -phobia, fear of
110. mut(a), genetic change + -gen, producing
111. onc(o), tumor + -genesis, production of
112. onc(o), tumor + -gen, producing + -ic, pertaining to
113. onc(o), tumor + -gen, producing + -ous, pertaining to
114. onc(o), tumor + -fetal, pertaining to fetal tissue
115. onc(o), tumor + -logy, study of
116. onc(o), tumor + -lysis, destruction of

Chapter 18  Terms in Oncology—Cancer and Its Causes  591
117. onc(o), tumor + -osis, condition, state, process
118. radi(o), x-ray + -active, emitting alpha, gamma, or beta
119. radi(o), x-ray + -diagnosis, determination of condition
120. radi(o), x-ray + -graph, recording instrument
121. radi(o), x-ray + -grapher, a technologist trained to take
122. radi(o), x-ray + -graph, instrument + -ic pertaining to
123. radi(o), x-ray + -gram, a recording
124. radi(o), x-ray + -graphy, process of recording
125. radi(o), x-ray + -logy, study of
126. radi(o), x-ray + -ologist, one who practices
127. radi(o), x-ray + -meter, instrument used to measure
128. radi(o), x-ray + -opaque, inability to be penetrated
129. radi(o), x-ray + path(o), disease + -logy,
130. radi(o), x-ray + -resistant, less affected by
131. radi(o), x-ray + -pharmaceutical, drug
132. radi(o), x-ray + -sensitive, receptive to
133. radi(o), x-ray + -toxi(o), poisoning + -emia, blood
134. gen(o), producing + -blast, immature cell (ovum)
135. gli(o), neuroglia + blast(o), immature cell + -oma, tumor
136. gli(o), neuroglia + -oma, tumor
137. fibr(o), fibrous + sarc(o), connective tissue + -oma
138. medull(o), medulla + blast(o), immature cell + -oma, tumor
139. melan(o), black + -oma, tumor
140. nephr(o), kidney + sarc(o), connective tissue + -oma
141. neur(o), nerve + blast(o), immature cell + -oma
142. oste(o), bone + sarc(o), connective tissue + -oma
143. retin(o), retina + blast(o), immature cell + -oma
144. rhabd(o), rod shaped + my(o), muscle + sarc(o), connective tissue + -oma
145. sarc(o), connective tissue + -oma
146. destruction by high-frequency current
147. lumpectomy
148. metastasizing
149. dysplasia
150. chondrosarcoma
151. melanocytoma
152. C
153. rhabdomyosarcoma
154. C
155. inflammatory
156–251. Answers are available in the vocabulary reviews in this chapter.
After studying this chapter, you will be able to:

19.1 List the types of diagnostic imaging
19.2 Explain the uses of radiation therapy
19.3 List the types of surgery and some important surgical tools
19.4 Define the combining forms and suffixes used in building words that relate to diagnostic imaging and surgery
19.5 Identify the meaning of related abbreviations

Radiology or roentgenology is the medical specialty that analyzes the results of imaging tests. The medical specialty that uses radioactive substances to view or to treat diseases is known as nuclear medicine. Either a radiologist or a nuclear medicine physician is a specialist in radiology. Generally, physicians do not administer the tests or treatment. Radiologic technologists are certified and registered by the American Registry of Radiologic Technologists (ARRT) in the following specialties:

- Radiographers who produce diagnostic images via conventional, CT, MRI, or ultrasound technologies.
- Nuclear medicine technologists who image nuclear scans to provide a diagnosis.
- Radiation therapists who administer ionizing radiation to patients to cure or relieve symptoms associated with cancer.

Each radiologic technologist works under the direction of a board-certified specialist in radiology. Radiography is the production of diagnostic images. Cineradiography allows a radiologist to view a sequence of images showing how tissues or organs work in an individual.

Diagnostic Imaging

Historically, if a doctor tried to diagnose an internal ailment, surgery was the only way to actually see the tissue and organs of a person. With the advent of imaging, it is now possible to view the interior of the human body without invasive procedures. Imaging is the production of visual output using x-rays, sound waves, or magnetic fields. Diagnostic imaging

The Web site (www.radiologyinfo.org) provides an explanation of the types of radiation therapy.
is the use of imaging to diagnose problems in the interior of a part of the body without surgery. The three major types of imaging are:

1. **X-ray technology** was the earliest form of imaging. It now ranges from black and white images produced by electromagnetic radiation to computer-enhanced images on a computerized axial tomography (CAT) scan. X-ray technology is widely used in dentistry and for numerous diagnostic situations such as bone fractures, tumor locations, and many other conditions.

2. **Ultrasonography** uses sound waves to produce a visual image of an area of the body’s interior. Ultrasonography is routinely used to view the womb of a pregnant woman.

3. **Magnetic resonance imaging** (MRI) uses a magnet to obtain images of an area of the body.

**Radiology**

In the early twentieth century, x-rays were discovered and the first images of the inside of a living person were made. X-rays are high-energy electromagnetic radiation, energy from the interior of a substance carried by a stream of electrically charged particles. There are three types of radioactive particles:

- **Gamma rays** have the most penetrating ability of the three types.
- **Alpha rays** have the least penetrating ability.
- **Beta rays** fall somewhere in the middle in penetrating ability.

The use of x-rays increased dramatically until it was discovered that extensive exposure to radiation could cause health problems (cancer, birth defects, and so on). Later, lower doses of x-rays that are considered safe dramatically altered the way disease is diagnosed. Now, x-rays are commonly used to detect pathology throughout the body and to treat certain diseases.

X-rays show images in black, white, and gray (Figure 19-1). They are useful for showing abnormalities such as broken bones, internal anomalies, or dental abnormalities, as well as for use in treating certain diseases.

X-rays reveal internal images by exposure of a picture on a photographic plate. The x-rays are directed toward the patient and when they travel through the patient, they come to the plate placed directly behind. Patients are positioned so that the best image may be obtained. Substances of the body may be **radiolucent**, allowing x-rays to pass through quickly (air is radiolucent), or **radiopaque**, blocking or absorbing x-rays (bone is radiopaque). In between radiolucent and radiopaque, there are many degrees of absorbability or resistance to the passage of x-rays. For example, fat is fairly absorbent; blood, lymph, and water are more so. Radiolucent substances appear black on x-ray images and radiopaque substances appear white. Substances in between radiolucent and radiopaque appear in various shades of gray.

X-rays can be dangerous, particularly to people who administer them in a clinical setting. X-rays cannot be seen, heard, touched, or smelled. They cannot travel through lead, a very dense substance, so that the use of lead vests or aprons is very common for radiologic technologists and for radiation therapists. Also, lead vests are often used to cover parts of the patient’s body not being x-rayed. X-rays **ionize**, change neutral particles to positively charged ions, and, in doing so, destroy cancer cells and slow the growth of tumors. Control of x-rays has become more sophisticated; however, damage to surrounding tissue almost invariably occurs during **radiation therapy**, the...
use of x-rays to destroy cancer cells. Long-term, unprotected exposure to x-rays can cause cancer.

The use of computers has enhanced radiologic techniques. Not only is the detail of x-rays increased, but computer-guided x-rays can photograph at various angles and can photograph certain body parts (such as the heart) while they are working. Common procedures in cardiology which use computer imaging, such as cardiac catheterization, are discussed in Chapter 6. **Tomography**, the production of three-dimensional images, provides much anatomical and diagnostic information. **CT (computed tomography)** or **CAT (computerized axial tomography)** scans show a series of images conveyed to the computer as detailed pictures of slices of an organ or body part.

**PET (positron emission tomography)** scans are imaging tests that show the distribution of substances in tissue. They are often used to diagnose brain disorders. This is accomplished by bombarding the area being x-rayed with x-rays at many different angles. The computer interprets the normal density of various parts of the body and the density of a solution ingested. The result is a clear image of minute sections able to show abnormalities in detail.

**Fluoroscopy** is another imaging technique using x-rays. Instead of a photographic plate, the image is projected onto a fluorescent screen that shows visual images as light rays that are emitted when the x-rays pass through a patient. Fluoroscopy allows for observation of a body part in motion.

X-ray equipment varies depending on the intended use. For example, dental x-rays are taken with a machine that points the radiation to an area of the mouth. Chest x-rays are generally taken on a large plate that covers the front of the chest. CAT scans and PET scans also aim x-rays at particular body areas. The equipment for these scans is attached to a computer on which the image is shown.

The clarity of x-rays can be enhanced if a **contrast medium**, a dense substance that shows up as white on the x-ray film, is used for a particular area of the body. **Barium** and **iodine** substances are ingested to provide a dense substance in a particular area. A **barium swallow** is used for examination of the hypopharynx and the esophagus. A **barium enema** is the insertion of barium into the rectum and colon for a lower GI series.

Iodine is used in many imaging tests to highlight the interior of a cavity, tube, or vessel:

- **Angiography** is imaging of the blood vessels and chambers of the heart after an iodine substance is inserted through a catheter to the heart.
- **Digital subtraction angiography** (DSA) is a two-step imaging process described in Chapter 6.
- **Magnetic resonance angiography** is the imaging of the flow of blood through vessels.
- **Arteriography** is the imaging of arteries usually in the brain (usually to detect blockages).
- **Arthrography** is the imaging of joints after injection of an iodine substance.
- **Cholangiography** is an examination of the gallbladder and bile ducts.
- **Cholecystography** is an image taken after an iodine substance is swallowed and it reaches the gallbladder and bile ducts.
- **Hysterosalpingography** is imaging of the fallopian tubes after injection of a contrast medium containing iodine.
- **Lymphangiography** is imaging of the lymphatic vessels.
Myelography is imaging of the spinal cord to examine disks and check for anomalies.

Pyelography is the imaging of the renal pelvis and urinary tract.

Venography is the imaging of any vein after injection of a contrast medium.

Ultrasonography

Ultrasonography or sonography is the use of sound waves to produce images showing the interior of the body. An ultrasound image or a sonogram results when high-frequency sound waves are reflected off the body part being observed. The waves are received by a detector that converts them to electrical impulses, which can then be seen on a video monitor. The images produced have become clearer as the technology has advanced. Ultrasonography is a noninvasive method of observation. The equipment used for ultrasonography usually consists of a wand, which is attached to a monitor on which the image is seen, that is moved back and forth over the area being observed. It is used most frequently in monitoring fetal development during pregnancy (Figure 19-2). It is also commonly used for diagnosis, as in echocardiography, a test used in cardiovascular diagnosis, and ultrasoundography can be helpful in diagnosing disorders of many other organs (kidney, breast, uterus, gallbladder). A special type of ultrasound unit called a doppler is used on blood vessels.

Ultrasoundography is also being commercialized in shopping malls where, for a fee, pregnant women can get a video image done by an ultrasound machine. Some women are having multiple ultrasounds to record the growth of their fetuses. Since no long-term studies have been done of frequent ultrasounds, and since many of the operators of this equipment in a shopping mall setting are unqualified to read ultrasounds, this practice is discouraged by medical professionals.

Diagnosing Breast Cancer

Mammograms are the most commonly used diagnostic tool for diagnosing breast tumors or lesions. They have increased early diagnosis tremendously. However, mammograms do not distinguish between benign and malignant growths, and they miss 10 percent of cancers. Researchers are working on using other imaging techniques to alleviate these two problems. PET scans are more effective at identifying benign growths. MRIs can detect 100 percent of tumors, but do not distinguish them from benign growths. The goal of the research is 100-percent detection of cancers with no unnecessary biopsies for benign growths.

In addition, radiologists are using new tools to make breast cancer treatment easier and more effective. In cases where a biopsy is necessary, a stereotactic breast biopsy is used to focus in on the area that needs to be examined. This technique allows radiologists and surgeons to perform the biopsy quickly and accurately.

- Myelography is imaging of the spinal cord to examine disks and check for anomalies.
- Pyelography is the imaging of the renal pelvis and urinary tract.
- Venography is the imaging of any vein after injection of a contrast medium.

Magnetic Resonance Imaging (MRI)

Magnetic resonance imaging (MRI) creates images by tracking the magnetic properties within the nuclei of various cells. As the cells move, some
atoms respond to magnetic fields and emit radio waves that produce an image. MRIs are commonly used to diagnose various tumors, defects in the cardiovascular system, and brain anomalies. MRIs do not use x-rays and, therefore, are considered safe and effective. Most MRIs do not require a contrast medium, but one may be used to enhance a scan in certain cases such as in viewing blood vessels. MRI equipment generally consists of a tube into which the patient is placed. While the patient is lying absolutely still, the magnet in the equipment obtains the scan.

**Nuclear Medicine**

Nuclear medicine uses radioactivity to test and treat disease. Radioactive chemicals, combined with blood or urine specimen in vitro (in a test tube), can reveal the presence of various hormones and drugs. Such information is used to monitor the use of medications with potentially harmful side effects. One test in particular, a radioimmunoassay (RIA), is a common “drug” test, often given to participants in sports events, applicants for a job, or others who require regular drug testing. A radioimmunoassay is also used to determine the amount of a medication left in the body after a certain period of time. This information is useful in determining the correct dosage of certain medications. Lead-lined vials and syringes are used to protect workers from exposure.

Other studies in nuclear medicine are done in vivo (in the body). The basic goal of an in vivo test is to trace radionuclides (radioactive substances) ingested by the patient as they travel through the body. Tracer studies trace a specific radiopharmaceutical (combination of a chemical and a radionuclide designed to travel to a specific organ) while it makes its way through the organ. In this way, the function of an organ is imaged for observation and treatment. Similarly, a scanner (machine capable of creating scans or images) tracks the movement of radiopharmaceuticals within an organ to show how the organ functions. Common scans are:

- A **blood and heart scan**, a tracing of blood flow through the heart for diagnosing heart disease.
- A **bone scan** for bone cancer.

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**MORE ABOUT . . .**

**Stand-Up MRI**

A new innovation in high-field open MRI Scanning is now available. The latest open MRI scanners eliminate the challenges created by the traditional cylindrical shape MRI scanners in the comfort of the patient, the ability of the patient to fit into the machine, and the ease for those individuals with claustrophobia. The scanner can easily place the area of interest into the center of the magnet gap for imaging.

The advantage of a walk-in MRI is multifold. The patient can be imaged in the weight-bearing position to view stress on the spine and joints, in a position of pain as well as in various other positions that simulate the abnormal condition. Patients can walk right in, stand or sit and nothing is in front of the face obstructing the patients view. The unit can also be rotated to a lying down position to accommodate any patient condition that is most comfortable.
- A brain scan, for detecting anomalies in the brain that would allow a radiopharmaceutical to pass the BBB (blood-brain barrier).
- A gallium scan, using a specific radionuclide (gallium-67) to locate tumors and cysts.
- A thyroid scan, scanning the thyroid gland for thyroid cancer and function.

An uptake test in nuclear medicine is used to determine how quickly a radiopharmaceutical is absorbed by a particular organ or body part, as in a radioactive iodine uptake of the thyroid gland. A perfusion study in nuclear medicine tracks the passage of radiopharmaceuticals throughout the capillaries of the lungs, revealing any clots. A perfusion study may be used in combination with a ventilation study, which tracks an inhaled gas as it fills the air sacs of the lungs.

**Radiation Oncology**

Radiation oncology or radiation therapy is the specialty of those who treat benign and cancerous tumors. The goal of radiation therapy is to cure the patient or relieve the symptoms while sparing as much healthy tissue as possible. Radiation therapy is also used to relieve pain, thereby making the patient's remaining time more comfortable.

X-rays and radionuclides are potentially dangerous in high doses. They can cause damage and death to cells at which they are aimed. Cells that are treated with high-dose radiation are irradiated. Irradiation of cells is used in treating diseases with abnormal tissue growth, such as cancer. Radiation is given in doses necessary to penetrate and destroy the malignant cells. The radiation is measured in rads (radiation absorbed dose), which in turn is measured in grays (gy), each gray equaling 100 rads. Tissue to be irradiated is either radiosensitive (as are most lymphomas), needing fewer grays to kill cells, or radioresistant (as are most sarcomas), needing more grays to kill cells.

Radiation is transmitted to cells using various techniques and machines depending on the location of the cancerous cells needing treatment. A linear accelerator is an external beam machine used to emit radioactive particles in a straight line directed at a malignancy. A betatron is a circular machine for delivery of radioactive material. A stereotactic frame is a device placed around the patient to direct a radiation beam to a specific spot in the brain.

In addition to equipment, radiotherapy may be delivered directly in brachytherapy, the implanting of radioactive elements directly into a tumor (interstitial therapy) or into an adjacent cavity (intracavitary therapy). Another type of radiotherapy is the introduction of radioactive materials that have a specific use (as radioactive iodine in thyroid therapy) when placed in the bloodstream. In the case of the thyroid, it is the only body organ to use iodine, so the treatment affects only the thyroid even though the material travels through the bloodstream.

Radiation therapy may be beneficial and even lifesaving, but it does have potential side effects. Some temporary effects are listed below:

- alopecia, loss of hair
- nausea, vomiting, or diarrhea
- radiation anemia, suppression of red blood cell production after treatment with radioactive material
• inflamed, of the skin, mucous membranes, or epithelial tissue due to breakdown of tissue exposed to the radiation
• malaise, general ill feeling

Radiologists always need to have the clearest possible images for analysis. Correct positioning of the patient to provide the best views is the technologist’s job. An image may be taken anterior-posterior (A/P), from front to back. It may be taken with the patient prone, supine, or in any body position. (Chapter 3 discusses directional terms and body planes.)

**Vocabulary Review**

In the previous section, you learned terms relating to diagnostic imaging. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>alpha [ÁL-fá] rays</td>
<td>Type of radioactive particle that has a low ability to penetrate the body.</td>
</tr>
<tr>
<td>bariyum [BÁ-ri-úm] Greek barys, heavy</td>
<td>Contrast medium that shows up as white on an x-ray.</td>
</tr>
<tr>
<td>beta [BÁ-tá] rays</td>
<td>Type of radioactive particle that has a medium ability to penetrate the body.</td>
</tr>
<tr>
<td>brachytherapy [brák-e-THÁR-á-pé} brachy-, short + therapy</td>
<td>Implanting of radioactive elements directly into a tumor or tissue.</td>
</tr>
<tr>
<td>CAT (computerized axial tomography) scan</td>
<td>Scan that shows images as detailed slices of a body part or organ.</td>
</tr>
<tr>
<td>cineradiography [SIN-e-rá-de-ÔG-rá-fé] cine-, movement + radiography</td>
<td>Radiography of tissues or organs in motion.</td>
</tr>
<tr>
<td>CT (computed tomography) scan</td>
<td>CAT scan.</td>
</tr>
<tr>
<td>diagnostic imaging</td>
<td>Use of imaging techniques in diagnosing illness.</td>
</tr>
<tr>
<td>fluoroscopy [flūr-ÔS-kö-pé] fluoro-, light + -scopy, observing</td>
<td>X-ray in which the image is projected onto a fluorescent screen.</td>
</tr>
<tr>
<td>gamma [GÁ-má] rays</td>
<td>Commonly used radioactive particles with high penetrating ability.</td>
</tr>
<tr>
<td>gray (gy)</td>
<td>Unit of measure equal to 100 rads.</td>
</tr>
<tr>
<td>imaging [IM-ã-jíng]</td>
<td>Production of a visual output using x-rays, sound waves, or magnetic fields.</td>
</tr>
<tr>
<td>interstitial [ín-tër-STÍSH-ál] therapy</td>
<td>Substance is placed within the tissue or tumor.</td>
</tr>
<tr>
<td>intracavitary [IN-trá-CÅV-í-tär-é] therapy intra-, within + cavit(y)</td>
<td>Brachytherapy in which the radioactive substance is placed in a cavity near a cancerous lesion.</td>
</tr>
<tr>
<td>Term</td>
<td>Meaning</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>iodine [ī-o-dīn]</td>
<td>Substance used in radiopharmaceuticals for contrast medium and radiation therapy.</td>
</tr>
<tr>
<td>ion [ī-on]</td>
<td>Positively charged particle used to ionize tissue.</td>
</tr>
<tr>
<td>ionize [ī-on-īz]</td>
<td>To destroy cells by changing neutral particles to ions using x-rays.</td>
</tr>
<tr>
<td>irradiated [ĕ-RĀ-de-āt-ĕd]</td>
<td>Treated with radiation.</td>
</tr>
<tr>
<td>magnetic resonance imaging (MRI)</td>
<td>Imaging produced by tracking the magnetic properties in the nuclei of various cells.</td>
</tr>
<tr>
<td>nuclear medicine</td>
<td>Medical specialty for treating diseases with radioactive substances.</td>
</tr>
<tr>
<td>PET (positron emission tomography) scan</td>
<td>A series of images that shows the distribution of substances through tissue.</td>
</tr>
<tr>
<td>rad [rād] (radiation absorbed dose)</td>
<td>Unit of radioactive substance that can be absorbed in a particular period of time.</td>
</tr>
<tr>
<td>radiation [RĀ-de-Ā-shūn]</td>
<td>Energy carried by a stream of particles from a substance.</td>
</tr>
<tr>
<td>radiography [RĀ-de-ŌG-rā-fe]</td>
<td>Production of diagnostic images.</td>
</tr>
<tr>
<td>radioimmunoassay (RIA) [RĀ-de-ō-ĪM-ū-nō-ĀS-sā]</td>
<td>In vitro test to determine the amount of drugs or medication left in the body.</td>
</tr>
<tr>
<td>radiolucent [RĀ-de-ō-LŪ-sĕnt]</td>
<td>Able to be easily penetrated by x-rays.</td>
</tr>
<tr>
<td>radionuclide [RĀ-de-ō-NŪ-klīd]</td>
<td>Radioactive substance.</td>
</tr>
<tr>
<td>radiopaque [RĀ-de-ō-PĀK]</td>
<td>Not able to be easily penetrated by x-rays.</td>
</tr>
<tr>
<td>radiopharmaceutical [RĀ-de-ō-fār-mā-SŪ- tū-kāl]</td>
<td>Chemical substance containing radioactive material.</td>
</tr>
<tr>
<td>radioresistant [RĀ-de-ō-rē-ZIS-tĕnt]</td>
<td>Not greatly affected by radiation.</td>
</tr>
<tr>
<td>radiosensitive [RĀ-de-ō-SĒN-sĭ-tĭv]</td>
<td>Easily affected by radiation.</td>
</tr>
<tr>
<td>scan</td>
<td>Image obtained from the interior of the body.</td>
</tr>
<tr>
<td>Term</td>
<td>Meaning</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>sonogram</strong> [SÔN-ô-grâm]</td>
<td>Ultrasound image.</td>
</tr>
<tr>
<td>sono-, sound + -gram, a recording</td>
<td></td>
</tr>
<tr>
<td><strong>stereotactic</strong> [STER-ē-o-TĀK-tık] frame</td>
<td>Headgear worn by patients needing pinpoint accuracy in the treatment of brain anomalies.</td>
</tr>
<tr>
<td>stereo-, three-dimensional + Greek taxis, frame</td>
<td></td>
</tr>
<tr>
<td><strong>tomography</strong> [tô-MÖG-rä-fe]</td>
<td>Type of imaging that produces three-dimensional images.</td>
</tr>
<tr>
<td>Greek tomos, cutting + -graphy</td>
<td></td>
</tr>
<tr>
<td><strong>tracer study</strong></td>
<td>Image that traces the passage of a radio-pharmaceutical through an organ or tissue.</td>
</tr>
<tr>
<td><strong>ultrasonography</strong> [ÜL-trä-sô-NÖG-rä-fë]</td>
<td>Use of sound waves to produce images of the interior of a body.</td>
</tr>
<tr>
<td>ultra-, beyond + sono- + -graphy</td>
<td></td>
</tr>
<tr>
<td><strong>ultrasound</strong> [ÜL-trä-sôwnd]</td>
<td>Image resulting from ultrasonography; produced by sound waves.</td>
</tr>
<tr>
<td>ultra- + sound</td>
<td></td>
</tr>
<tr>
<td><strong>uptake</strong> [ÜP-täk]</td>
<td>Speed of absorption of a radiopharmaceutical by a particular organ or body part.</td>
</tr>
<tr>
<td><strong>x-ray</strong> [ÉKS-rä]</td>
<td>High-energy particles of radiation from the interior of a substance.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CASE STUDY**

**Diagnosing a Disease**

Nina Thorman made an appointment with her internist to discuss some weakness on her left side. After testing her reflexes and discussing her symptoms, her doctor referred her to a neurologist. Two weeks later while talking to the neurologist, Nina discovered that a series of tests might be necessary because some diseases (particularly neurological ones) are diagnosed by a process of elimination. (For example, multiple sclerosis does not show up in blood or urine tests, but does have several indicators that allow a neurologist to arrive at a diagnosis.) Nina was given an MRI to determine if a brain tumor or other brain anomaly was affecting her on one side. The MRI showed some plaque on her brain. After a series of other tests, including a spinal tap to obtain CSF (cerebral spinal fluid) for analysis, the neurologist told Nina that she has multiple sclerosis. They discussed plans for management of the disease.

**Critical Thinking**

1. Why did the internist refer Nina to a neurologist for testing, rather than ordering an MRI himself?
2. Why was an MRI ordered as opposed to an x-ray?

**DIAGNOSTIC IMAGING TERMS EXERCISES**

Match the correct definition on the right with the term on the left.

3. ___ ultrasound  a. blood-brain barrier
4. ___ radiography  b. drug test
5. ___ PET scan  c. in a test tube
6. ___ CAT scan d. imaging of a joint
Matching
Write the letter of the meaning of each of the diagnostic imaging terms in the space provided.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. cineradiography</td>
<td>e. loss of hair</td>
</tr>
<tr>
<td>8. arthography</td>
<td>f. imaging showing slices of tissue</td>
</tr>
<tr>
<td>9. radioimmunoassay</td>
<td>g. imaging showing movement of substances</td>
</tr>
<tr>
<td>10. in vitro</td>
<td>h. device for delivering radiation</td>
</tr>
<tr>
<td>11. BBB</td>
<td>i. imaging of tissues or organs in motion</td>
</tr>
<tr>
<td>12. betatron</td>
<td>j. image using sound waves</td>
</tr>
<tr>
<td>13. alopecia</td>
<td>k. the production of diagnostic images</td>
</tr>
<tr>
<td>14. sonogram</td>
<td>a. image that traces the passage of a radiopharmaceutical through an organ or tissue.</td>
</tr>
<tr>
<td>15. tomography</td>
<td>b. use of imaging techniques in diagnosing illness.</td>
</tr>
<tr>
<td>17. radiology</td>
<td>d. CAT scan</td>
</tr>
<tr>
<td>18. magnetic resonance imaging (MRI)</td>
<td>e. ultrasound image.</td>
</tr>
<tr>
<td>19. diagnostic imaging</td>
<td>f. radiology</td>
</tr>
<tr>
<td>20. fluoroscopy</td>
<td>g. imaging produced by tracking the magnetic properties in the nuclei of various cells</td>
</tr>
<tr>
<td>21. CT scan</td>
<td>h. headgear worn by patients needing pinpoint accuracy in the treatment of brain anomalies.</td>
</tr>
<tr>
<td>22. stereotactic frame</td>
<td>i. x-ray in which the image is projected onto a fluorescent screen.</td>
</tr>
<tr>
<td>23. roentgenology</td>
<td>j. type of imaging that produces three-dimensional images.</td>
</tr>
</tbody>
</table>

Surgical Terms

Types of Surgery

Surgery is the removal of tissue, manipulation of tissue, or insertion of a device or transplanted body part or tissue. There are many types of surgery:

- **Preventative**, designed to prevent further disease (as in removal of a cancerous lesion likely to spread).
- **Manipulative** or **closed**, changed without incision (as in the alignment of a fracture).
- **Diagnostic**, helping to finalize a diagnosis (as in the removal of sample tissue for microscopic diagnosis or biopsy).
- **Minimally invasive**, with the smallest possible incision (as in surgeries that use laparoscopes).
- **Reconstructive** or **cosmetic**, designed to improve on or return a part of the body to its original functioning and/or appearance.
• Cryogenic, involving the use of freezing to destroy tissue.
• Cauterizing, involving the use of heat to destroy tissue.

Surgery and operations, the removal, transplant, or manipulation of tissue performed in surgery, can be described according to location on the body, obstruction being removed, machine or techniques being used, or where it is performed. Abdominal surgery is performed on the abdomen; craniofacial surgery is performed on the cranium and facial bones; hip surgery usually means repair or replacement of a hip; transplant surgery is the removal of and insertion of a body part or tissue; and dental surgery is performed on the mouth and gums. Cataract surgery is the removal of a lens of the eye, and Mohs’ surgery is the removal of a carcinoma after mapping with a chemical to establish the narrowest possible margin of affected tissue. Endoscopic and laparoscopic surgeries are performed with the use of a camera attached to a lighted probe. Inpatient surgery takes place in the hospital with the patient admitted for one or more nights. Ambulatory or outpatient surgery takes place in a hospital, clinic, or office without admission to a hospital.

Surgical Implements

In the centuries before anesthesia and x-rays, surgery was basically performed using a knife and a lot of guesswork (Figure 19-3). Later, aseptic (germ-free) environments and instruments contributed to a gradually increasing surgical survival rate. Surgical implements include cutting and dissecting instruments, clamping devices, retracting, dilating, and probing instruments, injecting and suturing implements, and equipment to protect the surgical staff.

Cutting and dissecting instruments include various types of scalpels (knives), surgical scissors, and curette (also curet), sharp-edged instruments for scraping tissue. Surgical clamps or forceps are used to grasp and hold or remove something during surgery. Forceps may be placed around something (such as a baby’s temple) to aid in pulling the baby out through the birth canal. Clamps are used to grab and hold tissue in place or to apply pressure to a blood vessel to control bleeding. Retractors are used to hold a surgical wound open, dilators are used to enlarge an opening, and probes are used to explore body cavities or to clear blockages. Hollow needles are used in surgery to inject or extract material. Suture needles and needle holders allow the surgeon to bind the surgical wound after surgery by sewing suturing material through the wound. Staples are another suturing implement. New glues and other materials can be used to suture without needles or staples.

Individuals participating in the surgical procedure must wear personal surgical protective clothing that includes scrub gowns or outfits (pants and top), protective headgear, face shields, protective glasses, and masks (Figure 19-4). Those people who will be performing or assisting in the surgery must also wear sterile gowns and latex or vinyl gloves. All must follow hospital and government rules (set by OSHA, Occupational Safety and Health Administration) and guidelines for standard precautions (set by the CDC, Centers for Disease Control and Prevention) with regard to blood and body fluids to prevent the spread of disease. Standard precautions are slightly more detailed than the previous universal precautions set by the government.

The American Society for Aesthetic Plastic Surgery’s Web site (www.surgery.org) provides detailed information about plastic surgery.
In the previous section, you learned terms relating to surgery. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-</td>
<td>without + sepsis, presence of pathogens</td>
</tr>
<tr>
<td>cauterizing [KĀW-tēr-ī-z-īŋ]</td>
<td>Destroying tissue by burning.</td>
</tr>
<tr>
<td>From Greek kauterion, branding iron</td>
<td></td>
</tr>
<tr>
<td>clamps [klāmps]</td>
<td>Implement used to grasp a body part during surgery.</td>
</tr>
<tr>
<td>closed</td>
<td>Performed without an incision.</td>
</tr>
<tr>
<td>cosmetic</td>
<td>Designed to improve the appearance of an exterior body part.</td>
</tr>
<tr>
<td>cryo-, cold + -genic, producing</td>
<td></td>
</tr>
<tr>
<td>curette [kyū-RĒT]</td>
<td>Sharp instrument for scraping tissue.</td>
</tr>
<tr>
<td>diagnostic [di-āg-NŌS-tīk]</td>
<td>Helping to finalize a diagnosis.</td>
</tr>
<tr>
<td>dilator [DI-lā-tōr]</td>
<td>Implement used to enlarge an opening.</td>
</tr>
<tr>
<td>forceps [FŌR-sēps]</td>
<td>Surgical implement used to grasp and remove something.</td>
</tr>
<tr>
<td>Latin, tongs</td>
<td></td>
</tr>
<tr>
<td>manipulative [mā-NĪP-yū-lā-tīv]</td>
<td>Done without an incision, as in the reduction of a fracture.</td>
</tr>
<tr>
<td>minimally invasive</td>
<td>Done with the smallest incision possible, such as the clearing of arterial blockages with tiny probes that use lasers.</td>
</tr>
<tr>
<td>Mohs’ [mōhz] surgery</td>
<td>Removal of a carcinoma after mapping with a chemical to establish the narrowest possible margin of affected tissue.</td>
</tr>
<tr>
<td>After Frederic Mohs (1910–2002), U.S. surgeon</td>
<td></td>
</tr>
<tr>
<td>needle holder</td>
<td>Surgical forceps used to hold and pass a suturing needle through tissue.</td>
</tr>
<tr>
<td>operation</td>
<td>Any surgical procedure, such as the removal, transplant, or manipulation of tissue.</td>
</tr>
<tr>
<td>preventative [prē-VĒN-tā-tīv]</td>
<td>Designed to stop or prevent disease.</td>
</tr>
<tr>
<td>probe</td>
<td>Sharp device for exploring body cavities or clearing blockages.</td>
</tr>
<tr>
<td>reconstructive [rē-cōn-STRŪC-tīv]</td>
<td>Designed to restore a body part to its original state or appearance.</td>
</tr>
</tbody>
</table>

604 Chapter 19 Diagnostic Imaging, Radiation Oncology, and Surgery
### SURGICAL TERMS EXERCISES

#### Know the Equipment

Write the name of the instrument that is being defined in each statement below.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>retractor [ré-TRĀK-tōr]</td>
<td>An instrument used to hold back edges of tissue and organs to expose other tissues or body parts; especially used in surgery.</td>
</tr>
<tr>
<td>scalpel [SKĀL-pl]</td>
<td>Knife used in surgery or dissection.</td>
</tr>
<tr>
<td>standard precautions</td>
<td>Guidelines issued by the Centers for Disease Control for preventing the spread of disease.</td>
</tr>
<tr>
<td>staples</td>
<td>Metal devices used to suture surgical incisions.</td>
</tr>
<tr>
<td>surgery [SĒR-jēr-ē]</td>
<td>Removal, transplant, or manipulation of tissue.</td>
</tr>
<tr>
<td>surgical scissors</td>
<td>Scissors used for cutting and dissecting tissue during surgery.</td>
</tr>
<tr>
<td>suture [SŪ-chūr] needles</td>
<td>Needles used in closing surgical wounds by sewing.</td>
</tr>
</tbody>
</table>

#### CASE STUDY

**Outpatient Surgery**

James Wilson, an 80-year-old, scheduled his yearly appointment with his ophthalmologist. James has had cataracts but they were not yet ready to be removed. However, at this visit, the ophthalmologist suggested that removal of the right cataract and insertion of an intraocular lens would be a fast and comfortable solution to Mr. Wilson’s ever-diminishing sight. The medical assistant scheduled Mr. Wilson for surgery at the Eye and Ear Center, a local outpatient clinic. The day of the surgery, Mr. Wilson was greeted by a patient care technician who escorted him into the surgical area. There he was given a surgical gown and covers for his shoes and head. The doctor, anesthesiologist, and nurse all were in the operating room scrubbed and ready for surgery. Later that day, after several hours of rest and observation, Mr. Wilson’s son picked him up to take him home.

**Critical Thinking**

24. Is Mr. Wilson’s surgery an example of preventative, diagnostic, or cosmetic surgery?
25. Cataract operations are simple and localized in one eye. Why is it necessary for the doctors and assistants to be surgically aseptic?
30. Instrument used to hold back edges of tissue and body organs to expose other
tissues or body parts: _____________
31. Instrument used to grasp a body part especially during surgery: _____________
32. Implement used to enlarge an opening: _____________
33. Surgical implement used to grasp and remove: _____________
34. Metal devices used to suture surgical openings: _____________
35. Scissors used for cutting and dissecting tissue during surgery: _____________

**Combining Forms and Abbreviations**

The lists below include combining forms, suffixes, and abbreviations that
relate specifically to diagnostic imaging and surgery. Pronunciations are pro-
vided for the examples.

<table>
<thead>
<tr>
<th>COMBINING FORM</th>
<th>MEANING</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>cine</td>
<td>movement</td>
<td>cineradiography [SĪN-ē-rā-dē-ŌG-rā-fē], radiography of an organ in motion</td>
</tr>
<tr>
<td>electr(o)</td>
<td>electric; electricity</td>
<td>electrocardiogram [ē-lēk-trō-KĀR-dē-ō-grām], graphic record of heart’s electrical currents</td>
</tr>
<tr>
<td>fluor(o)</td>
<td>light; luminous</td>
<td>fluoroscopy [flūr-ŌS-kō-pē], deep tissue examination by x-ray</td>
</tr>
<tr>
<td>micr(o)</td>
<td>small; microscopic</td>
<td>microsurgery [mī-krō-SĒR-jēr-ē], surgery performed using magnification by a microscope</td>
</tr>
<tr>
<td>radi(o)</td>
<td>radiation</td>
<td>radiopaque [RĀ-dē-ō-PĀK], impenetratable to radiation</td>
</tr>
<tr>
<td>son(o)</td>
<td>sound</td>
<td>sonogram [SŌN-ō-grām], ultrasound image</td>
</tr>
<tr>
<td>ultra</td>
<td>beyond</td>
<td>ultrasound [ÜL-trā-sō-wnd], imaging using sound frequencies beyond a certain frequency</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>MEANING</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-centesis</td>
<td>puncture</td>
<td>amniocentesis [ām-nē-ō-sēn-TĒ-sēs], retrieval of amniotic fluid through a needle inserted into the amnion</td>
</tr>
<tr>
<td>-clasis</td>
<td>breaking</td>
<td>osteoclasis [ŌS-tē-ō-KLĀ-sēs], intentional breaking of a bone</td>
</tr>
<tr>
<td>-clast</td>
<td>breaking</td>
<td>osteoclast [ŌS-tē-ō-klāst], instrument for breaking a bone</td>
</tr>
<tr>
<td>-ectomy</td>
<td>removal of</td>
<td>appendectomy [āp-pēn-DĒK-tō-mē], removal of the appendix</td>
</tr>
<tr>
<td>-gram</td>
<td>a recording</td>
<td>sonogram [SŌN-ō-grām], ultrasound image</td>
</tr>
</tbody>
</table>
### SUFFIX | MEANING | EXAMPLE
--- | --- | ---
-graph | recording instrument | electroencephalograph [ˌɛ-LĒK-trō-ēn-SĒF-ä-lō-graf], system for recording the brain’s electrical activity
-graphy | process of recording | ultrasonography [UL-trā-sō-NOG-rā-fē], imaging by the use of sound waves
-opsy | a viewing | biopsy [BĪ-op-sē], removal of tissue from a living patient for examination
-ostomy | opening | colostomy [kō-LŌS-tō-mē], surgical opening in the colon
-pexy | fixation done surgically | nephroscopy [NĒF-ī-pēk-sē], surgical fixation of a floating kidney
-plasty | surgical repair | rhinoplasty [RĪ-nō-plās-tē], plastic surgery of the nose
-rrhaphy | surgical suturing | herniorrhaphy [hēr-nē-ŌR-ā-fē], surgical repair of a hernia
-scope | instrument for observing | microscope [MĪ-kō-skōp], instrument for viewing small objects
-scopy | a viewing | microscopia [mī-KRŌS-kō-pē], use of microscopes
-stomy | opening | nephrostomy [nē-FRŌS-tō-mē], surgical opening between the kidney and the exterior of the body
-tome | cutting segment | osteotome [ŌS-tē-ō-tōm], instrument for cutting bone
-tomy | cutting operation | laparotomy [LĀP-ē-RŌT-ō-mē], incision in the abdomen

### ABBREVIATION | MEANING | ABBREVIATION | MEANING
--- | --- | --- | ---
Ba | barium | DSA | digital subtraction angiography
BaE | barium enema | ERCP | endoscopic retrograde cholangiopancreatography
CAT | computerized axial tomography | Fx | fracture
C-spine | cervical spine (film) | gy | unit of radiation equal to 100 rads
CT | computed tomography | IVC | intravenous cholangiography
CXR | chest x-ray | IVP | intravenous pyelogram
IVU | intravenous urography | rad | radiation absorbed dose
MRA | magnetic resonance angiography | RAI | radioactive iodine
MRI | magnetic resonance imaging | RIA | radioimmunoassay
CASE STUDY

Receiving Treatment
Molly Pearl is 80 years old and is having frequent bouts of dizziness, has fallen five times, and is losing some feeling in her limbs. Her gerontologist has referred her to a clinic for neurological disorders where she is given a number of tests including an MRI and a CAT scan. The results of the tests show abnormalities that contribute to her symptoms.

Critical Thinking
36. Why do some imaging tests require the use of a contrast medium?
37. In what part of Molly Pearl’s body did the MRI likely show abnormalities?

COMBINING FORMS AND ABBREVIATIONS EXERCISES

Build Your Medical Vocabulary
Complete the terms below by adding a suffix from the list in this section.

38. Kidney removal: nephr___________
39. Recording of the heart: cardio___________
40. Imaging of an artery: arterio___________
41. Suture of a vein: phlebo___________
42. Surgical fixing of the bladder: cysto___________
43. Instrument for viewing the uterus: hystero___________
44. Creation of an opening into the bladder: cysto___________
45. Cutting of a nerve: neuro___________

Root Out the Meaning
Separate the following terms into word parts and define each word part.

46. cineangiocardiology___________
47. cineradiography___________
48. electrodiagnosis___________
49. electroencephalography___________
50. electrolysis___________
51. electrophoresis___________
52. electrophysiology___________
53. electrosurgery___________
54. fluoroscopy___________
55. microscope___________

ABBREVIATION MEANING ABBREVIATION MEANING
MUGA multigated acquisition scan SPECT single photon emission computed tomography
NMR nuclear magnetic resonance (imaging) U/S ultrasound
PET positron emission tomography V/Q ventilation perfusion scan
r roentgen XRT radiation therapy
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>56.</td>
<td>radiotherapy _____________</td>
</tr>
<tr>
<td>57.</td>
<td>radiopharmaceutical _____________</td>
</tr>
<tr>
<td>58.</td>
<td>sonogram _____________</td>
</tr>
<tr>
<td>59.</td>
<td>microsurgery _____________</td>
</tr>
<tr>
<td>60.</td>
<td>radiology _____________</td>
</tr>
<tr>
<td>61.</td>
<td>amniocentesis _____________</td>
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<td>62.</td>
<td>colocentesis _____________</td>
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<td>63.</td>
<td>thoracocentesis _____________</td>
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<td>64.</td>
<td>arthroclasia _____________</td>
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<td>65.</td>
<td>osteoclasis _____________</td>
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<td>66.</td>
<td>vasectomy _____________</td>
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<td>67.</td>
<td>cholecystogram _____________</td>
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<td>68.</td>
<td>electromyogram _____________</td>
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<td>69.</td>
<td>mammogram _____________</td>
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<td>70.</td>
<td>venogram _____________</td>
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<td>71.</td>
<td>angiography _____________</td>
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<td>72.</td>
<td>colonography _____________</td>
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<td>73.</td>
<td>hysteroplasty _____________</td>
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<tr>
<td>74.</td>
<td>dermatoplasty _____________</td>
</tr>
<tr>
<td>75.</td>
<td>keratoplasty _____________</td>
</tr>
</tbody>
</table>

**Using the Internet**

The governmental Agency for Health Care Policy and Research (www.ahcpr.gov/consumer/surgery/surgery.htm) maintains a Web site containing information about surgery. Go to the site and find at least five questions to ask your doctor before you have surgery.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

Root Out the Meaning

Separate the following terms into word parts and define each word part.

76. electrocauterization _____________
77. electrochemotherapy _____________
78. electrodesiccation _____________
79. fluorometry _____________
80. fluoroscope _____________
81. fluoroscopic _____________
82. microscopy _____________
83. radiography _____________
84. sonography _____________
85. sonographer _____________
86. ultrasonography _____________
87. ultrasound _____________
88. arthrocentesis _____________
89. pericardiocentesis _____________
90. pleurocentesis _____________
91. clastic _____________
92. adenoidectomy _____________
93. endarterectomy _____________
94. laryngectomy _____________
95. lobectomy _____________
96. mastectomy _____________
97. pneumonectomy _____________
98. prostatectomy _____________
99. onychectomy _____________
100. mammography _____________
101. nephrosonography _____________
102. colostomy _____________
103. ileostomy _____________
104. craniostomy _____________
105. cystolithotomy _____________
106. episiotomy _____________
107. laryngotracheotomy _____________
108. phlebotomy _____________
109. tenotomy _____________
110. tracheotomy _____________
111. bronchoplasty _____________
112. dermatoautoplasty _____________
113. neuroplasty _____________
114. rhinoplasty _____________
115. tenomyoplasty _____________
116. angiorrhaphy _____________
117. colpoperineorrhaphy _____________
118. neurrorrhaphy _____________
119. hysteropexy _____________
120. nephropexy _____________
121. pleuropexy _____________
122. endoscope _____________
123. laparoscope _____________
124. arthroscopy _____________
125. colonoscopy _____________
126. sigmoidoscopy _____________
127. adenotome _____________
128. dermatome _____________
129. mammotome _____________

Complete the Sentence

Circle the term that best describes the italicized description of the correct answer.

130. The roentogram required the use of radioactive particles with high penetrating ability in order to properly produce the visual needed to diagnose the condition. (alpha rays, beta rays, gamma rays)

131. The radiologist performed the implantation of radioactive elements directly into the tumor to reduce the size and hopefully eliminate the tumor altogether. (interstitial therapy, brachytherapy, intercavitary therapy)
132. A routine x-ray was not appropriate for the diagnosis of injured tissue because the tissue is *easily penetrated* by x-rays. (radiopaque, radiosensitive, radiolucent)

133. The small intestine was illuminated by the *contrast medium that showed up as white on the x-ray*. (barium, iodine, radionuclide)

134. _____________ are guidelines issued by the Centers of Disease Control for preventing the spread of disease. (aseptic procedures, standard precautions, or preventive procedures)

135. The patient hoped surgery *designed to restore a body part to its original state of appearance* would be successful. (cosmetic, manipulative, reconstructive)

**True or False**

Indicate in the blank whether the statement is true (T) or false (F).

136. ____ Mohs’ surgery is the removal of a carcinoma after mapping with a chemical to establish the narrowest possible margin of affected tissue. T F

137. ____ The destruction of tissue by burning is called cryocautery. T F

138. ____ Ultrasonography and sonography refer to the same process. T F

139. ____ Arthrography is the imaging of joints after injection of an iodine substance. T F

140. ____ A gallium scan, using a specific radionuclide (gallium-76) is used to locate tumors and cysts. T F

141. ____ An example of a manipulated or closed surgery would be correcting a simple dislocated joint. T F

**Check Your Spelling**

For each of the following terms, place a C if the spelling is correct. If it is not, write the correct spelling in the space provided.

142. kriogenic _____________ 143. suture _____________ 144. curette _____________ 145. interstitial _____________

**Definitions**

Define the following terms, combining forms, and suffixes. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.
**TERM**

176. gray (gy)
177. imaging [ĪM-ā-jīng]
178. interstitial [īn-tēr-STĪSH-āl] therapy
179. intracavitary [ĪN-trā-CĀV-ī-tār-ē] therapy
180. iodine [Ī-ō-dīn]
181. ion [Ī-ōn]
182. ionize [Ī-ōn-īz]
183. irradiated [ī-RĀ-de-āt-ēd]
184. magnetic resonance imaging (MRI)
185. malaise [mā-LĀZ]
186. manipulative [mā-NIP-yū-lā-tīv]
187. micr(o)
188. minimally invasive
189. Mohs' [mōhz] surgery
190. needle holder
191. nuclear medicine
192. operation
193. -opsy
194. -ostomy
195. PET (positron emission tomography) scan

**ABBREVIATION**

<table>
<thead>
<tr>
<th>238</th>
<th>BA</th>
<th>247</th>
<th>gy</th>
</tr>
</thead>
<tbody>
<tr>
<td>239</td>
<td>BaE</td>
<td>248</td>
<td>IVC</td>
</tr>
<tr>
<td>240</td>
<td>CAT</td>
<td>249</td>
<td>IVP</td>
</tr>
<tr>
<td>241</td>
<td>C-spine</td>
<td>250</td>
<td>IVU</td>
</tr>
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<td>242</td>
<td>CT</td>
<td>251</td>
<td>MRA</td>
</tr>
<tr>
<td>243</td>
<td>CXR</td>
<td>252</td>
<td>MRI</td>
</tr>
<tr>
<td>244</td>
<td>DSA</td>
<td>253</td>
<td>MUGA</td>
</tr>
<tr>
<td>245</td>
<td>ERCP</td>
<td>254</td>
<td>NMR</td>
</tr>
<tr>
<td>246</td>
<td>Fx</td>
<td>255</td>
<td>PET</td>
</tr>
</tbody>
</table>

**Abbreviations**

Write the full meaning of each abbreviation.

<table>
<thead>
<tr>
<th>ABREVIATION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>238. BA</td>
<td>247. gy</td>
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<tr>
<td>239. BaE</td>
<td>248. IVC</td>
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<td>240. CAT</td>
<td>249. IVP</td>
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<tr>
<td>241. C-spine</td>
<td>250. IVU</td>
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<td>242. CT</td>
<td>251. MRA</td>
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<td>243. CXR</td>
<td>252. MRI</td>
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<td>244. DSA</td>
<td>253. MUGA</td>
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<td>245. ERCP</td>
<td>254. NMR</td>
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<td>246. Fx</td>
<td>255. PET</td>
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<td>256. r</td>
<td>257. Ra</td>
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<td>258. rad</td>
<td>259. RAI</td>
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<tr>
<td>260. RIA</td>
<td>261. SPECT</td>
</tr>
<tr>
<td>262. U/S</td>
<td>263. V/Q</td>
</tr>
<tr>
<td>264. XRT</td>
<td></td>
</tr>
</tbody>
</table>
Answers to Chapter Exercises

1. Neurologists specialize in diagnosing central nervous system disorders, partially through imaging.

2. to check for brain anomalies not viewable on an x-ray

3. j
4. k
5. g
6. f
7. i
8. d
9. b
10. c
11. a
12. h
13. e
14. e
15. j
16. a
17. c
18. g
19. b
20. i
21. d
22. h
23. f
24. diagnostic
25. Any surgery requires aseptic conditions.
26. curette
27. surgical needles
28. probe
29. needle holder
30. retractor
31. clamps
32. dilator
33. forceps
34. staples
35. surgical scissors
36. to highlight certain areas of the body or to follow motion within the body
37. brain
38. nephrectomy
39. cardiomgram
40. arteriography
41. phlebophropy
42. cystoscopy
43. hysteroscope
44. cystotomy
45. neurotomy
46. cine, movement + angi(o), vessels + cardi(o), heart + -graphy, process of recording
47. cine, movement + radi(o), radiation + -graphy, process of recording
48. elect(o), electricity + -diagnosis, determining the nature of the medical problem
49. elect(o), electricity + encephal(o), brain + -graphy, process of recording
50. elect(o), electricity + -lysis, destruction
51. elect(o), electricity + -phoresis, carrying, transmission
52. elect(o), electricity + -physiology, functions, activities
53. elect(o), electricity + -surgery, treatment by operation or manipulation
54. fluor(o), light, luminous + -scopy, use of an instrument for observing
55. micr(o), small + -scope, instrument for observing
56. radi(o), radiation + -therapy, treatment
57. radi(o), radiation + -pharmaceutical, drug
58. son(o), sound + -gram, a recording
59. micr(o), small + -surgery, treatment by operation or manipulation
60. radi(o), radiation + -logy, study
61. amni(o), amnion + -centesis, puncture
62. col(o), colon + -centesis, puncture
63. thorac(o), chest + -centesis, puncture
64. arthr(o), joint + -clasia, breaking
65. oste(o), bone + -clasis, breaking
66. vas(o), vas deferens + -ectomy, removal of
67. cholecyst(o), gallbladder + -gram, a recording
68. elect(o), electricity, electrical + my(o), muscle + -gram, a recording
69. mamm(o), breast + -gram, a recording
70. ven(o), vein + -gram, a recording
71. angi(o), vessel + -graphy, process of recording
72. colon(o), colon + -graphy, process of recording
73. hyster(o), uterus + -plasty, surgical repair
74. dermat(o), skin + -plasty, surgical repair
75. kerat(o), cornea + -plasty, surgical repair
76. elect(o), electricity + -cauterization, destroying tissue
77. elect(o), electricity + chem(o), chemical + -therapy, treatment
78. elect(o), electricity + -desiccation, drying, destroying, or sealing tissue
79. fluor(o), light, luminous + -metry, measurement
80. fluor(o), light, luminous + -scope, instrument for observing
81. fluor(o), light, luminous + -scopic, pertaining to an instrument for observing
82. micr(o), small + -scope, use of an instrument for observing
83. radi(o), radiation + -graphy, process of recording
84. son(o), sound + -grapher, technician trained in
85. son(o), sound + -graphy, process of recording
86. ultra, beyond + son(o), sound + -graphy, process of recording
87. ultra, beyond + -sound, noise
88. arthr(o), joint + -centesis, puncture
89. peri-, around + cardi(o), heart + -centesis, puncture
90. pleur(o), pleura + -centesis, puncture
91. clast(o), breaking + -ic, pertaining to
92. adenoid(o), adenoids + -ectomy, removal of
93. end(o), within + arter(o), artery + -ectomy, removal of
94. laryng(o), larynx + -ectomy, removal of
95. lob(o), lobe + -ectomy, removal of
96. mast(o), breast + -ectomy, removal of
97. pneumon(o), lung + -ectomy, removal of
98. prostat(o), prostate gland + -ectomy, removal of
99. onych(o), nail + -ectomy, removal of
100. mamm(o), breast + -ography, process of recording
101. nephr(o), kidney + son(o), sound + -graphy, process of recording
102. col(o), colon + -stomy, opening
103. ile(o), ileum + -stomy, opening
104. cyst(o), bladder + lith(o), stone + -tomy, cutting operation
105. episi(o), vulva + -tomy, cutting operation
106. laryng(o), larynx + trache(o), trachea + -tomy, cutting operation
107. phleb(o), vein + -tomy, cutting operation
108. ten(o), tendon + -tomy, cutting operation
109. bronch(o), bronchus + -plasty, surgical repair
110. dermat(o), skin + aut(o), self + -plasty, surgical repair
111. neur(o), nerve + -plasty, surgical repair
112. rhin(o), nose + -plasty, surgical repair
113. ten(o), tendin + my(o), muscle + -plasty, surgical repair
114. angio(o), vessel + -rraphy, surgical suturing
115. colp(o), vagina + perine(o), perineum + -rraphy, surgical suturing
116. neur(o), nerve + -rraphy, surgical suturing
117. hyst(o), uterus + -rraphy, surgical suturing
118. neph(o), kidney + -pexy, surgical fixation
119. pleur(o), pleura + -pexy, surgical fixation
120. end(o), within + -scope, instrument for observing
121. lapar(o), abdominal wall + -scope, instrument for observing
122. arthr(o), joint + -scopy, use of an instrument for observing
123. colon(o), colon + -scopy, use of an instrument for observing
124. sigmoid(o), sigmoid colon + -scopy, use of an instrument for observing
125. aden(o), glandular tissue + -tome, cutting instrument
126. derm(a), skin tissue + -tome, cutting instrument
127. gamma rays
128. brachytherapy
129. barium
130. standard precautions
131. reconstructive
132. cryogenic
133. currête
134. answers are available in the vocabulary reviews in this chapter.
After studying this chapter, you will be able to:

20.1 Describe common mental disorders
20.2 Define combining forms and suffixes used in building words that relate to mental disorders
20.3 Identify the meaning of related abbreviations
20.4 Name the common tests, procedures, and treatments used in treating mental disorders
20.5 Recognize common pharmacological agents used in treating psychiatric ailments

Psychiatric Disorders Terms

Psychiatric or mental disorders (disorders of the mind) can have many causes. Heredity often plays a role. Environmental stresses may also contribute to mental illness, or medication taken for other ailments may be the underlying cause of symptoms. With the advent of sophisticated diagnostic imaging, some mental disorders that result from damage to the brain can be assessed by imaging or by physical testing (as of neurological responses). Most mental disorders, however, must be assessed by a specialist trained in understanding how a group of symptoms equals a mental disorder and how to treat that disorder. Many mental disorders are also diseases of the nervous system, such as Alzheimer’s disease, and are covered in Chapter 8.

Treatment usually involves either medication or psychotherapy (talk therapy) or a combination of both. It may also involve surgery or electroshock therapy (EST).

Psychiatry (Figure 20-1) is the medical specialty that diagnoses and treats mental disorders, usually ones that require medication. A psychiatrist is a medical doctor specializing in psychiatry. Psychiatrists sometimes provide talk therapy, often in combination with medication. Nonmedical practitioners who treat mental disorders using psychotherapy alone are called psychologists, psychotherapists (Figure 20-2), therapists, or social workers. These people may have a master’s degree or a doctorate. They usually have had extensive training in psychology, the profession that studies human behavior and nonmedical treatments of mental disorders. Such training gives them the ability to practice psychotherapy, treatment of mental disorders with verbal and nonverbal communication as opposed to treatment with medication alone. Psychotherapy is also known as talk therapy.
Dementia Symptoms

Mental disorders often include many types of emotional and behavioral symptoms. They may arise from an existing physical ailment, or they may lead to a physical ailment. Symptoms of emotional illnesses may include:

- aggressiveness, attacking forcefulness
- agitation, abnormal restlessness
- ambivalence, feeling of conflicting emotions about the same person or issue, as love–hate, pleasure–pain, and tenderness–cruelty
- anxiety, abnormal worry
- catalepsy, trancelike state with holding of one pose for a long time
- defensiveness, psychological process that enables an individual to deny, displace, or repress something that causes anxiety
- deliriousness, mental confusion, often with hallucinations that last for a brief period, as during a high fever
- delusional, having false beliefs resulting from disordered thinking
- dementia, disorder, particularly in older adulthood, with multiple cognitive defects, loss of intellectual functioning resulting in memory loss, and loss of decision-making abilities
- depression, condition with feelings of despair, loneliness, and low self-esteem
- paranoia, abnormal distrust of others
- phobia, obsessive fear of something
- psychosis, extreme disordered thinking

These terms all relate to some sort of mental or personality disorder. Some of the symptoms, such as depression and anxiety, are also the name of a disorder.

Mental Disorders

The American Psychiatric Association publishes the Diagnostic and Statistical Manual of Mental Disorders, currently in its fourth edition (1994). A full revision is being worked on and is expected to be ready in 2010. Known informally as DSM-IV, it lists the criteria on which mental disorders are diagnosed and categorized. The major mental disorders are as follows:

- Anxiety disorder and panic disorder—Anxiety disorder is a condition with chronic unrealistic fear over a period of time, usually affecting concentration and sleep, and causing fatigue. Panic disorder is a condition with
recurring panic attacks, short periods of intense and immobilizing fear. While having an attack, patients may feel they are suffering from shortness of breath and/or chest pain. Such attacks can mimic the symptoms of a heart attack, adding to the extreme fright experienced by the patient.

- Alcohol/substance abuse—Alcohol or substance abuse is a condition in which the patient uses alcohol or drugs recurrently and its use has affected the patient's ability to function at school or work and at home. Such patients are addicts, people who have difficulty avoiding alcohol or drugs.

- Obsessive-compulsive disorder (OCD)—Obsessive-compulsive disorder (OCD) is a condition with persistent thoughts and ideas that lead to tendencies to perform acts that are recurrent, time-consuming, repetitive, and ritualistic. This disorder usually involves a patient who is a perfectionist and inflexible. If severe, this can interfere with the patient's ability to function normally in daily life.

- Dissociative disorders—Dissociative disorders include a gradual or sudden loss of the ability to integrate memory, identity, and other mental abilities with the environment. Patients may have more than one identity or may become depersonalized to an extreme degree.

- Post-traumatic stress disorder (PTSD)—PTSD is a condition of extreme traumatic stress that may occur and last for years after a traumatic incident or a period of time in an extremely stressful environment. Prisoners of war, victims of torture, combat veterans, child abuse victims, and crime victims are just some of the people who are vulnerable to PTSD. PTSD does not necessarily show up immediately. It may take years before it develops.

- Eating disorders—Eating disorders include conditions with grossly disturbed eating habits. In anorexia nervosa, patients refuse to eat enough to maintain a normal body weight, usually accompanied by a distorted body image and an obsessive need to lose weight even, in some cases, to the point of starvation and death. No matter how thin the individual is, they perceive themselves as physically fat. Bulimia nervosa is a condition in which the patient binges (eats uncontrollably) and then purges (forces regurgitation). Pica is a condition in which the patient (usually a young child) eats nonnutritive substances, such as paint, clay, or sand, for a long period of time.

- Mental retardation (or developmental disability)—Usually a condition of birth, such as Down syndrome, mental retardation includes far below average intellectual functioning to the point of inability to care for oneself thoroughly and inability to function within a certain range of academic skills.

- Mood disorders—Mood disorders include conditions in which the patient has abnormal moods or mood swings. Depression, when it is diagnosed as clinical depression, is a disabling disorder with a loss of interest and pleasure in almost all activities. A clinically depressed person can become suicidal, in danger of killing him- or herself. Manic patients have moods that become dangerously elevated to the point of inability to work, sleep, concentrate, and maintain normal relationships. Bipolar or manic-depressive or mixed-episode disorders include drastic swings between manic and depressive moods.

   Bipolar disorder can usually be controlled with medication and those with this disorder can often lead productive lives. Those with the disorder who do not respond to or do not take their medication account...
for a large number of people with mental illness. Many people with untreated bipolar disorder are prevalent in the community and homeless shelters. Government funding has been decreasing in this area. As a result, allied health workers are seeing many of these patients in ambulatory care areas.

- **Personality disorders**—Personality disorders are conditions in which a destructive pattern of behavior is part of a maladjusted person’s everyday life. Included in personality disorders are obsessive-compulsive behavior, the characteristics of which are perfectionism and inflexibility; paranoia, extreme, unfounded mistrust of others; dependency, abnormal submissiveness, particularly in adulthood; narcissism, unusual preoccupation with oneself; histrionic, emotional, immature, and given to irrational outbursts; schizoid, emotionally cold and aloof; and sociopathy or antisocial behavior, having an unusually callous disregard for others and without moral standards.

- **Schizophrenia**—Schizophrenia has many degrees of severity. Most schizophrenics experience some hallucinations such as imagined inner voices directing their lives. New medications have made it possible for many schizophrenics to function in society. The most prominent symptom of schizophrenia is psychosis that interferes with the activities of daily living. A childhood mental disorder with morbid self-absorption, autism, is sometimes thought to have some of the same symptoms as schizophrenia.

- **Somatoform disorders**—Somatoform disorders include physical symptoms having a psychological basis. Hypochondria is the preoccupation with imagined illnesses in the patient’s body. Somatoform disorders also include intense preoccupation with imagined physical defects in one’s body.

Some mental difficulties do not rise to the level of a mental disorder and usually do not require medication for an extended period of time. For example, depression may be situational, as in the death of a loved one. In that case, it would not be classified as clinical depression. Patients with anxiety disorder have levels of anxiety that interfere with their overall functioning. Many people have anxieties that do not prevent them from functioning. Such people are said to have neuroses, behavioral conditions that the person has learned to cope with and that do not overwhelmingly affect daily functioning.

There are some mental disorders that affect functioning at a certain level but may go untreated for long periods of time since they do not include very obviously abnormal behaviors. Attention-deficit disorder (ADD) and adult ADD usually result in distracted behavior, such as an inability to focus at a high level. These disorders can range from mild to severe and are often very treatable with medication.

**Vocabulary Review**

In the previous section, you learned terms relating to psychiatric disorders. Before going on to the exercises, review the following terms and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>addict [Ä-D-ıkt]</td>
<td>One who is dependent on a substance (usually illegal, as narcotics) on a recurring basis.</td>
</tr>
<tr>
<td>aggressiveness [ä-GRÉS-ıv-nés]</td>
<td>Abnormal forcefulness toward others.</td>
</tr>
<tr>
<td>ambivalence [äm-BĪ-ä-lëns]</td>
<td>Feeling of conflicting emotions about a person or issue.</td>
</tr>
<tr>
<td>anorexia nervosa [än-ö-RËK-së-ä nër-VÔ-sä]</td>
<td>Eating disorder in which the patient refuses to eat enough to sustain a minimum weight.</td>
</tr>
<tr>
<td>anxiety [än-g-ZI-ë-të]</td>
<td>Abnormal worry.</td>
</tr>
<tr>
<td>bipolar [bî-PÔ-lå] disorder</td>
<td>Condition with drastic mood swings over a period of time.</td>
</tr>
<tr>
<td>catalepsy [KÄT-a-lèp-së]</td>
<td>Trancelike state with holding of one pose for a long period of time.</td>
</tr>
<tr>
<td>deliriousness [dë-LÈR-ë-üs-nës]</td>
<td>Mental confusion, often with hallucinations, usually having a physical cause such as a high fever.</td>
</tr>
<tr>
<td>delusional [dë-LÜ-zhûn-ål]</td>
<td>Having false beliefs resulting from disordered thinking.</td>
</tr>
<tr>
<td>dementia [dë-MÈN-shë-å]</td>
<td>Disorder, particularly in older adulthood, with multiple cognitive defects.</td>
</tr>
<tr>
<td>depression [dë-PRÈSH-ûn]</td>
<td>Disabling condition with a loss of interest and pleasure in almost all activities.</td>
</tr>
<tr>
<td>dissociative [dî-SÖ-së-ä-tîv] disorder</td>
<td>Condition with a gradual or sudden loss of the ability to integrate memory, identity, and other mental abilities with the environment.</td>
</tr>
<tr>
<td>manic [MÂN-îk]</td>
<td>Having a dangerously elevated mood.</td>
</tr>
<tr>
<td>mental retardation</td>
<td>Condition with below average intellectual functioning.</td>
</tr>
<tr>
<td>mixed-episode disorder</td>
<td>See bipolar disorder.</td>
</tr>
<tr>
<td>neurosis (pl., neuroses) [nû-RÖ-sîs (nû-RÖ-sëz)]</td>
<td>Behavior condition that usually involves anxiety that a patient can cope with and that does not rise to the level of psychosis.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>obsessive-compulsive disorder (OCD)</td>
<td>Condition with obsessive-compulsive feelings.</td>
</tr>
<tr>
<td>phobia [FÔ-be-ä]</td>
<td>Irrational or obsessive fear of something.</td>
</tr>
<tr>
<td>pica [PĪ-kā]</td>
<td>Eating disorder in which the patient compulsively eats nonnutritive substances, such as clay and paint.</td>
</tr>
<tr>
<td>post-traumatic stress disorder (PTSD)</td>
<td>Condition of extreme traumatic stress that can occur and last for years after a traumatic time or incident.</td>
</tr>
<tr>
<td>psychiatry [sĭ-KĬ-ă-trē]</td>
<td>Medical specialty concerned with the diagnosis and treatment of mental disorders.</td>
</tr>
<tr>
<td>psychology [sĭ-KÔL-ŏ-jĕ]</td>
<td>Profession that studies human behavior and treats mental disorders.</td>
</tr>
<tr>
<td>psychosis [sĭ-KŎ-sĭs]</td>
<td>Extreme disordered thinking.</td>
</tr>
<tr>
<td>psychotherapy [sĭ-kō-THĀR-ă-pē]</td>
<td>Treatment of mental disorders with verbal and nonverbal communication.</td>
</tr>
<tr>
<td>schizophrenia [skĭz-ŏ-FRĒ-nē-ă]</td>
<td>Condition with recurring psychosis, with hallucinations.</td>
</tr>
<tr>
<td>social worker</td>
<td>Nonmedical professional who is trained as an advocate for people (such as the elderly or children) and may also be trained in the treatment of mental disorders.</td>
</tr>
<tr>
<td>sociopathy [SÔ-sē-ŏ-pâth-ē]</td>
<td>Extreme callous disregard for others.</td>
</tr>
<tr>
<td>somatoform [SÔ-mă-tō-fŏrm, sŏ-MÂT-ŏ-fŏrm]</td>
<td>Mental disorders including physical symptoms that have a psychological base.</td>
</tr>
<tr>
<td>disorders</td>
<td></td>
</tr>
<tr>
<td>therapist [THĀR-ă-pĭst]</td>
<td>Nonmedical professional trained in the treatment of mental disorders through talk therapy.</td>
</tr>
</tbody>
</table>

### CASE STUDY

**Working with Addiction**

Alfred Willett has returned to the Drug Treatment Center (DTC) at a local hospital. Alfred, 50 years old, has been an inpatient for alcoholism at the DTC two times in the past. He had been sober for four years, but recently he started using both alcohol and cocaine.

Since returning to his addictions, Alfred’s health has declined. The DTC has Alfred see the in-house physician for a check-up and one of the staff psychologists for an evaluation. His health history reveals that he is diabetic and has a smoker’s cough. The current checkup finds a slight loss of hearing, but nothing else that is significant since his last inpatient admission four years ago.

Before Alfred can take advantage of the group and individual therapies available at DTC, he must first stay in the detoxification unit where he will be helped to rid his system of alcohol and cocaine. Often this withdrawal period is painful. A total withdrawal from alcohol can cause DT (*delirium tremens*).

### Critical Thinking

1. What is the medical term for Alfred’s behavior?
2. Why would both a physical and psychological evaluation be necessary?
Psychiatric Disorders Exercises

Match the definition on the right with the term on the left.

3. ____ defensiveness
   a. obsessive fear of something

4. ____ paranoia
   b. abnormal restlessness

5. ____ phobia
   c. abnormal forcefulness

6. ____ agitation
   d. abnormal worry

7. ____ ambivalence
   e. psychological process that enables one to deny, displace, or repress something

8. ____ catalepsy
   f. abnormal distrust of others

9. ____ delusional
   g. feeling of conflicting emotions about a person or issue

10. ____ aggressiveness
    h. mental confusion often with hallucinations

11. ____ anxiety
    i. trancelike state with holding of one pose for a long time

12. ____ delirious
    j. having false beliefs resulting from disordered thinking

Spell It Correctly

For each of the following words, write C if the spelling is correct. If it is not, write the correct spelling.

13. psychiatrist _____________
    17. schizophrenia _____________

14. paranoia _____________
    18. hypochondria _____________

15. anxiety _____________
    19. catalepsy _____________

16. boulimia _____________
    20. dementia _____________

Combining Forms and Abbreviations

The lists below include combining forms, suffixes, and abbreviations that relate specifically to psychiatry. Pronunciations are provided for the examples.

<table>
<thead>
<tr>
<th>Combining Form</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>hypn(o)</td>
<td>sleep</td>
<td>hypnosis [hɪp-nəʊ-sɪs], artificially induced trancelike state</td>
</tr>
<tr>
<td>neur(o), neuri</td>
<td>nerve, nervous system</td>
<td>neurosis [njuː-rɒsɪs], psychological condition with abnormal anxiety</td>
</tr>
<tr>
<td>psych(o), psyche</td>
<td>mind, mental</td>
<td>psychosocial [sɪ-kəʊ-səʊ-ʃʊl], pertaining to both the psychological and social aspects</td>
</tr>
<tr>
<td>schiz(o)</td>
<td>split, schizophrenia</td>
<td>schizophasia [skɪz-ə-fəs-ə], disordered speech of some schizophrenics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-mania</td>
<td>abnormal impulse toward</td>
<td>hypermania [hɪ-pər-mə-ni-ə], extreme impulsivity toward someone or something</td>
</tr>
<tr>
<td>-philia</td>
<td>craving for, affinity for</td>
<td>necrophilia [nɛk-roʊ-ˈfɪl-ə], abnormal affinity for the dead</td>
</tr>
</tbody>
</table>
### Combining Forms and Abbreviations Exercises

**Build Your Medical Vocabulary**

Add one of the following suffixes to complete the term: -mania, -philia, -phobia.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-phobia</td>
<td>abnormal fear of</td>
<td>clausrophobia [klō-șrō-FÔ-bē-å], abnormal fear of confined spaces</td>
</tr>
<tr>
<td>-phobia</td>
<td>feeling</td>
<td>euphoria [yū-FÔR-ē-å], feeling of well-being</td>
</tr>
</tbody>
</table>

**CASE STUDY**

**Moving on in Treatment**

DTC’s patients come from all age and social groups. Once Alfred is released from the detoxification unit, he starts at Level 1, the level with the least personal freedom and with the most intensive scrutiny. All of Alfred’s visitors and any packages he receives are examined for drugs. Alfred is given daily urine tests. He is encouraged to participate in a self-help organization such as AA, which holds meetings once a week at DTC.

**Critical Thinking**

21. Many people drink alcohol in moderation. Do you think Alfred can learn to be a moderate drinker?

22. How is drug monitoring being applied in Alfred’s case?

**COMBINING FORMS AND ABBREVIATIONS EXERCISES**

**Build Your Medical Vocabulary**

Add one of the following suffixes to complete the term: -mania, -philia, -phobia.

23. Unnatural attraction to dead people: necro ____________

24. Disorder with intense desire to steal: klepto ____________
25. Unnatural fear of public places: agora ___________
26. Unnatural attraction to children: pedo ___________

Write the abbreviation(s) that best fits the description for each item below.

27. Self-help organization: ___________
28. Test of intelligence: ___________
29. Type of therapy: ___________
30. Type of mental disorder: ___________
31. Official diagnostic manual: ___________

Psychiatric Treatment Terms

Usually before treatment starts, either a clear diagnosis is made or the patient is put through a series of psychological tests designed to reveal intellectual ability and social functioning, along with an analysis of personality traits. Tests such as the Stanford-Binet IQ Test (testing intellectual ability) and the Thematic Apperception Test (testing personality traits) are widely used. The Rorschach Test asks patients to interpret an ink blot thereby revealing certain personality traits. The Minnesota Multiphasic Personality Inventory is a test of personality traits used at many stages of diagnosis and treatment.

Treatment of mental disorders is often based on a combination of psychopharmacology, the science that deals with medications to treat mental disorders, and psychotherapy. Psychotherapists have developed a number of techniques for changing patterns of thought and behavior. For children, play therapy, having a child reveal feelings through play, can provide a guide to treatment. Some therapists use biofeedback, a method of measuring physical responses (blood pressure or brain waves, for example) to emotional issues, and then use these responses to retrain the client to better recognize and deal with these stressors. Others use hypnosis, a state of semiconsciousness in which the patient may be able to reveal hidden thoughts and may be open to suggestions from the person performing the hypnosis. Psychoanalysis attempts to have the patient bring unconscious emotions to the surface to deal with them. Behavior therapy is the changing of a destructive pattern of behavior by substitution of a beneficial pattern of behavior. Group therapy involves a small group of people led by a trained psychotherapist who guides discussions among the participants in an attempt to get them to be open and to change personality problems in long discussions with others.

Various treatment centers around the country treat drug and alcohol addiction as well as eating disorders and many other mental disorders. Most use medications, behavior therapy or behavior modification, and individual talk as well as group therapy.

Electroshock therapy (EST) or electroconvulsive therapy (ECT) is the use of electric current to a specific area of the brain that changes the brain’s electrical activity or “scrambles” the communication from that area to the thought processes. This is only used for very severe cases that have failed to respond to medication and/or therapy. This treatment has made some drastic changes over the years. In the past, patients receiving this treatment were literally strapped to a table and electrodes were placed on their head. Patients would often have grand mal seizures as the current flowed through the brain. A piece of rubber was
usually placed in the mouth to prevent them from biting their tongue. Today, EST patients receive a general anesthetic. They also have milder or fewer seizures since the current is now controlled by more sophisticated equipment.

**VOCABULARY REVIEW**

In the previous section, you learned terms relating to psychiatric treatment. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>behavior modification</td>
<td>Substitution of a beneficial behavior pattern for a destructive behavior pattern.</td>
</tr>
<tr>
<td>behavior therapy</td>
<td>Therapy that includes the use of behavior modification.</td>
</tr>
<tr>
<td>biofeedback</td>
<td>Method of measuring physical responses to emotional issues.</td>
</tr>
<tr>
<td>electroconvulsive [ě-LĒK-trō-kôn-VŪL-sīv] therapy (ECT)</td>
<td>See electroshock therapy.</td>
</tr>
<tr>
<td>electroshock [ě-LĒK-trō-shōk] therapy (EST) electro-, electrical + shock</td>
<td>Passing of electric current through a specific area of the brain to change or “scramble” communication from that area to the thought processes.</td>
</tr>
<tr>
<td>group therapy</td>
<td>Talk therapy under the leadership of a psychotherapist in which the members of the group discuss their feelings and try to help each other improve.</td>
</tr>
<tr>
<td>play therapy</td>
<td>Revealing of feelings through play with a trained therapist.</td>
</tr>
<tr>
<td>psychoanalysis [sī-kō-ā-NĀL-i-sīs] psycho-, psychological + analysis</td>
<td>Therapy that attempts to have patients bring unconscious emotions to the surface to deal with them.</td>
</tr>
</tbody>
</table>
CASE STUDY

Dealing with Life Changes

Alfred’s psychological evaluation reveals that he started abusing alcohol and drugs again about three months after his wife left him. He is the superintendent of a large apartment building and relations with the tenants have worsened. The psychologist observes that Alfred is having trouble dealing with the recent changes in his life. She also feels that counseling to help him deal with these changes would benefit him. At the moment, she suspects that he is depressed, but she does not speak to the staff psychiatrist about prescribing medication until he has been reevaluated after detoxification.

Critical Thinking

32. Why might it be easier to determine if Alfred suffers from depression after the process of detoxification?
33. Why is counseling used in combination with medications?

PSYCHIATRIC TREATMENT TERMS EXERCISES

Explain the type of therapy and when and/or with whom it would be useful.

34. play therapy
35. biofeedback
36. hypnosis
37. behavior therapy
38. group therapy
39. electroshock therapy

Pharmacological Terms

Psychopharmacology is the science that deals with medications that affect the emotions. Pharmacokinetics is the study of the action of drugs on the body. Many beneficial drugs have been developed that stop or slow the progress of neurotic and psychotic behavior. Antianxiety agents generally calm anyone with moderate anxiety. Antipsychotic agents relieve the agitation and, sometimes, the disordered thinking of psychotics. Antidepressants control the effects of clinical depression on a patient. Ataractics and tranquilizers relieve anxiety. Many of these psychopharmaceuticals have possible harmful side effects, such as impaired liver or kidney function. For that reason, many patients on such drugs need to have therapeutic drug monitoring (TDM), the regular measurement of blood for levels and effectiveness of prescribed medicines. Drug monitoring is also used to detect illegal substances in the blood or urine of addicts in treatment. Table 20-1 lists common psychopharmaceuticals used in treatment.

Illegal drugs can have a negative effect on emotions. Mind-altering substances, psychedelics, or hallucinogens are illegal substances that produce disturbed thoughts and illusions in a normal person. Most illegal substances are mind-altering to a greater or lesser degree. Because illegal drugs are not monitored, many addicts die each year after an overdose, a toxic dose of a substance. People also use legal drugs in illegal doses to get “high,” having a feeling of temporary euphoria. The well-publicized “war on drugs” is an attempt to limit access to such drugs while dissuading addicts from using drugs. A relatively recent development in the illegal use of drugs is
the explosion of sales of prescription drugs over the Internet. Many drugs can be obtained without legal prescriptions. This had led to addictions and overdoses.

### TABLE 20-1 Some Agents Used in Psychopharmacology

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Purpose</th>
<th>Generic</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>antianxiety agent, ataractic, tranquilizer, sedative</td>
<td>to relieve anxiety</td>
<td>alprazolam</td>
<td>Xanax</td>
</tr>
<tr>
<td></td>
<td></td>
<td>diazepam</td>
<td>Valium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lorazepam</td>
<td>Ativan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>temazepam</td>
<td>Restoril</td>
</tr>
<tr>
<td>antidepressant</td>
<td>to relieve clinical depression</td>
<td>fluoxetine</td>
<td>Prozac</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sertraline</td>
<td>Zoloft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>paroxetine</td>
<td>Paxil</td>
</tr>
<tr>
<td>antipsychotic</td>
<td>to relieve agitation and some psychoses</td>
<td>aripiprazole</td>
<td>Abilify</td>
</tr>
<tr>
<td></td>
<td></td>
<td>clozapine</td>
<td>Clozaril</td>
</tr>
<tr>
<td></td>
<td></td>
<td>risperidone</td>
<td>Risperdal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>olanzapine</td>
<td>Zyprexa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ziprasidene</td>
<td>Geodon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>haloperidol</td>
<td>Haldol</td>
</tr>
</tbody>
</table>

### VOCABULARY REVIEW

In the previous section, you learned terms about pharmacology. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>antianxiety agent</td>
<td>Tranquilizer.</td>
</tr>
<tr>
<td>antidepressant [ÅN-tē-dē-PRĒS-ānt]</td>
<td>Agent that controls the effects of clinical depression.</td>
</tr>
<tr>
<td>antipsychotic [ÅN-tē-sē-KÕT-ēk] agent</td>
<td>Agent that relieves agitation and some psychoses.</td>
</tr>
<tr>
<td>psychopharmacology [sī-kō-FÄR-mä-KÕL-ō-jē]</td>
<td>Science that deals with medications that affect the emotions.</td>
</tr>
<tr>
<td>therapeutic drug monitoring (TDM)</td>
<td>Taking of regular blood or urine tests to track drug use and effectiveness of medication.</td>
</tr>
<tr>
<td>tranquilizer [TRÄNG-kwi-ลี-zēr]</td>
<td>Medication used to relieve anxiety.</td>
</tr>
</tbody>
</table>
**Case Study**

**Talking to a Therapist**

After three weeks, Alfred seems quite depressed. He is having trouble relating to the other patients. Alfred’s psychologist prescribes therapy sessions three times a week, but does not ask the psychiatrist for antidepressant medications at this time. The psychologist encourages Alfred to express his feelings about his children and his ex-wife, while also encouraging him to understand why his marriage broke up.

**Critical Thinking**

40. Medication for mental disorders is often regarded as a quick fix. What does it NOT accomplish?

41. The circumstances in Alfred’s life could certainly depress someone, but Alfred is not being diagnosed with the mental disorder depression. Why did the psychologist prescribe psychotherapy?

**Pharmacological Terms Exercises**

Fill in the blanks.

42. An ataractic is a type of _____________.

43. A medication used to relieve agitation and some psychoses is a(n) _____________.

44. A mind-altering substance is a(n) _____________.

45. The science that studies the actions of drugs on the body is _____________.

**Using the Internet**

Go to the American Psychological Association’s Web site (www.apa.org). Find information about three mental disorders and describe each in a paragraph.
## CHAPTER REVIEW

The material that follows is to help you review this chapter.

### DEFINITIONS

Define the following terms, combining forms, and suffixes. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.</td>
<td>addict [ĀD-ik]</td>
</tr>
<tr>
<td>47.</td>
<td>aggressiveness [ā-GRÈS-iv-nēs]</td>
</tr>
<tr>
<td>48.</td>
<td>agitation [ā-jī-TĀ-shūn]</td>
</tr>
<tr>
<td>49.</td>
<td>ambivalence [ām-BĪV-ā-lēns]</td>
</tr>
<tr>
<td>50.</td>
<td>anorexia nervosa [ān-o-RÈK-sē-ā-nēr-VŌ-sā]</td>
</tr>
<tr>
<td>51.</td>
<td>antianxiety agent</td>
</tr>
<tr>
<td>52.</td>
<td>antidepressant [ĀN-tē-dē-PRES-ānt]</td>
</tr>
<tr>
<td>53.</td>
<td>antipsychotic [ĀN-tē-sī-KÔT-ik] agent</td>
</tr>
<tr>
<td>54.</td>
<td>anxiety [āng-ZI-ē-tē]</td>
</tr>
<tr>
<td>55.</td>
<td>ataractic [ā-tā-RĀK-tik]</td>
</tr>
<tr>
<td>56.</td>
<td>autism [ĀW-tīzəm]</td>
</tr>
<tr>
<td>57.</td>
<td>behavior modification</td>
</tr>
<tr>
<td>58.</td>
<td>behavior therapy</td>
</tr>
<tr>
<td>59.</td>
<td>biofeedback [bī-ō-FĒD-bāk]</td>
</tr>
<tr>
<td>60.</td>
<td>bipolar [bī-PÔ-lār] disorder</td>
</tr>
<tr>
<td>61.</td>
<td>bulimia nervosa [bū-LĒM-ē-ā, bī-LĒM-ē-ā, bū-LIRM-ē-ā, bū-LĪM-ē-ā nēr-VŌ-sā]</td>
</tr>
<tr>
<td>62.</td>
<td>catalepsy [KĀT-ā-lēp-sē]</td>
</tr>
<tr>
<td>63.</td>
<td>deliriousness [dē-LĒK-ē-ūs-nēs]</td>
</tr>
<tr>
<td>64.</td>
<td>delusional [dē-LŪ-zhūn-āl]</td>
</tr>
<tr>
<td>65.</td>
<td>dementia [dē-MĒN-shē-ā]</td>
</tr>
<tr>
<td>66.</td>
<td>depression [dē-PRĒSH-ūn]</td>
</tr>
<tr>
<td>67.</td>
<td>dissociative [dī-SÔ-sē-ā-tīv] disorder</td>
</tr>
<tr>
<td>68.</td>
<td>electroconvulsive [ē-LĒK-trō-kōn-VŪL-sēv] therapy (ECT)</td>
</tr>
<tr>
<td>69.</td>
<td>electroshock [ē-LĒK-trō-shōk] therapy (EST)</td>
</tr>
<tr>
<td>70.</td>
<td>group therapy</td>
</tr>
<tr>
<td>71.</td>
<td>hypn(o)</td>
</tr>
<tr>
<td>72.</td>
<td>hypnosis [hīp-NÔ-sēs]</td>
</tr>
<tr>
<td>73.</td>
<td>hypochondria [hī-pō-KÒN-drē-ā]</td>
</tr>
<tr>
<td>74.</td>
<td>-mania</td>
</tr>
<tr>
<td>75.</td>
<td>manic [MĀN-ik]</td>
</tr>
<tr>
<td>76.</td>
<td>manic-depressive [MĀN-ik dē-PRĒ-sēv] disorder</td>
</tr>
<tr>
<td>77.</td>
<td>mental retardation</td>
</tr>
<tr>
<td>78.</td>
<td>mixed-episode disorder</td>
</tr>
<tr>
<td>79.</td>
<td>neur(o), neuri</td>
</tr>
<tr>
<td>80.</td>
<td>neurosis (pl., neuroses) [nū-RŌ-sēs, nū-RÔ-sēz]</td>
</tr>
<tr>
<td>81.</td>
<td>obsessive-compulsive disorder (OCD)</td>
</tr>
<tr>
<td>82.</td>
<td>overdose [Ō-vēr-dōs]</td>
</tr>
<tr>
<td>83.</td>
<td>paranoia [pār-ā-NÔY-ā]</td>
</tr>
<tr>
<td>84.</td>
<td>-philia</td>
</tr>
<tr>
<td>85.</td>
<td>phobia [FÔ-bē-ā]</td>
</tr>
<tr>
<td>86.</td>
<td>-phobia</td>
</tr>
<tr>
<td>87.</td>
<td>-phoria</td>
</tr>
<tr>
<td>88.</td>
<td>pica [PĪ-kā]</td>
</tr>
<tr>
<td>89.</td>
<td>play therapy</td>
</tr>
<tr>
<td>90.</td>
<td>post-traumatic stress disorder (PTSD)</td>
</tr>
<tr>
<td>91.</td>
<td>psych(o), psyche</td>
</tr>
<tr>
<td>92.</td>
<td>psychiatry [sī-KĪ-ā-trē]</td>
</tr>
<tr>
<td>93.</td>
<td>psychoanalysis [sī-kō-ā-NĀL-ā-sīs]</td>
</tr>
<tr>
<td>94.</td>
<td>psychology [sī-KÔL-ō-jē]</td>
</tr>
<tr>
<td>95.</td>
<td>psychopharmacology [sī-kō-FĀR-mā-KÔL-ō-jē]</td>
</tr>
<tr>
<td>96.</td>
<td>psychosis [sī-KÔ-sēs]</td>
</tr>
<tr>
<td>97.</td>
<td>psychotherapy [sī-kō-THĀR-ā-pē]</td>
</tr>
<tr>
<td>98.</td>
<td>schiz(o)</td>
</tr>
<tr>
<td>99.</td>
<td>schizophrenia [skīz-ō-FĒRē-nē-ā]</td>
</tr>
<tr>
<td>100.</td>
<td>social worker</td>
</tr>
<tr>
<td>101.</td>
<td>sociopathy [SÔ-sē-ō-pāth-ē]</td>
</tr>
<tr>
<td>103.</td>
<td>therapeutic drug monitoring (TDM)</td>
</tr>
<tr>
<td>104.</td>
<td>therapist [THĀR-ā-pīst]</td>
</tr>
<tr>
<td>105.</td>
<td>tranquilizer [TRĀNG-kwī-lī-zēr]</td>
</tr>
</tbody>
</table>
### Abbreviations

Write the full meaning of each abbreviation.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Anonymous Alcoholics (AA)</td>
</tr>
<tr>
<td>AAMR</td>
<td>American Association on Mental Retardation (AAMR)</td>
</tr>
<tr>
<td>ADD</td>
<td>Attention Deficit Disorder (ADD)</td>
</tr>
<tr>
<td>APA</td>
<td>American Psychiatric Association (APA)</td>
</tr>
<tr>
<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders (DSM)</td>
</tr>
<tr>
<td>DT</td>
<td>Daily Treatment (DT)</td>
</tr>
</tbody>
</table>
1. alcohol/substance abuse, addiction
2. to see if a physical problem or another mental disorder is causing some of Alfred’s problems
3. e
4. f
5. a
6. b
7. g
8. i
9. j
10. c
11. d
12. h
13. psychiatrist
14. C
15. anxiety
16. bulimia
17. schizophrenia
18. C
19. catalepsy
20. C
21. No, addiction is a mental disorder; addicts do not usually have enough control.
22. daily urine tests and checking all packages and visitors
23. necrophilia
24. kleptomania
25. agoraphobia
26. pedophilia
27. AA
28. IQ
29. ECT or EST
30. PTSD, ADD, or OCD
31. DSM
32. Drugs and alcohol can produce symptoms of other mental disorders.
33. Alfred needs to talk about his problems. Talk therapy can help a patient deal realistically with the actual stressors in his or her life.
34. observing and talking through play—children
35. measuring physical responses to psychological situations—for individuals who can be retrained to deal with stressors
36. state of semiconsciousness in which the patient may be able to reveal hidden thoughts and may be open to suggestions from the person performing the hypnosis
37. retraining of behavior—for anyone with destructive patterns of behavior that cause severe problems
38. talking out problems to a group of people with similar difficulties—for anyone needing psychological and social support
39. use of electric current to affect the brain—for anyone whose serious mental disorder has not responded to all other types of treatment
40. dealing with issues underlying the mental disorder
41. Alfred’s depression was due to situations in his life, not to the mental disorder.
42. tranquilizer
43. antipsychotic
44. psychedelic or hallucinogen
45. pharmacokinetics
46–122. Answers are available in the vocabulary reviews in this chapter.
Terms in Dental Practice

After studying this chapter, you will be able to:

21.1 Name the parts of the body treated in dentistry
21.2 Describe the function of each body part treated in dentistry
22.2 Define combining forms used in building words that relate to dental practice
22.3 Identify the meaning of related abbreviations
22.4 Name the common diagnostic, pathological, and treatment terms related to dental practice
22.5 Recognize common pharmacological agents used in dental practice

Terms in Dental Care

Dental practice (also known as dentistry or odontology) is the profession that studies, diagnoses, and treats the teeth and gums and any other parts of the oral cavity and facial structure that interact with teeth and gums. Dental practice includes prevention, diagnosis, and treatment, including both reconstructive and cosmetic surgery. Dentists are trained practitioners generally assisted by dental hygienists, licensed health care professionals who have completed extensive educational and clinical preparation in preventive oral health care, by dental assistants who take x-rays, assist the dentist in providing treatment, and perform general office tasks, and by dental laboratory technicians who work in the dental lab creating fixed or removable prosthetic devices such as crowns or bridges. Figure 21-1 shows a patient being treated by a dentist and a dental hygienist assisting the dentist.

The oral cavity is part of the digestive system. Teeth and gums help masticate or chew food in the beginning of the digestive process. They are also important to speech and general appearance. The gums or gingivae surround the bony sockets that hold the teeth in place. The gingivae are dense fibrous tissue that attach to and surround the necks of the teeth and adjacent alveolar bone of the jaw inside the oral cavity.

Infants are born with no visible teeth but they usually have 20 primary teeth that have formed inside the gums. Primary teeth or deciduous teeth begin to erupt through the gum tissue at regular intervals at about six months. The twenty primary teeth, ten in the upper jaw and ten in the lower jaw, are usually all in place by age three. Pedodontists are dentists who specialize in treating children. Early good dental hygiene can also affect the development of the hard palate and facial structure. Then, at about age six, the secondary
or permanent teeth begin to develop and push the primary teeth out of their sockets at regular intervals. Ultimately, by as late as the mid-twenties, most people have gone through the teething process, and all thirty-two permanent teeth have developed. Permanent teeth are not replaced by the body if they are lost (Figure 21-2).

**FIGURE 21-2** Primary and Secondary Teeth.
Each tooth has a **crown**, the part projecting above the jawline, and a **root**, the part below the jawline. The crown consists of an outer layer of glossy, hard, white **enamel**, and an inner layer of hard bony substance called **dentin** surrounding the central portion of the tooth, the **pulp cavity**. The pulp cavity contains connective tissue, blood vessels, and nerves called the **pulp**, the life source of the tooth. The pulp extends down into the root of the tooth. **Root canals** are tubular structures that carry the blood vessels and nerves from the bottom of the jaw up into the pulp cavity. The root of the tooth is held in place by **cementum**, a bony material surrounding the root, and a **periodontal ligament**, fibrous material that connects the cementum to the jawbone.

The average human has three types of primary teeth and four types of secondary teeth. **Primary teeth** include incisors, cuspids, and molars. The **first molar** sits next to the cuspid, and the **second molar** sits at the back of a child's jaw. These molars are sometimes called **premolars**. **Incisors** are the cutting teeth on either side of the center line of the jaw. The **central incisors** are the teeth on either side of the center line—two on top and two on bottom. Next, are the **lateral incisors** or second incisors. The **cuspid**, a tooth with a sharp-pointed projection called a **cusp** sits next to the lateral incisor. Cuspidis are also known as **canines or eyeteeth**. There are three **molars**. The **first molar** sits next to the cuspid, and the **second molar** sits at the back of a child's jaw. These molars are sometimes called **premolars**.

The types of secondary teeth include incisors, cuspids, and molars, as well as **bicuspids**. The secondary teeth also have central and lateral incisors, followed by one cuspid tooth. Next to each cuspid tooth is a **first bicuspid**, followed by a **second bicuspid**. Bicuspids are so named because they each have two cusps.

Permanent teeth include a first, second, and **third molar** on each side of the jaw, both top and bottom. The third molar is popularly known as a **wisdom tooth**, because it usually appears after a person is fully grown.

In dental care, the outer surfaces of teeth are referred to in special terms. The **labial surfaces** are the parts of the teeth nearest the inner lip that meet when the mouth is closed. The **buccal surface** is on the side of teeth nearest the cheek. The lingual surface is the inside surface of teeth nearest the tongue. The **mesial surface** is the short side of the tooth nearest the midline of the jawline, and the **distal surface** is the short side of the tooth farthest from the midline of the jawline. Figure 21-3 shows the names used for the surfaces of teeth.

**FIGURE 21-3** Dental work on tooth surfaces is usually labeled by the name of the tooth surface.
In the previous section, you learned terms related to dental care. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>bicuspid [bi-KÜS-pid]</td>
<td>Fourth and fifth tooth from the median of the jawline with two cusps.</td>
</tr>
<tr>
<td>canine [KĀ-nīn]</td>
<td>Cuspid.</td>
</tr>
<tr>
<td>cementum [sē-MĒN-tūm]</td>
<td>Bony material surrounding the root of the tooth.</td>
</tr>
<tr>
<td>central incisor</td>
<td>Tooth on either side of the center jawline.</td>
</tr>
<tr>
<td>crown [krōwn]</td>
<td>Part of the tooth projecting above the jawline.</td>
</tr>
<tr>
<td>cusp [kūsp]</td>
<td>Sharp-pointed tooth projection.</td>
</tr>
<tr>
<td>cuspid [KUS-pidl]</td>
<td>Third tooth from the midline of the jawline with a cusp.</td>
</tr>
<tr>
<td>deciduous teeth [dē-SĪD-yū-ūs]</td>
<td>Primary teeth.</td>
</tr>
<tr>
<td>dentin [DĒN-tīn]</td>
<td>Inner bony layer of the crown of a tooth.</td>
</tr>
<tr>
<td>dentist [DĒN-tīst]</td>
<td>Practitioner trained in dentistry.</td>
</tr>
<tr>
<td>eyetooth [Ī-tūth]</td>
<td>Cuspid.</td>
</tr>
<tr>
<td>first bicuspid</td>
<td>Fourth tooth from the midline of the jawline.</td>
</tr>
<tr>
<td>first molar</td>
<td>Sixth tooth from the midline of the jawline.</td>
</tr>
<tr>
<td>gingivae [JĪN-jī-vī]</td>
<td>Gum tissue.</td>
</tr>
<tr>
<td>gums [gūmz]</td>
<td>Dense fibrous tissue that attaches to and surrounds the necks of the teeth and adjacent alveolar bone of the jaw inside the oral cavity.</td>
</tr>
<tr>
<td>incisor [in-SĪ-zər]</td>
<td>First and second tooth next to the midline of the jawline.</td>
</tr>
<tr>
<td>lateral incisor</td>
<td>Second tooth from the midline of the jawline.</td>
</tr>
<tr>
<td>molar [MŌ-lār]</td>
<td>Any of the three teeth at the back of the mouth furthest from the midline of the jawline.</td>
</tr>
<tr>
<td>permanent teeth</td>
<td>Second set of teeth that erupt at regular intervals starting at around age six.</td>
</tr>
</tbody>
</table>
Leila Secor made an appointment for a dental cleaning and checkup. Leila, a 42-year-old mother of two, had lost several teeth after the birth of her youngest child 8 years ago. During pregnancy, the mother’s calcium is used first for fetal development. Her own teeth and gums may weaken as a result. Leila now goes to the dentist regularly, and her teeth and gums have improved. Her dentist, Dr. Jack, examined her teeth and gums and pronounced everything in order. The hygienist then cleaned Leila’s teeth carefully, and instructed her on a few areas Leila might want to floss more thoroughly.

**Critical Thinking**

1. Are gums important to teeth?
2. Why is diet particularly important for pregnant women’s dental health?

---

### Terms in Dental Care: Exercises

**Check Your Knowledge**

Circle T for true or F for false.

3. Wisdom teeth are only secondary teeth. T F
4. The pulp of a tooth is the gum. T F
5. Primary teeth erupt through the gums all at once. T F
6. The outer layer of a tooth is the enamel. T F
7. The buccal surface is the side nearest the lip. T F
Combining Forms and Abbreviations

The lists below include combining forms and abbreviations that relate specifically to dentistry. Pronunciations are provided for the examples.

<table>
<thead>
<tr>
<th>COMBINING FORM</th>
<th>MEANING</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>dent(o), denti</td>
<td>tooth</td>
<td>dentalabial [DĒN-tī-LĀ-bē-ā], relating to both teeth and lips</td>
</tr>
<tr>
<td>gingiv(o)</td>
<td>gum</td>
<td>gingivitis [jīn-jī-VĪ-tīs], inflammation of the gums</td>
</tr>
<tr>
<td>odont(o)</td>
<td>tooth</td>
<td>odontorrhagia [ō-dōn-tō-RĀ-jē-ā], profuse bleeding after an extraction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ABBREVIATION</th>
<th>MEANING</th>
<th>ABBREVIATION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDA</td>
<td>certified dental assistant</td>
<td>dmf</td>
<td>decayed, missing, or filled (primary teeth)</td>
</tr>
<tr>
<td>DDS</td>
<td>doctor of dental surgery</td>
<td>DMF</td>
<td>decayed, missing, or filled (permanent teeth)</td>
</tr>
<tr>
<td>def</td>
<td>decayed, extracted, or filled (primary teeth)</td>
<td>RDH</td>
<td>registered dental hygienist</td>
</tr>
<tr>
<td>DEF</td>
<td>decayed, extracted, or filled (permanent teeth)</td>
<td>TMJ</td>
<td>temporomandibular joint</td>
</tr>
</tbody>
</table>

CASE STUDY

Replacing Fillings

Leila’s dentist updated her chart by putting in the date and type of service. He noticed that six teeth were marked DMF, but she has not needed further extractions or fillings in over eight years. Leila has two fillings that are over 20 years old. Her dentist made a note on the chart to take x-rays on the next visit to check the condition of those two fillings.

Critical Thinking

8. Why is it important to date a particular type of dental service?
9. Does Leila have two old fillings in her primary teeth?

COMBINING FORMS AND ABBREVIATIONS EXERCISES

Find a Match

Match the definition on the right with the correct term on the left.

10. ___ dentiform  a. tooth disease
11. ___ odontopathy  b. tooth-shaped
12. ____ dentalgia
c. dentistry
d. toothache
e. surgical resectioning of the gums

13. ____ gingivectomy
d. toothache
e. surgical resectioning of the gums

14. ____ odontology
c. dentistry
d. toothache

Diagnostic, Pathological, and Treatment Terms

Most dental work begins with prevention of tooth decay, cavities, or caries, gradual decay and disintegration of teeth, and gingivitis or gum disease. Preventive measures include:

- **Brushing** teeth and gums twice daily to remove **plaque**, the sticky, colorless layer of bacteria that forms on the crowns and root surfaces of teeth causing tooth decay and periodontal (gum) disease
- **Flossing**, using a thin dental tape or string to clean between the teeth and under the gum line helps to remove plaque and food particles.
- Using **antimicrobial mouth rinses and toothpastes** reduces the bacterial count and inhibits bacterial activity in dental plaque.
- Using **fluoride mouth rinse and fluoride toothpaste** provides extra protection against tooth decay.
- Applying **sealants**, a plastic resin is applied to the depressions and grooves (pits and fissures) on chewing surfaces of molars and bicuspid.
- The sealant acts as a barrier, protecting enamel from plaque and acids.

Tooth decay in infants or toddlers can be caused by going to sleep with bottles in their mouth. As soon as a baby’s first teeth appear—usually by age six months or so—the child is susceptible to decay. This condition is often referred to as baby bottle tooth decay or early childhood caries. In some unfortunate cases, infants and toddlers may experienced severe tooth decay that requires dental restorations or extractions.

Once tooth decay (caries) has begun, the earlier it is caught the better the outcome. Dental x-rays reveal the beginnings of decay at and below the surface of teeth (Figure 21-4). They can also reveal any problems with the normal growth of permanent teeth, such as an **impacted wisdom tooth**, a third molar so tightly wedged into the jaw bone that it is unable to erupt or break through the surface of the gums thoroughly. Tooth decay can cause toothaches or **odontalgia**, which can be quite painful. Early tooth decay that has not invaded the central portion of the tooth usually receives a **filling**, a dental restoration. Filling includes **drilling**, cutting away some of the tooth structure, removing the decayed area, and placing into the space medication and restoration material. There are several dental filling options:

- **Dental amalgam** is a mixture of metal alloys. It is durable, easy to use, highly resistant to wear, and relatively inexpensive in comparison to other materials.
- **Composite fillings** are a mixture of glass or quartz filler in a resin medium that produces a tooth-colored filling.
- **Glass ionomers** are translucent, tooth-colored materials made of a mixture of acrylic acids and fine glass powders that are used to fill cavities, particularly those on the root surfaces of teeth.

**FIGURE 21-4** Dental x-rays can show decay as well as existing fillings.
• **All-porcelain** (ceramic) dental materials include porcelain, ceramic or glasslike fillings, crowns, or veneers. A **veneer** is a very thin shell of porcelain that can replace or cover part of the enamel of the tooth. These restorations are particularly desirable because their color and translucency mimic natural tooth enamel.

• **Porcelain-fused-to-metal** provides strength to a crown or bridge. These restorations are very strong and durable.

• **Gold alloys** contain gold, copper, and other metals that result in a strong, effective filling, crown, or bridge.

A mixture of metals or other substances that are designed to prevent further tooth erosion. If decay is deeper within the tooth, affecting the nerve tissue, an **abscess**, infection and swelling of the soft tissue of the jaw, may result.

In some cases, the tooth must be removed partially or totally. If nerve tissue must be removed, root canal work is performed. **Root canal work** is the removal of pulp tissue and affected nerves in the root canals. Medication is applied and the affected canals are sealed off. **Endodontists** are dentists who specialize in root canal work.

When teeth are damaged by severe trauma or decayed to the extent that they cannot be restored, replacement or artificial teeth are used. **Dentures** are dental prostheses that can be permanently held in place or can be removable. Dentures are either **partial**, replacing one or more but not all teeth, or **full**, replacing a whole set of teeth (Figure 21-5). Partials are attached to other teeth with clasps and are removable for cleaning. A **bridge**, sometimes called a fixed partial denture, is a restoration which replaces or spans the space where one or more teeth have been lost. There are two types of bridges, fixed and removable. Fixed bridges are bonded into place and can only be removed by the dentist. Removable bridges can be taken out for cleaning. Dentists use a process of impressions, molding, shaping, and color-matching substances that are then made into dentures or bridges in a dental laboratory before being placed into the patient’s mouth. Missing teeth may also be replaced with dental **implants**, artificial teeth that have extensions set into bone. Implants are expensive and, while some people will have an entire mouth filled with implants, they are more commonly used for just a few teeth. **Prosthodontics** is the branch of dentistry that deals with the construction of artificial devices for replacing missing teeth or other structures in the mouth and jaw. The **prosthodontist** specializes in the practice of prosthodontics.

**Gum disease** (periodontal disease) is classified according to the severity of the disease. The two major stages are **gingivitis** and **periodontitis**. Gingivitis is a milder and reversible form of periodontal disease that only affects the gums. Gingivitis may lead to more serious, destructive forms of periodontal disease called periodontitis. Gingivitis and periodontitis, inflammation and infection of the tissue that supports the teeth, can result from too much plaque, other medical conditions, or general poor dental hygiene and health. **Periodontists** are specialists who treat gum disease, often by surgically removing diseased tissue and calcified plaque in a process called scaling. Signs and symptoms of periodontal disease include:

• Gums that bleed easily
• Red, swollen, tender gums
• Gums that have pulled away from the teeth

**FIGURE 21-5** A full set of dentures.
• Persistent bad breath or bad taste
• Permanent teeth that are loose or separating
• Any change in the way your teeth fit together when you bite
• Any change in the fit of partial dentures

It is possible to have periodontal disease and have no warning signs. That is one reason why regular dental checkups and periodontal examinations are very important. Good oral hygiene is essential to help keep periodontal disease from becoming more serious or recurring necessary to reduce the inflammation before gums can be thoroughly treated.

Orthodontists are dentists who specialize in orthodontics, the correction and prevention of irregularities in the alignment and appearance of teeth. They can correct malocclusions, abnormal closure of the top teeth in relation to the bottom teeth, such as an overbite. Malocclusions may be corrected with surgical removal of any teeth that are crowding other teeth or with braces, appliances that put pressure on the teeth to move them slowly into place. There is much debate between orthodontists and child developmental experts regarding thumb-sucking. The child development experts argue the benefits of the child being able to take control of his/her emotions and well-being. The orthodontists are quick to point out the damage that is done to the developing hard palate and tooth alignment.

Some dentists also treat temporomandibular joint (TMJ) dysfunction, pain in the jawline due to dislocation or joint problems that prevent this complex system of muscles, ligaments, discs, and bones from working together properly. Treatments for this pain may include stress reducing exercises, muscle relaxants, or wearing a mouth protector to prevent teeth grinding (bruxism).

Other dentists perform cosmetic dentistry by replacing and manipulating broken, discolored, or disfigured teeth. Still others treat discolored teeth with bleaching products to whiten them. Most dental stains are caused by age, tobacco, coffee or tea, antibiotics, such as tetracycline, or excess fluoride. Cosmetic treatment may include:

• **Bleaching**: Chairside bleaching involves several sessions. A bleaching agent is applied to the teeth, and a special light may be used to enhance the action of the agent. At-home bleaching may involve the use mouth trays and a peroxide containing gel.
• **Bonding**: Composite resin is molded onto the teeth to change their color and to reshape them.
• **Porcelain veneers**: Shell-like facings can be bonded onto stained teeth.
• **Whitening toothpastes**: While some whitening toothpastes effectively keep the teeth cleaner and, therefore, looking whiter, some are more abrasive than others.

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**Vocabulary Review**

In the previous section, you learned terms relating to dental diagnosis, pathology, and treatment. Before going on to the exercises, review the following terms and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. The etymologies (word histories) are for your information only. You do not need to memorize them.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>abscess [ĂB-sēs]</td>
<td>Infection and swelling of the soft tissue of the jaw.</td>
</tr>
<tr>
<td>amalgam [ā-MĀL-gām]</td>
<td>Mixture of metals or other alloys used as fillings.</td>
</tr>
<tr>
<td>braces [BRĀ-sēz]</td>
<td>Appliances that straighten teeth slowly.</td>
</tr>
<tr>
<td>bridge [brīdʒ]</td>
<td>Fixed or removable dental restoration replacing missing teeth.</td>
</tr>
<tr>
<td>caries [KĀR-ēz]</td>
<td>Tooth decay.</td>
</tr>
<tr>
<td>drilling</td>
<td>Cutting of tooth structure and removal of the decayed area of a tooth with a small dental drill.</td>
</tr>
<tr>
<td>filling</td>
<td>An amalgam or other restorative material placed into a drilled space to prevent further tooth decay.</td>
</tr>
<tr>
<td>fluoride [FLŪR-īd]</td>
<td>Substance given as a topical application or mouthwash to prevent tooth decay.</td>
</tr>
<tr>
<td>full</td>
<td>Complete (set of dentures).</td>
</tr>
<tr>
<td>gingivitis [jīn-jī-VĪ-tĭs]</td>
<td>Inflammation of the gums.</td>
</tr>
<tr>
<td>implant</td>
<td>Artificial replacement tooth that has an extension set into bone.</td>
</tr>
<tr>
<td>malocclusions [māl-o-KŁU-zhŭns]</td>
<td>Abnormal closures of the top teeth in relation to the bottom teeth.</td>
</tr>
<tr>
<td>orthodontics [ōr-thŏ-DÔN-tĭks]</td>
<td>Dental specialty concerned with the correction and prevention of irregularities in the placement and appearance of teeth.</td>
</tr>
<tr>
<td>partial</td>
<td>One or more artificial replacement teeth.</td>
</tr>
<tr>
<td>plaque [plāk]</td>
<td>Microorganisms that grow on the crowns and along the roots of teeth, causing decay of teeth and breakdown of gums.</td>
</tr>
</tbody>
</table>
CASE STUDY

Feeling Pain

Leila was pleased with the results of her dental visit. She asked the receptionist to remind her when her next six-month appointment was needed. The reminder postcards keep Leila on track. Two months after her visit, Leila felt a slight pain in one of her teeth. She thought she felt some food stuck between her teeth, so she flossed and the pain went away. A few days later, on a Saturday, Leila felt queasy and noticed a dull ache in the same tooth that had hurt a couple of days ago. Leila called the dentist’s office and got an appointment for Monday morning. By Monday morning, the dull ache had become a painful toothache. The dentist took x-rays and saw that an abscess had formed at the root apex (end) of a tooth containing one of the old fillings. He explained to Leila that her tooth could be extracted totally (requiring a partial denture, bridge, or a dental implant) or could be partially removed and an artificial crown put in its place. Leila chose to have the crown, thereby saving as much of her natural tooth as possible. In either case, because the abscess is an infection, a root canal would have to be performed. If the crown were just cosmetic, no root canal work would be needed.

Critical Thinking

15. What type of specialist is Leila likely to have to see before the crown is put in place?
16. Will Leila have to remove the crown daily for cleaning?

DIAGNOSTIC, PROCEDURAL, AND LABORATORY TERMS EXERCISES

Review the Information

Fill in the blanks.

17. Two types of dental prostheses are ___________ and ___________.
18. Amalgam is a material used to ___________ teeth.
19. Abnormal closure of the top teeth in relation to the bottom teeth is called a ___________.
20. Microorganisms that cause decay form ___________ around the teeth and gums.
21. A specialist in the treatment of gum disease is a ___________.
22. A fixed dental appliance that replaces one or more teeth is a(n) ___________.
23. The dental specialist concerned with correcting the alignment of teeth is a(n) ___________.
24. DEF is the abbreviation for ___________.
25. Another term for tooth decay is ___________.

Pharmacological Terms

Dentists provide local anesthetics during certain treatments, such as drilling. The most commonly used are Novocaine, which is injected near the site being treated, and nitrous oxide, a gas inhaled by the patient. Nitrous oxide is also known as laughing gas because it produces laughing in some patients. If a dentist needs to prescribe antibiotics or painkillers after a procedure, there are limitations to the number and strengths they can prescribe.
In the previous section, you learned terms relating to pharmacology. Before going on, review the terms below and refer to the previous section if you have any questions.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrous oxide</td>
<td>An anesthetic gas inhaled by the patient.</td>
</tr>
<tr>
<td>Novocaine</td>
<td>An anesthetic injected near the site being treated.</td>
</tr>
</tbody>
</table>

**Using the Internet**

Go to the American Dental Association’s Web site (www.ada.org). Find an article about preventive dentistry. Write a brief paragraph summarizing the information you have read.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

Understanding Dental Terms
Write the letter of the answer in the space provided. Not all answers will be used.

26. ___ number of primary teeth a. lingual
27. ___ number of secondary teeth b. near the cheek
28. ___ buccal c. near the lip
29. ___ near the tongue d. mesial
30. ___ labial e. 32
   f. 20

Fill in the Blank
Write the word that best completes the sentence.

31. You would visit a(n) _____________ for braces.
32. A(n) _____________ treats gum disease.
33. Root canals are performed by _____________.
34. _____________ specialize in dental treatment for children.
35. Gingivitis would be treated by a(n) _____________.
36. A dental specialist in the replacement of missing teeth is a(n) _____________.
37. The dental _____________ is a licensed member of the dental health team who may perform extensive preventive treatment for patients.

Spell It Correctly
Write the correct spelling in the blank to the right of any misspelled words. If the word is already correctly spelled, write C.

38. temparomandibuler _____________ 47. amalgum _____________
39. dicidous _____________ 48. bridge _____________
40. bycusped _____________ 49. inplant _____________
41. moler _____________ 50. seelant _____________
42. inciser _____________ 51. composit _____________
43. partial _____________ 52. permanent _____________
44. flourid _____________ 53. hygeinest _____________
45. vener _____________ 54. prosthodontist _____________
46. gингevas _____________ 55. Novicain _____________
# Definitions

Define the following terms and combining forms. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.

## Term

<table>
<thead>
<tr>
<th>Term</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>56. abscess</td>
<td>ĀB-sēs</td>
</tr>
<tr>
<td>57. amalgam</td>
<td>ā-MĀL-gām</td>
</tr>
<tr>
<td>58. bicuspid</td>
<td>bī-KŪS-pīd</td>
</tr>
<tr>
<td>59. braces</td>
<td>BRĀ-sēz</td>
</tr>
<tr>
<td>60. bridge</td>
<td>brīdž</td>
</tr>
<tr>
<td>61. canine</td>
<td>KĀ-nīn</td>
</tr>
<tr>
<td>62. caries</td>
<td>KĀR-ēz</td>
</tr>
<tr>
<td>63. cavity</td>
<td>KĀV-ī-te</td>
</tr>
<tr>
<td>64. cementum</td>
<td>sē-MĒN-tūm</td>
</tr>
<tr>
<td>65. central incisor</td>
<td></td>
</tr>
<tr>
<td>66. crown</td>
<td>krōwn</td>
</tr>
<tr>
<td>67. cusp</td>
<td>kūsp</td>
</tr>
<tr>
<td>68. cuspid</td>
<td>KŪS-pīd</td>
</tr>
<tr>
<td>69. deciduous</td>
<td>dē-SĪD-yū-ūs</td>
</tr>
<tr>
<td>teeth</td>
<td></td>
</tr>
<tr>
<td>70. dent(o), denti</td>
<td></td>
</tr>
<tr>
<td>71. dentin</td>
<td>DĒN-tīn</td>
</tr>
<tr>
<td>72. dentist</td>
<td>DĒN-tīst</td>
</tr>
<tr>
<td>73. dentures</td>
<td>DĒN-chūrs</td>
</tr>
<tr>
<td>74. drilling</td>
<td></td>
</tr>
<tr>
<td>75. enamel</td>
<td>ē-NĀM-ēl</td>
</tr>
<tr>
<td>76. endodontist</td>
<td>ēn-dō-DŌN-tīst</td>
</tr>
<tr>
<td>77. eyetooth</td>
<td>Ĩ-tūth</td>
</tr>
<tr>
<td>78. filling</td>
<td></td>
</tr>
<tr>
<td>79. first bicuspid</td>
<td></td>
</tr>
<tr>
<td>80. first molar</td>
<td></td>
</tr>
<tr>
<td>81. fluoride</td>
<td>FLŪR-īd</td>
</tr>
<tr>
<td>82. full</td>
<td></td>
</tr>
<tr>
<td>83. gingiv(o)</td>
<td></td>
</tr>
<tr>
<td>84. gingivae</td>
<td>JĪN-jī-vī</td>
</tr>
<tr>
<td>85. gingivitis</td>
<td>jīn-jī-VĪ-tīs</td>
</tr>
<tr>
<td>86. gums</td>
<td>gūmz</td>
</tr>
<tr>
<td>87. implant</td>
<td></td>
</tr>
<tr>
<td>88. incisor</td>
<td>īn-SĪ-zēr</td>
</tr>
<tr>
<td>89. lateral incisor</td>
<td></td>
</tr>
<tr>
<td>90. malocclusions</td>
<td>māl-ō-KLŪ-zhūns</td>
</tr>
<tr>
<td>91. molar</td>
<td>MŌ-lār</td>
</tr>
<tr>
<td>92. nitrous oxide</td>
<td>NĪ-trūs ŌK-sīd</td>
</tr>
<tr>
<td>93. Novocaine</td>
<td>NŌ-vā-kān</td>
</tr>
<tr>
<td>94. odont(o)</td>
<td></td>
</tr>
<tr>
<td>95. odontalgia</td>
<td>ō-dōn-TĀL-jē-ā</td>
</tr>
<tr>
<td>96. orthodontics</td>
<td>ŏr-thō-DŌN-tīks</td>
</tr>
<tr>
<td>97. partial</td>
<td></td>
</tr>
<tr>
<td>98. pedodontist</td>
<td>pē-dō-DŌN-tīst</td>
</tr>
<tr>
<td>99. periodontist</td>
<td>PĒR-eō-DŌN-tīst</td>
</tr>
<tr>
<td>100. permanent teeth</td>
<td></td>
</tr>
<tr>
<td>101. plaque</td>
<td>plāk</td>
</tr>
<tr>
<td>102. premolar</td>
<td>prē-MŌ-lār</td>
</tr>
<tr>
<td>103. primary teeth</td>
<td></td>
</tr>
<tr>
<td>104. pulp</td>
<td>pūlp</td>
</tr>
<tr>
<td>105. pulp cavity</td>
<td></td>
</tr>
<tr>
<td>106. root</td>
<td>rūt</td>
</tr>
<tr>
<td>107. root canal</td>
<td></td>
</tr>
<tr>
<td>108. second bicuspid</td>
<td></td>
</tr>
<tr>
<td>109. second molar</td>
<td></td>
</tr>
<tr>
<td>110. secondary teeth</td>
<td></td>
</tr>
<tr>
<td>111. socket</td>
<td></td>
</tr>
<tr>
<td>112. temporomandibular</td>
<td>TĒM-pō-rō-mān-DĪB-yū-lār</td>
</tr>
<tr>
<td>joint (TMJ) dysfunction</td>
<td></td>
</tr>
<tr>
<td>113. third molar</td>
<td></td>
</tr>
</tbody>
</table>

## Abbreviations

Write the full meaning of each abbreviation.

### Abbreviation

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>114. DDS</td>
<td>Doctor of Dental Surgery</td>
</tr>
<tr>
<td>115. def</td>
<td>Definition</td>
</tr>
<tr>
<td>116. DEF</td>
<td>Dental Examining Function</td>
</tr>
<tr>
<td>117. dmf</td>
<td>Decayed, missing, filled teeth</td>
</tr>
<tr>
<td>118. DMF</td>
<td>Decayed, missing, filled teeth</td>
</tr>
<tr>
<td>119. RDH</td>
<td>Regional Dental Health</td>
</tr>
<tr>
<td>120. TMJ</td>
<td>Temporomandibular joint</td>
</tr>
</tbody>
</table>

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Answers to Chapter Exercises

1. Yes, they hold the teeth in place.
2. Teeth need calcium to remain healthy, and the embryo needs calcium to grow inside the womb. A pregnant woman usually requires a diet rich in calcium as well as other nutrients.
3. T
4. F
5. F
6. T
7. F
8. to know how old fillings are and to know when cleanings are needed
9. No, her primary teeth fell out long ago.
10. b
11. a
12. d
13. e
14. c
15. an endodontist
16. No, a crown is permanent.
17. dentures, implants
18. fill
19. malocclusion
20. plaque
21. periodontist
22. bridge
23. orthodontist
24. decayed, extracted, or filled
25. caries
26. f
27. e
28. b
29. a
30. c
31. orthodontist
32. periodontist
33. endodontists
34. pedodontists
35. periodontist
36. prosthodontist
37. hygienist
38. temporomandibular
39. deciduous
40. bicuspid
41. molar
42. incisor
43. C
44. fluoride
45. veneer
46. gingivae
47. amalgam
48. C
49. implant
50. sealant
51. composite
52. C
53. hygienist
54. prosthodontist
55. Novocaine
56–120. Answers are available in the vocabulary reviews in this chapter.
After studying this chapter, you will be able to:

22.2 Describe the source and types of drugs
22.3 List various generic and trade names for common drugs
22.4 Identify the various ways drugs are administered
22.5 Describe some of the ways in which drugs affect the body
22.6 Identify the meaning of related abbreviations

Drug Sources, Types, Function, and Administration

Drugs are biological or chemical agents. They are therapeutic when they are used to cure, alleviate, diagnose, treat, or prevent illness. They are addictive or habit-forming when they are used in unregulated and excessive quantities to stimulate or depress someone’s moods. Therapeutic drugs are also called medicines or medications.

Drugs come from plants, animals, or through chemical synthesis in a laboratory. Vitamins, organic substances found in food, are also a form of drugs. The federal Food and Drug Administration (FDA) regulates the testing, manufacture, content, and distribution of all drugs that are not part of or derived from food. The FDA has an approval process that is intended to exclude drugs that may cause more harm than they can cure. It evaluates data submitted by pharmaceutical companies to determine the safety or harmful effects of a drug, and to ensure the drug provides effective treatment. In recent years, there have been questions about the efficacy of the FDA’s approval and monitoring processes. Congress is studying new ways to ensure the independence of the FDA. The standards for approval are set by an independent committee in publications collected and published as the United States Pharmacopeia (U.S.P.). When the letters U.S.P. follow a drug name on the package, it means that the drug has met the stringent standards set by the committee.

Aside from the Pharmacopeia, doctors generally use one of two references in gathering drug information. The first, the Hospital Formulary, lists drugs that are approved for patient care in that particular facility. The use of formularies grew out of the need to control health care costs under managed care systems. The second, the Physician’s Desk Reference (PDR), is a widely...
used reference for physicians. The PDR lists drugs by their drug class, and includes information such as indication for use, known side effects, appropriate dosages, and routes of administration.

**Pharmacology** is the science that studies, develops, and tests drugs. Some of the scientists who work in pharmacology specialize in the various subdivisions of the field. For example, *medicinal chemistry* is the study of new drugs, their structure, and how they work. **Pharmacodynamics** is the study of how drugs affect the body. **Toxicology** is the study of harmful effects of drugs on the body and of **antidotes**, substances able to cancel out unwanted effects. **Pharmacokinetics** is the study of how drugs are absorbed, metabolized (chemically changed so it can be used in the body), and excreted over time. Since the mapping of the human genome and ability to use stem cells, new drug therapies are being developed all the time. Many foresee a day when genetically developed drugs and therapies will be the preferred method for preventing and curing disease.

Some drugs are available over-the-counter (OTC), sold without a doctor’s prescription, which is an order for medication with the dosages, directions, route, and timing of administration included. Prescription drugs are dispensed by a **pharmacist** or **druggist** in a pharmacy or drug store. Figure 22-1 shows a pharmacist who is filling a prescription. Drugs are also available from mail-order companies and from companies on the Internet. Drugs usually come with instructions about how and how often to take the medication and a listing of the potential side effects. Sometimes other drugs or even foods are **contraindicated** (advised against) to be taken along with the medication being given.

Drugs can have several different names. First is a chemical name that describes the chemical formula of the drug. Second is a **generic** name that is the official name of the drug and is often a shortened or simpler version of the chemical name for legal purposes. Third is a **trade**, **brand**, or **proprietary**

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**MORE ABOUT . . .**

**Pain Management and Controlled Substances**

In the past, many in the medical community regarded chronic pain as only a symptom. Often, practitioners told patients much of it was in their heads. In recent years, chronic pain has come to be regarded as a long-term condition in need of management both for the quality of life such management offers and for the attempt to prevent the pain from becoming debilitating. Many pain medications have been developed and are effective along with therapies, such as acupuncture, biofeedback, physical therapy, massage therapy, and others. Unfortunately, the most effective medications are also the drugs most likely to be abused or to become addictive. The federal government regards narcotics and other medications, such as Vicodin, Oxycontin, sedatives, and various strong muscle relaxants, as controlled substances. This means that patients can only receive a limited number of pills in a specified time period. Also, physicians who prescribe and pharmacists who fulfill an inordinate number of prescriptions of controlled substances often come under scrutiny. For more information on pain management, visit the WebMD section on this issue (www.webmd.com/pain-management/default.htm).
name that is given and copyrighted by the manufacturer for a specific drug. Each drug has only one chemical name and only one generic name, but it may have many trade names. For example, acetylsalicylic acid is the chemical name for aspirin, the generic name packaged under various trade names, such as Bayer aspirin. Table 22-1 lists some generic and trade names of drugs according to their function (what class of drug it is). Many insurance companies will only pay for generic drugs or the least expensive alternatives. Pharmacies generally check a patient’s insurance before filling any prescription. Federal laws also may limit the number of pills of certain restricted drugs that may be filled at any one time. Restricted drugs, called controlled substances, are usually narcotics or other addictive drugs that may be easily abused.

Dosages of drugs vary depending on the age, size, severity of symptoms, and other medications in use. Some drugs are tapered; that is, they are given at a higher dose initially and then the dose is gradually reduced as the symptoms subside. Many drugs are synthesized to perform like substances in the body. For example, manufactured hormones (chemical substances in the body that form in one organ and have an effect on another organ or part) are widely used in hormone replacement therapy. Many drugs are derived from plant material. Many drugs have been in use for centuries, such as aloe vera for infections. Today there are many people who prefer to use plant-based remedies instead of certain drugs. For example, St. John’s Wort (a plant derivative) is widely used for cases of mild depression. The use of alternative drug therapies should always be checked with a physician. Herbal remedies can have side effects and can be contraindicated in certain cases, such as drug interaction with other prescription drugs.

Drugs are classified by their use in the body. For example, antibiotics or anti-infectives stop or slow the growth of harmful microorganisms, such as bacteria, fungi, or parasites. However, when antibiotics are over-used, microbes become resistant to the antibiotic and infections can become harder to treat. Some physicians are trying to limit the prescribing of antibiotics only to those people who really need them. Subclassifications of antibiotics include the more specific purposes of the drug, as an antifungal is an antibiotic that kills fungi. Table 22-1 lists the major drug classes, their functions, and generic and trade name examples for each class.

Drugs come in many forms—pills, liquids, semiliquids, suppositories, foams, lotions, creams, powders, transdermal patches, sprays, or gases—depending on how the drug is to be administered to the patient. Pills or tablets (usually stored in a small bottle called a vial) may be available as the standard solid small tablet or they may be in the form of capsules, a tablet with a gelatin covering encasing a powder or a liquid. They may also be coated (enteric-coated capsules dissolve slowly in the intestine so as not to irritate the stomach) or delayed- or timed-release (as with a transdermal patch), which spreads the dosage of the medicine gradually over a period of hours. Pills may also be in the form of lozenges, tablets meant to be dissolved slowly in the mouth, not swallowed. Tablets and some liquids can also be placed sublingually, under the tongue, or buccally, inside the cheek, where they are left to dissolve. Oral administration is the most common method for giving pills and some liquids.

Liquid and semiliquid drugs may come in various forms, such as syrups, heavy solutions of sugar, flavoring, and water added to the medication,
<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Purpose</th>
<th>Generic</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>analgesic</td>
<td>relieves pain without causing loss of consciousness</td>
<td>acetaminophen</td>
<td>Tylenol</td>
</tr>
<tr>
<td>anesthetic</td>
<td>produces a lack of feeling either locally or generally throughout the body</td>
<td>lidocaine, procaine</td>
<td>Novacaïne, Xylocaine</td>
</tr>
<tr>
<td>antacid</td>
<td>neutralizes stomach acid</td>
<td>calcium carbonate and magnesium alumina, magnesia, simethicone</td>
<td>Rolaid, Mylanta</td>
</tr>
<tr>
<td>antianemic</td>
<td>replaces iron</td>
<td>ferrous sulfate erythropoietin</td>
<td>Feosol, Slow Fe Procrit</td>
</tr>
<tr>
<td>antianginal</td>
<td>dilates coronary arteries to increase blood flow and reduce angina</td>
<td>nitroglycerine</td>
<td>Nitrocoït</td>
</tr>
<tr>
<td>antianxiety</td>
<td>relieves anxiety</td>
<td>alprazolam, lorazepam</td>
<td>Xanax, Ativan</td>
</tr>
<tr>
<td>antiarrhythmic</td>
<td>controls cardiac arrhythmias</td>
<td>quinidine, amidarone</td>
<td>Cardioquin, Quinaglate Cordarone</td>
</tr>
<tr>
<td>antibiotic, anti-infective, antibacterial</td>
<td>destroys or inhibits the growth of harmful microorganisms</td>
<td>ciprofloxacin, levofloxacin, amoxicillin, penicillin</td>
<td>Cipro, Levaquin, Amoxil, Wymox various</td>
</tr>
<tr>
<td>anticholinergic</td>
<td>blocks certain nerve impulses and muscular reactions, as in the movements of Parkinson’s disease, or in cases of nausea</td>
<td>atropine, homatropine, homatropine propantheline</td>
<td>Atropair, Homapain, Pro-Banthine</td>
</tr>
<tr>
<td>anticoagulant</td>
<td>prevents blood clotting</td>
<td>warfarin sodium, heparin, dipyrimadole</td>
<td>Coumadin, various, Persantine, Persantine, Persantine</td>
</tr>
<tr>
<td>anticonvulsant</td>
<td>inhibits convulsions</td>
<td>phenytoïn, clonazepam, carbamazepine</td>
<td>Dilantin, Klonipin, Tegetrol</td>
</tr>
<tr>
<td>antidepressant</td>
<td>prevents or relieves symptoms of depression</td>
<td>fluoxetine, sertraline, paroxetine</td>
<td>Prozac, Zoloft, Paxil</td>
</tr>
<tr>
<td>antidiabetic</td>
<td>lowers blood sugar or increases insulin sensitivity</td>
<td>insulin, glyburide, rosiglitazone</td>
<td>Humulin, Novolin, Diabeta, Micronase, Avandia</td>
</tr>
<tr>
<td>antidiarrheal</td>
<td>prevents or slows diarrhea</td>
<td>bismuth subsalicylate, loperamide</td>
<td>Pepto-Bismol, Imodium</td>
</tr>
<tr>
<td>antiemetic</td>
<td>prevents or relieves nausea and vomiting</td>
<td>dimenhydrinate, meclizine</td>
<td>Dramamine, Bonine, Antivert</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Purpose</th>
<th>Generic</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>antifungal</td>
<td>destroys or inhibits fungal growth</td>
<td>tolnaftate, ketoconazole</td>
<td>Tinactin, Desenex, Nizoral</td>
</tr>
<tr>
<td>antihistamine</td>
<td>slows allergic reactions by counteracting histamines</td>
<td>loratadine, diphenhydramine, fexofenadine</td>
<td>Claritin, Benadryl, Allegra</td>
</tr>
<tr>
<td>antihypertensive</td>
<td>controls high blood pressure</td>
<td>clonidine, prazosin, guanethidine, metoprolol</td>
<td>Catapres, Minipress, Ismelin, Lopressor</td>
</tr>
<tr>
<td>anti-inflammatory, nonsteroidal anti-inflammatory drug (NSAID)</td>
<td>counteracts inflammations</td>
<td>ibuprofen, naprosyn, valdecoxib</td>
<td>Advil, Motrin, Aleve, Bextra</td>
</tr>
<tr>
<td>antineoplastic</td>
<td>destroys malignant cells</td>
<td>cyclophosphamide, vincristine, doxorubicin</td>
<td>Cytoxan, Oncovin, Adriamycin</td>
</tr>
<tr>
<td>antiparkinson</td>
<td>controls symptoms of Parkinson’s disease</td>
<td>levodopa, benztropine, biperiden</td>
<td>Sinemet, Cogentin, Akineton</td>
</tr>
<tr>
<td>antipsychotic</td>
<td>controls symptoms of schizophrenia and some psychoses</td>
<td>aripiprazole, risperidone, olanzapine</td>
<td>Abilify, Risperdal, Zyprexa</td>
</tr>
<tr>
<td>antipyretic</td>
<td>reduces fever</td>
<td>acetylsalicylic acid (aspirin)</td>
<td>Bayer, Excedrin, various</td>
</tr>
<tr>
<td>antitubercular</td>
<td>decreases growth of microorganisms that cause tuberculosis</td>
<td>isoniazid, ethambutol, rifampin</td>
<td>Laniazid, Myambutol, Rifadin</td>
</tr>
<tr>
<td>antitussive, expectorant</td>
<td>prevents or relieves coughing</td>
<td>guaifenesin, dextromethorphan</td>
<td>Humibid, Robitussin, Vicks Formula 44</td>
</tr>
<tr>
<td>antiulcer</td>
<td>relieves and heals ulcers</td>
<td>cimetidine, omeprazole, ranitidine</td>
<td>Tagamet, Prilosec, Zantac</td>
</tr>
<tr>
<td>antiviral</td>
<td>controls the growth of viral microorganisms</td>
<td>didanosine, zidovudine, amantadine</td>
<td>Videx, AZT, Retrovir, Symmetrel</td>
</tr>
<tr>
<td>barbiturate</td>
<td>controls epileptic seizures</td>
<td>pentobarbital, secobarbital</td>
<td>Nembutal, Seconal</td>
</tr>
<tr>
<td>bronchodilator</td>
<td>dilates bronchial passages</td>
<td>albuterol, ephedrine</td>
<td>Ventolin, Bronkaid, Primatene</td>
</tr>
<tr>
<td>decongestant</td>
<td>reduces nasal congestion and/or swelling</td>
<td>pseudoephedrine</td>
<td>Drixoral, Sudafed</td>
</tr>
<tr>
<td>diuretic</td>
<td>increases excretion of urine</td>
<td>furosemide, bumetanide</td>
<td>Lasix, Bumex</td>
</tr>
<tr>
<td>hemostatic</td>
<td>controls or stops bleeding</td>
<td>aminocaproic acid, recombinant factor VIIa</td>
<td>Amicar, NovoSeven</td>
</tr>
</tbody>
</table>

650 Chapter 22  Terms in Pharmacology
and emulsions, suspensions of oil or fat in water along with the medication. Liquids can be swallowed, sprayed (as on a wound or in an inhalant form), or injected. They may also be released directly into the body from an implantable drug pump controlled by the patient. This method is usually used to administer pain control medication to chronically ill patients. Patients with diabetes can use a pump to release amounts of insulin as needed rather than in a specific dose. Specific types of liquid and semiliquid medications are:

- **elixir**, oral liquid dissolved in alcohol
- **tincture**, topical liquid dissolved in alcohol
- **solution**, drug dissolved in liquid
- **suspension**, drug particles suspended in liquid, must shake before administration
- **emulsion**, drug particles suspended with oil or fat in water
- **lozenge**, drug in a candy-like base, dissolves slowly and coats the oral pharynx
- **syrup**, oral liquid drug in a thick solution, coats the oral pharynx

Drugs that are meant to go throughout the body are **systemic** (able to travel throughout the bloodstream to affect any part of the body); for example, aspirin tablets are taken internally for various pains. **Suppositories**, drugs mixed with a semisolid melting substance, are inserted into the

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**MORE ABOUT...**

**Drugs**

When doctors prescribe drugs, the pharmacist usually provides instructions regarding side effects and what to avoid (incompatible or contraindicated with certain other drugs, alcohol, and so on). Those instructions do not usually discuss what types of food can interact with drugs. The National Consumers League and the Food and Drug Administration have published a brochure listing potentially harmful drug-food combinations. For example, grapefruit juice taken along with certain heart drugs can be fatal. Cheeses and sausages contain the substance tyramine, which can cause extremely high blood pressure when taken along with certain antidepressants.
vagina, rectum, or urethra are either topical or systemic drugs. Foams are generally inserted into the vagina. Lotions and creams are applied topically to the surface of the skin. Topical drugs are meant to work where they are placed. Powders may be inserted into a gelatin capsule or mixed with a liquid. Liquids or gases can be administered in inhalation form in which tiny droplets are inhaled through an inhaler (Figure 22-2), nebulizer, or spray. Inhalants are usually given in metered doses (for example, 2 puffs q4h). Sprays can be applied topically to the skin, into the nose (intranasal), or into the mouth.

Injection of a drug is called parenteral administration. Parenteral administration may be done by health care professionals or someone trained to administer it. Parenteral administration is medication that does not go through the gastrointestinal system. Most drugs given by parenteral administration are meant for systemic use. The closer to the bloodstream, the faster the drug will work. Some parenteral administration is topical; for example, intradermal or intracutaneous administration is the injection of a needle or syringe just beneath the outer layer of skin to check for local reactions. Subcutaneous administration is injection of the substance into the fatty layer of tissue below the outer portion of the skin. Intramuscular administration is the injection of drugs deep into the muscles. Intravenous administration is the injection of drugs through an intravenous (IV) tube. Generally the liquid drugs are titrated, put into solution in a specific volume. An IV infusion is the slow intravenous administration of a drug so that fluid is added to the bloodstream at a slow and steady rate. IV tubes can also be put into a pump system controlled by the patient. Figure 22-3 shows the methods of parenteral administration. There are other types of parenteral injection that can only be performed by a physician. These types of injection are: intracardiac (directly into heart muscle), intra-arterial (directly into an artery), intraspinal or intrathecal (directly into spinal spaces as in a case of severe pain or cancer), and intraosseus (directly into bone). For steroids and anesthetics, injections are done intra-articularly, or directly into a joint.

**FIGURE 22-2** Patient using an inhaler.

**FIGURE 22-3** Parenteral administration is the general term for administration by injection. These are only some types of parenteral administration.
In the previous section, you learned terms relating to pharmacology. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>absorb [əb-SÖRB]</td>
<td>To take into.</td>
</tr>
<tr>
<td>analgesic [ən-āl-ē-zîk]</td>
<td>Drug that lessens or blocks pain.</td>
</tr>
<tr>
<td>From Greek analgesia, insensitivity</td>
<td></td>
</tr>
<tr>
<td>anesthetic [ən-ēs-THÊT-îk]</td>
<td>Drug that causes temporary loss of ability to perceive sensations at a conscious level.</td>
</tr>
<tr>
<td>antacid [ənt-ĂS-id]</td>
<td>Drug that lessens or neutralizes acidity.</td>
</tr>
<tr>
<td>ant-, against + acid</td>
<td></td>
</tr>
<tr>
<td>anti-, against + bacterial</td>
<td></td>
</tr>
<tr>
<td>antibiotic [ÀN-tē-bi-ÔT-îk]</td>
<td>Drug that stops or slows the growth of harmful microorganisms.</td>
</tr>
<tr>
<td>anti- + Greek biosis, life</td>
<td></td>
</tr>
<tr>
<td>antidiabetic [ÀN-tē-di-ă-BÊT-îk]</td>
<td>Drug that lowers blood sugar or increases insulin sensitivity.</td>
</tr>
<tr>
<td>anti- + diabetic</td>
<td></td>
</tr>
<tr>
<td>antidote [ÀN-tē-dōt]</td>
<td>Substance able to cancel out unwanted effects of another substance.</td>
</tr>
<tr>
<td>Greek antidotos, given against</td>
<td></td>
</tr>
<tr>
<td>antifungal [ÀN-tē-FÜNG-gâl]</td>
<td>Drug that stops or slows the growth of fungus.</td>
</tr>
<tr>
<td>anti- + fungal</td>
<td></td>
</tr>
<tr>
<td>antihistamine [ÀN-tē-HÎS-tâ-mên]</td>
<td>Drug that reduces the action of histamines; used in allergy treatments.</td>
</tr>
<tr>
<td>anti- + histamine</td>
<td></td>
</tr>
<tr>
<td>anti-infective [ÀN-tē-in-FÊK-tîv]</td>
<td></td>
</tr>
<tr>
<td>anti- + tubercular</td>
<td></td>
</tr>
<tr>
<td>antiviral [ÀN-tē-VÎ-râl]</td>
<td>Drug that stops or slows the spread of a virus.</td>
</tr>
<tr>
<td>anti- + viral</td>
<td></td>
</tr>
<tr>
<td>brand name</td>
<td>See trade name.</td>
</tr>
<tr>
<td>buccally [BÜK-āl-lê] Latin bucca, cheek</td>
<td>Inside the cheek.</td>
</tr>
<tr>
<td>contraindicated [kôn-trîn-dî-KÂ-têd]</td>
<td>Inadvisable to use; said especially of a drug that might cause complications when used in combination with other drugs or when used on a patient with a particular set of symptoms.</td>
</tr>
<tr>
<td>contra- + indicated</td>
<td></td>
</tr>
<tr>
<td>drug [drûg]</td>
<td>Biological or chemical agents that can aid or alter body functions.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>druggist [DRŪG-ist]</td>
<td>See pharmacist.</td>
</tr>
<tr>
<td>enteric-coated [ěn-TĒR-ık]</td>
<td>Having a coating (as on a capsule) that prevents stomach irritation.</td>
</tr>
<tr>
<td>excrete [ěks-KRĒT]</td>
<td>To separate out and expel.</td>
</tr>
<tr>
<td>generic [jě-NÄR-ık]</td>
<td>Shortened version of a chemical name; official drug name.</td>
</tr>
<tr>
<td>hormone [HŌR-mōn]</td>
<td>Chemical substance in the body that forms in one organ and moves to another organ or part on which the substance has an effect; manufactured version of that chemical substance.</td>
</tr>
<tr>
<td>infusion [in-FYŪ-zhūn]</td>
<td>Administration of a fluid through an intravenous tube at a slow and steady rate.</td>
</tr>
<tr>
<td>intra-arterial [IN-trā-ār-TĒ-rē-āl]</td>
<td>Injected directly into an artery.</td>
</tr>
<tr>
<td>intracardiac [IN-trā-KĀR-de-āk]</td>
<td>Injected directly into heart muscle.</td>
</tr>
<tr>
<td>intracutaneous [IN-trā-kyū-TĀ-nē-ūs]</td>
<td>Injected just beneath the outer layer of skin.</td>
</tr>
<tr>
<td>intradermal [IN-trā-DĒR-māl]</td>
<td>See intracutaneous.</td>
</tr>
<tr>
<td>intramuscular [IN-trā-MŪS-kyū-lār]</td>
<td>Injected deep into muscle tissue.</td>
</tr>
<tr>
<td>intramuscul ar [IN-trā-MŪS-kyū-lār]</td>
<td></td>
</tr>
<tr>
<td>intraosseus [IN-trā-ŌS-ē-ūs]</td>
<td>Injected directly into bone.</td>
</tr>
<tr>
<td>intraspinal [IN-trā-SPĪ-nāl]</td>
<td>Injected directly into spinal spaces.</td>
</tr>
<tr>
<td>intrathecal [IN-trā-THĒ-kāl]</td>
<td>See intraspinal.</td>
</tr>
<tr>
<td>intravenous [IN-trā-VĒ-nūs] (IV)</td>
<td>Administered through a tube into a vein.</td>
</tr>
<tr>
<td>medication, medicine [mēd-ī-KĀ-shūn, MĒD-ī-sīn]</td>
<td>Drug that serves a therapeutic purpose.</td>
</tr>
<tr>
<td>metabolize [mē-TĀB-ō-līz]</td>
<td>To change chemically or physically so as to make useful.</td>
</tr>
<tr>
<td>nonsteroidal anti-inflammatory drug (NSAID)</td>
<td>Anti-inflammatory drug that does not include steroids.</td>
</tr>
<tr>
<td>oral administration</td>
<td>Swallowing of pills or liquids via the mouth.</td>
</tr>
<tr>
<td>over-the-counter (OTC)</td>
<td>Available for sale without a doctor’s prescription.</td>
</tr>
<tr>
<td>pharmacist [FĀR-mā-sīst]</td>
<td>Person licensed to dispense medications.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>pharmacodynamics [FĀR-mā-kō-di-NĀM-iks] pharmaco- + dynamics</td>
<td>Study of how drugs affect the body.</td>
</tr>
<tr>
<td>pharmacology [fār-mā-KŌL-ō-jē] pharmaco- + -logy, study</td>
<td>Science that studies, develops, and tests new drugs.</td>
</tr>
<tr>
<td>prescription [prē-SKRĪP-shūn]</td>
<td>Order given by a doctor for medication dosage, route, and timing of administration.</td>
</tr>
<tr>
<td>proprietary [prō-PRĪ-ē-tār-ē] name</td>
<td>See trade name.</td>
</tr>
<tr>
<td>subcutaneous [sūb-kyū-TĀ-nē-ūs] sub-, under + Latin cutis, skin</td>
<td>Injected into the fatty layer of tissue beneath the outer layer of skin.</td>
</tr>
<tr>
<td>sublingually [sūb-LĪNG-gwā-le] sub- + Latin lingua, tongue</td>
<td>Under the tongue.</td>
</tr>
<tr>
<td>suppository [sū-PŌZ-i-tōr-ē] Latin suppositorium, placed underneath</td>
<td>Drug mixed with a semisolid melting substance meant for administration by insertion into the vagina, rectum, or urethra.</td>
</tr>
<tr>
<td>syringe [sī-RĪN] Greek syrinx, tube</td>
<td>Instrument used for injection or withdrawal of fluids.</td>
</tr>
<tr>
<td>trade name</td>
<td>Name copyrighted by the manufacturer for a particular version of a drug.</td>
</tr>
<tr>
<td>vial [VĪ-āl] Greek phiale, drinking cup</td>
<td>A small receptacle for holding liquid or pill medications.</td>
</tr>
<tr>
<td>vitamin [VĪT-ä-mīn] Latin vita, life + amine</td>
<td>Organic substance found in food.</td>
</tr>
</tbody>
</table>

**DRUG SOURCES, TYPES, FUNCTION, AND ADMINISTRATION EXERCISES**

**Follow the Route**

Name the route of drug administration or type of drug from its description.

1. Drug is administered via a semisolid into the rectum: _____________
2. Drug is administered via vapor or gas into the nose or mouth: _____________
3. Drug is administered under the tongue: _____________
4. Drug is applied locally on skin or mucous membrane: _____________
5. Drug is injected through a syringe under the skin, into a vein, into a muscle, or into a body cavity: _____________
6. Drug is given by mouth and absorbed through the stomach or intestinal wall: _____________
Find the Class

Give the class (not the name) of a drug that does the following. For example: stops diarrhea = antidiarrheal.

7. prevents/stops angina: _____________
8. increases excretion of urine: _____________
9. reduces blood pressure: _____________
10. corrects abnormal heart rhythms: _____________
11. relieves symptoms of depression: _____________
12. prevents blood clotting: _____________
13. promotes vomiting: _____________
14. relieves pain: _____________
15. neutralizes stomach acid: _____________

CASE STUDY

Getting an Evaluation

Many elderly people go to different doctors for different ailments without being monitored by one regular physician. Some people take so many medications that it affects their health adversely. Helen Metrone is an 86-year-old woman with high blood pressure, a tendency to retain water, skin allergies, and minor heart disease. Her preferred provider organization (PPO) allows her to see different doctors. Helen likes to go to various doctors. She almost always gets new prescriptions because of her symptoms. Often, she neglects to tell each doctor what medications she is already taking. When asked to list her medications, Helen will put one or two that she can remember. Also, Helen sometimes forgets which pills she has already taken in one day. This has led to several instances of fainting, disorientation, and dizziness. Helen’s family is very concerned. They are looking into an assisted living arrangement where a nurse would give Helen her medication. They have also made an appointment with a gerontologist to review Helen’s medications, outlook, and general health.

Critical Thinking

16. Why is it important for patients to inform their physician of all medications they are taking?
17. Why is it important for Helen to understand the instructions that come with her medication?

Combining Forms and Abbreviations

The lists below include combining forms and abbreviations that relate specifically to pharmacology. Pronunciations are provided for the examples. Many of these abbreviations are no longer used in the hospital because of the confusion they create. The Joint Commission for Hospital Accreditation has actually prohibited the use of some of them. But they are still used in many physician practices so it is a good idea to be familiar with them. See Appendix B for a further discussion of abbreviations.

<table>
<thead>
<tr>
<th>COMBINING FORM</th>
<th>MEANING</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>chem(o)</td>
<td>chemical</td>
<td>chemotherapy [KÉ-mō-thär-ä-pē], treatment of a disease with chemical substances</td>
</tr>
<tr>
<td>pyret(o)</td>
<td>fever</td>
<td>pyretogenous [pī-rē-TŌ]-ē-nūs], causing fever</td>
</tr>
<tr>
<td>tox(o), toxi, toxico</td>
<td>poison</td>
<td>toxicogenic [TŌK-sī-kō-JĒN-īk], caused by a poison</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Meaning</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>aa, ãã</td>
<td>of each</td>
<td>a.u., AU</td>
</tr>
<tr>
<td>a.c.</td>
<td>before meals (Latin <em>ante cibum</em>), usually one-half hour preceding a meal</td>
<td>BID, b.i.d.</td>
</tr>
<tr>
<td>ad</td>
<td>up to</td>
<td>c, ç</td>
</tr>
<tr>
<td>a.d., AD</td>
<td>right ear (Latin <em>auris dexter</em>)</td>
<td>cap., caps.</td>
</tr>
<tr>
<td>ad lib</td>
<td>freely (Latin <em>ad libitum</em>), as often as desired</td>
<td>cc., cc</td>
</tr>
<tr>
<td>AM, a.m., A</td>
<td>morning (Latin <em>ante meridiem</em>)</td>
<td>comp.</td>
</tr>
<tr>
<td>a.s., AS</td>
<td>left ear (Latin <em>auris sinister</em>)</td>
<td>cx</td>
</tr>
<tr>
<td>DAW</td>
<td>dispense as written</td>
<td>ml</td>
</tr>
<tr>
<td>dil.</td>
<td>dilute</td>
<td>n., noct.</td>
</tr>
<tr>
<td>disc, DC, dc</td>
<td>discontinue</td>
<td>non rep.</td>
</tr>
<tr>
<td>disp.</td>
<td>dispense</td>
<td>NPO</td>
</tr>
<tr>
<td>div.</td>
<td>divide</td>
<td>NPO p MN</td>
</tr>
<tr>
<td>DW</td>
<td>distilled water</td>
<td>N.S., NS</td>
</tr>
<tr>
<td>D₅W</td>
<td>dextrose 5% in water</td>
<td>NSAID</td>
</tr>
<tr>
<td>dx, Dx</td>
<td>diagnosis</td>
<td>N&amp;V</td>
</tr>
<tr>
<td>elix.</td>
<td>elixir</td>
<td>o.d., OD</td>
</tr>
<tr>
<td>e.m.p.</td>
<td>as directed (Latin <em>ex modo praescripto</em>)</td>
<td>oint., ung.</td>
</tr>
<tr>
<td>ex aq.</td>
<td>in water</td>
<td>o.l.</td>
</tr>
<tr>
<td>ext.</td>
<td>extract</td>
<td>o.s.</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
<td>OTC</td>
</tr>
<tr>
<td>fild. ext.</td>
<td>fluid extract</td>
<td>o.u.</td>
</tr>
<tr>
<td>FUO</td>
<td>fever of unknown origin</td>
<td>oz.</td>
</tr>
<tr>
<td>g, gm</td>
<td>gram</td>
<td>p</td>
</tr>
<tr>
<td>gr</td>
<td>grain, gram</td>
<td>p.c.</td>
</tr>
<tr>
<td>gtt</td>
<td>drop</td>
<td>PDR</td>
</tr>
<tr>
<td>H</td>
<td>hypodermic</td>
<td>PM, p.m., P</td>
</tr>
<tr>
<td>h.</td>
<td>every hour (Latin <em>hora</em>)</td>
<td>p.o.</td>
</tr>
<tr>
<td>h.s.</td>
<td>at bedtime (Latin <em>hora somni</em>, hour of sleep)</td>
<td>PRN, p.r.n.</td>
</tr>
<tr>
<td>IM</td>
<td>intramuscular</td>
<td>pulv., pwdr</td>
</tr>
<tr>
<td>inj</td>
<td>injection</td>
<td>qam</td>
</tr>
</tbody>
</table>
### Abbreviation | Meaning |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>intravenous</td>
</tr>
<tr>
<td>mcg</td>
<td>microgram</td>
</tr>
<tr>
<td>mEq</td>
<td>milliequivalent</td>
</tr>
<tr>
<td>mg</td>
<td>milligram</td>
</tr>
<tr>
<td>q.o.d.</td>
<td>every other day</td>
</tr>
<tr>
<td>q.s.</td>
<td>sufficient quantity</td>
</tr>
<tr>
<td>Rx</td>
<td>prescription</td>
</tr>
<tr>
<td>R</td>
<td>rectal</td>
</tr>
<tr>
<td>s, s</td>
<td>without</td>
</tr>
<tr>
<td>Sig.</td>
<td>patient directions such as route and timing of medication (Latin signa, inscription)</td>
</tr>
<tr>
<td>SL</td>
<td>sublingual</td>
</tr>
<tr>
<td>sol., soln.</td>
<td>solution</td>
</tr>
<tr>
<td>s.o.s.</td>
<td>if there is need</td>
</tr>
<tr>
<td>sp.</td>
<td>spirit</td>
</tr>
<tr>
<td>ss, ss</td>
<td>one-half</td>
</tr>
<tr>
<td>stat</td>
<td>immediately</td>
</tr>
<tr>
<td>subc, subq, s.c.</td>
<td>subcutaneously</td>
</tr>
<tr>
<td>supp., suppos</td>
<td>suppository</td>
</tr>
</tbody>
</table>

### Abbreviation | Meaning |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>q.d.</td>
<td>every day (Latin quaque dies)</td>
</tr>
<tr>
<td>q.h.</td>
<td>every hour</td>
</tr>
<tr>
<td>q.i.d.</td>
<td>four times a day</td>
</tr>
<tr>
<td>QNS</td>
<td>quantity not sufficient</td>
</tr>
<tr>
<td>susp.</td>
<td>suspension</td>
</tr>
<tr>
<td>sym, Sym, Sx</td>
<td>symptom</td>
</tr>
<tr>
<td>syr.</td>
<td>syrup</td>
</tr>
<tr>
<td>tab.</td>
<td>tablet</td>
</tr>
<tr>
<td>tbsp.</td>
<td>tablespoonful</td>
</tr>
<tr>
<td>t.i.d.</td>
<td>three times a day</td>
</tr>
<tr>
<td>tinct., tr.</td>
<td>tincture</td>
</tr>
<tr>
<td>TPN</td>
<td>total parenteral nutrition</td>
</tr>
<tr>
<td>TPR</td>
<td>temperature, pulse, respirations</td>
</tr>
<tr>
<td>tsp.</td>
<td>teaspoonful</td>
</tr>
<tr>
<td>U, u</td>
<td>unit</td>
</tr>
<tr>
<td>u.d.</td>
<td>as directed</td>
</tr>
<tr>
<td>ung.</td>
<td>ointment</td>
</tr>
<tr>
<td>U.S.P.</td>
<td>United States Pharmacopeia</td>
</tr>
</tbody>
</table>

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**CASE STUDY**

### Visiting a Specialist

Helen finally did go to a gerontologist—this time with her niece. Her niece brought along a list of all her medications. The doctor advised coming off several of the medications over the next few weeks. The gerontologist also asked Helen to see her in three weeks for a medication evaluation. She asked Helen to bring in the prescription vials, but her niece also had her regular nurse provide the following list of her medications.

- Lopressor 10 mg. b.i.d.
- Synthroid 50 mcg q.d.
- Motrin as needed
- Lasix 10 mg. b.i.d.

### Critical Thinking

18. How many times a day does Helen take Synthroid?

19. How many milligrams of Lopressor does Helen take daily?
COMBINING FORMS AND ABBREVIATIONS EXERCISES

Check Your Knowledge
Give abbreviations for the following.

20. three times a day _____________  27. every hour _____________
21. before meals _____________  28. every morning _____________
22. intramuscular _____________  29. at bedtime _____________
23. two times a day _____________  30. four times a day _____________
24. intravenous _____________  31. when requested _____________
25. nothing by mouth _____________  32. every day _____________
26. after meals _____________  33. drops _____________

Find the Root
Add the combining form to complete the word.

34. Resistance to the effects of chemicals: _____________ resistance
35. Treatment of fever: _____________ therapy
36. Study of poisons: _____________ logy

USING THE INTERNET
Go to the FDA’s Web site (www.fda.gov/opacom/hpnews.html) and find information about the approval of at least one drug. Explain what the medication is for. In addition, describe at least one new procedure aimed at monitoring drug safety once the drug is on the market.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

True or False
Circle T for true or F for false.

37. All medications require a prescription. T F
38. IM medications go into an IV. T F
39. Trade name and brand name are the same. T F
40. The most common method of drug administration is oral. T F
41. A tablet used sublingually is inserted under the tongue. T F
42. A parenteral administration is the injection of a medication. T F
43. A capsule is a small solid tablet. T F
44. A suppository can only be used rectally. T F
45. You should never swallow a suppository. T F

Understanding Pharmacological Terms
Write the letter of the correct definition in the space provided.

46. ___ analgesic a. relieves heart pain
47. ___ antidiarrheal b. normalizes heart rhythm
48. ___ antipyretic c. reduces fever
49. ___ antidepressant d. relieves nervousness and feelings of dread
50. ___ antacid e. works on a mood disorder
51. ___ antiarrhythmic f. relieves pain
52. ___ antianemic g. relieves indigestion
53. ___ antianginal h. relieves bouts of loose bowels
54. ___ antianxiety i. prevents or relieves coughing
55. ___ antitussive j. replaces iron

Understanding Pharmacological Terms
Write the letter of the correct definition in the space provided.

56. ___ diuretic a. injected into the fatty layer of the skin
57. ___ hypoglycemic b. on the skin surface
58. ___ laxative c. under the tongue
59. ___ buccally d. official drug name
60. ___ generic e. increase excretion of urine
61. ___ brand name f. lowers blood glucose
62. ___ intramuscular g. loosens stool and promotes bowel elimination
63. ___ intradermal
64. ___ topically
65. ___ subcutaneous
66. ___ sublingually

**Know the Abbreviations**

For the following prescriptions, describe the timing and amount of the dosage.

67. Zyrtec 10 mg q d
68. Amoxicillin 500 mg bid for 10 days
69. Cymbalta 60 mg at hs
70. Relpax 40 mg prn for migraine

**Definitions**

Define the following terms and abbreviations. Make sure you know the proper pronunciations of terms. The blue words in curly brackets are references to the Spanish glossary available online at www.mhhe.com/medterm3e.

**TERM**

<table>
<thead>
<tr>
<th>Term</th>
<th>Pronunciation</th>
<th>Term</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>71. absorb</td>
<td>[āb-SÒRB]</td>
<td>82. antitubercular</td>
<td>[ĀN-tē-tū-BĒR-kyū-lē]</td>
</tr>
<tr>
<td>72. analgesic</td>
<td>[ān-āl-JÉ-zik]</td>
<td>83. antiviral</td>
<td>[ĀN-tē-VĪ-rāl]</td>
</tr>
<tr>
<td></td>
<td>[analgésico]</td>
<td>84. brand name</td>
<td></td>
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<td>73. anesthetic</td>
<td>[ān-ēs-THĒ-T̄ik]</td>
<td>85. buccally</td>
<td>[BŪK-āl-lē]</td>
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<td></td>
<td>[anestésico]</td>
<td>86. chem(o)</td>
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<td>74. antacid</td>
<td>[ānt-ĀS-id]</td>
<td>87. contraindicated</td>
<td>[kōn-trā-in-di-KĀ-tēd]</td>
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<tr>
<td></td>
<td>[antiácido]</td>
<td>88. drug</td>
<td>[drōg]</td>
</tr>
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<td>75. antibacterial</td>
<td>[ĀN-tē-bāk-TĒR-ē-āl]</td>
<td>89. druggist</td>
<td>[DRŪG-īst]</td>
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<tr>
<td></td>
<td>[antibacteriano]</td>
<td>90. enteric-coated</td>
<td>[ēn-TĒR-īk]</td>
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<tr>
<td>76. antibiotic</td>
<td>[ĀN-tē-bī-ŌT̄-īk]</td>
<td>91. excrete</td>
<td>[ēks-KRĒT]</td>
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<tr>
<td></td>
<td>[antiβiotico]</td>
<td>92. generic</td>
<td>[jē-NĀR-īk]</td>
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<td>77. antidiabetic</td>
<td>[ĀN-tē-dī-ā-BĒT̄-īk]</td>
<td>93. hormone</td>
<td>[HŌR-mōn]</td>
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<td></td>
<td>[antidiabético]</td>
<td>94. infusion</td>
<td>[ēn-FYU-zhūn]</td>
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<td>78. antidote</td>
<td>[ĀN-tē-dōt]</td>
<td>95. inhalation</td>
<td>[ēn-hā-LĀ-shūn]</td>
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<td></td>
<td>[antidot]</td>
<td>96. intra-arterial</td>
<td>[ĪN-trā-ār-TĒ-rē-āl]</td>
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<tr>
<td>79. antifungal</td>
<td>[ĀN-tē-FÜN-g-gāl]</td>
<td>97. intracardiac</td>
<td>[ĪN-trā-KĀR-dē-āk]</td>
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<td>[antifúngico]</td>
<td>98. intracutaneous</td>
<td>[ĪN-trā-kü-TĀ-nē-ūs]</td>
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<td></td>
<td>[antihistamina]</td>
<td>100. intramuscular</td>
<td>[ĪN-trā-MŪS-kyū-lē]</td>
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<td>[anti-infectivo]</td>
<td>102. intraspinal</td>
<td>[ĪN-trā-SPĬ-nāl]</td>
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<td></td>
<td>[antinfeccioso]</td>
<td>103. intrathecal</td>
<td>[ĪN-trā-THĒ-kāl]</td>
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<td></td>
<td>[medication, medicine]</td>
<td>104. intravenous</td>
<td>[ĪN-trā-VĒ-nūs]</td>
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<td></td>
<td>[medicación, medicina]</td>
<td></td>
<td>(IV) {intravenoso (IV)}</td>
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<tr>
<td></td>
<td>[medicamento, medicina]</td>
<td>105. medicate</td>
<td>[mē-TĀB-ō-līz]</td>
</tr>
<tr>
<td></td>
<td>[medicar, medicamento]</td>
<td>107. nonsteroidal anti-inflammatory drug (NSAID)</td>
<td>[agentes de antiinflamatorios no esteroideos, AINE]</td>
</tr>
<tr>
<td></td>
<td>[medica, medicar]</td>
<td>108. oral administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[medica, medicar]</td>
<td>109. over-the-counter (OTC)</td>
<td></td>
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<tr>
<td></td>
<td>[medica, medicar]</td>
<td>110. parenteral</td>
<td>[pā-RĒN-tēr-āl]</td>
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<td></td>
<td>administration</td>
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<td>[medica, medicar]</td>
<td>111. pharmacist</td>
<td>[FĀR-mā-sist]</td>
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## Terms

112. pharmacodynamics  
[FAR-mä-kō-dī-NÄM-ēks]  
113. pharmacokinetics  
[FAR-mä-kō-ki-NĚT-ēks]  
114. pharmacology  
[fär-mä-KÖL-ō-jē]  
{farmacología}  
115. prescription  
[prë-SKRĪP-shūn]  
{prescripción}  
116. proprietary  
[prō-PRĪ-ē-tār-e]  
name  
117. pyret(o)  
118. subcutaneous  
[sūb-kyū-TÄ-nē-ūs]  
119. sublingually  
[sūb-LĪNG-gwā-lē]  
120. suppository  
[sū-PŌZ-ī-tōr-e]  
{supositorio}  
121. syringe  
[sī-RĪN]  
{jeringa}  
122. topically  
[TŌ-Pī-cāl-lē]  
123. tox(o), toxi, toxico  
124. toxicology  
[tōk-sī-KÖL-ō-jē]  
{toxicología}  
125. trade name  
126. vial  
[VĪ-āl]  
{vial}  
127. vitamin  
[VĪT-ā-min]  
{vitamina}  

## Abbreviations

Write the full meaning of each abbreviation

### Abbreviation

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>aa, āa</td>
<td>e.m.p.</td>
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<td>a.c.</td>
<td>ex aq.</td>
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<tr>
<td>ad</td>
<td>ext.</td>
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<tr>
<td>a.d., AD</td>
<td>FDA</td>
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<tr>
<td>ad lib</td>
<td>fld. ext.</td>
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<td>AM, a.m., A</td>
<td>FUA</td>
</tr>
<tr>
<td>a.s., AS</td>
<td>g, gm</td>
</tr>
<tr>
<td>a.u., AU</td>
<td>gr</td>
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<tr>
<td>BID, b.i.d.</td>
<td>gtt</td>
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<tr>
<td>c, ĉ</td>
<td>H</td>
</tr>
<tr>
<td>cap., caps.</td>
<td>h.</td>
</tr>
<tr>
<td>cc, cc</td>
<td>h.s.</td>
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<tr>
<td>comp.</td>
<td>IM</td>
</tr>
<tr>
<td>cx</td>
<td>inj</td>
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<tr>
<td>DAW</td>
<td>IV</td>
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<tr>
<td>dil.</td>
<td>mcg</td>
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<tr>
<td>disc, DC, dc</td>
<td>mEq</td>
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<tr>
<td>disp.</td>
<td>mg</td>
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<tr>
<td>div.</td>
<td>ml</td>
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<tr>
<td>DW</td>
<td>n., noct.</td>
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<tr>
<td>D₃,W</td>
<td>non rep.</td>
</tr>
<tr>
<td>dx, Dx</td>
<td>NPO</td>
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<tr>
<td>elix.</td>
<td>NPO p MN</td>
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<tr>
<td>N.S., NS</td>
<td>NSAID</td>
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<td>N&amp;V</td>
<td>o.d., OD</td>
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<td>oint., ung.</td>
<td>o.l.</td>
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<td>o.s.</td>
<td>OTC</td>
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<tr>
<td>o.u.</td>
<td>oz.</td>
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<tr>
<td>p.c.</td>
<td>PDR</td>
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<td>PM, p.m., P</td>
<td>p.o.</td>
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<td>PRN, p.r.n.</td>
<td>pulv., pwdr</td>
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<td>qam</td>
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<td>q.d.</td>
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<td>q.h.</td>
<td>q.i.d.</td>
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<td>q.i.d.</td>
<td>194. q.i.d.</td>
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<tr>
<td>q.o.d.</td>
<td>196. q.o.d.</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>q.s.</td>
<td>206. ss, ss</td>
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<tr>
<td>R</td>
<td>207. stat</td>
</tr>
<tr>
<td>RX</td>
<td>208. subc, subq, s.c.</td>
</tr>
<tr>
<td>s, s̅</td>
<td>209. supp., suppos</td>
</tr>
<tr>
<td>Sig.</td>
<td>210. susp.</td>
</tr>
<tr>
<td>SL</td>
<td>211. sym, Sym, Sx</td>
</tr>
<tr>
<td>Sol., soln.</td>
<td>212. syr.</td>
</tr>
<tr>
<td>s.o.s.</td>
<td>213. tab.</td>
</tr>
<tr>
<td>sp.</td>
<td>214. tbsp.</td>
</tr>
<tr>
<td>t.i.d.</td>
<td>215. t.i.d.</td>
</tr>
<tr>
<td>tinct., tr.</td>
<td>216. TPN</td>
</tr>
<tr>
<td>subc, subq, s.c.</td>
<td>217. TPN</td>
</tr>
<tr>
<td>supp., suppos</td>
<td>218. TPR</td>
</tr>
<tr>
<td>tsp.</td>
<td>219. tsp.</td>
</tr>
<tr>
<td>u.d.</td>
<td>220. U, u</td>
</tr>
<tr>
<td>sym, Sym, Sx</td>
<td>221. u.d.</td>
</tr>
<tr>
<td>syr.</td>
<td>222. u.d.</td>
</tr>
<tr>
<td>susp.</td>
<td>223. ung.</td>
</tr>
<tr>
<td>tbsp.</td>
<td>224. U.S.P.</td>
</tr>
<tr>
<td>tbsp.</td>
<td>225. tbsp.</td>
</tr>
</tbody>
</table>
## Answers to Chapter Exercises

1. suppository  
2. inhalation  
3. sublingually  
4. topically  
5. parenteral  
6. oral administration  
7. antianginal  
8. diuretic  
9. antihypertensive, vasodilator  
10. antiarrhythmic  
11. antidepressant  
12. anticoagulant  
13. antiemetic  
14. analgesic  
15. antacid  
16. Medications can cause interactions or side effects.  
17. Instructions, such as “take with food,” can help avoid side effects.  
18. once  
19. 20 mg.  
20. t.i.d.  
21. a. c.  
22. IM  
23. b.i.d.  
24. IV  
25. NPO  
26. p.c.  
27. q.h. or h.  
28. qam  
29. h.s.  
30. q.i.d.  
31. ad lib  
32. q.d.  
33. gtt  
34. chemoresistance  
35. pyretotherapy  
36. toxicology  
37. False  
38. False  
39. True  
40. True  
41. True  
42. True  
43. False  
44. False (vaginal or rectal depending on type)  
45. True  
46. f  
47. h  
48. c  
49. e  
50. g  
51. b  
52. j  
53. a  
54. d  
55. i  
56. e  
57. f  
58. g  
59. i  
60. d  
61. h  
62. j  
63. k  
64. b  
65. a  
66. c  
67. Zyrtec 10 mg every day  
68. Amoxicillin 500 mg twice a day for 10 days  
69. Cymbalta 60 mg at bedtime  
70. Relpax 40 mg as needed  
71–224. Answers are available in the vocabulary reviews in this chapter.
Terms in Complementary and Alternative Medicine

After studying this chapter, you will be able to:

23.1 Define complementary and alternative medicine
23.2 Describe some of the historical aspects of complementary and alternative medicine
23.3 List the five major classifications of complementary and alternative medicines

What Is Complementary and Alternative Medicine?

Most medical practices in the United States are run under conventional medicine standards. These standards include most of the practices learned in medical schools and endorsed by national organizations, such as the American Medical Association (AMA). However, other types of medical practice are used to treat, heal, and prevent illness and promote well-being in large areas of the world, as well as by many practitioners in the United States. When such practices are used in combination or alongside conventional medicine, they are called complementary medicine. When they are used instead of conventional medicine, they are called alternative medicine. Some forms of complementary or alternative medicine are considered holistic medicine, treatment of the whole person, including physical, nutritional, environmental, social, and emotional needs.

History of Alternative Medicine

Since the times of the earliest humans, people have healed themselves physically or spiritually using whatever was available to them in their environment. In most cases, minor injuries and infections were treated with mechanical techniques or plants (which are the source of many current traditional medicines). Gradually, knowledge of treatment and healing was passed down through generations. Some people became experts in certain treatments; for example, some women became midwives, assisting other women in childbirth. Spiritual healers also had a place in the treatment of both physical and mental illnesses. The lifespan of the average human was fairly short since many people had no protection from disease or from the natural elements.

Around the world, various cultures developed fairly sophisticated understandings of human health. For over 2,000 years, Chinese practitioners
have helped people with *acupuncture* and various medicinal herbs. In India, *ayurvedic medicine* is practiced widely. It is based on a holistic view of the human body and mind. Many other cultures have long traditions of physical and spiritual healing.

Hippocrates is generally regarded as the founder of conventional medical practice. He lived in ancient Greece and instituted the Hippocratic Oath (discussed in Chapter 1). Since then, conventional medicine has developed—and is continuing to develop—cures based on examination, diagnosis, and treatment with medicines, various mechanical techniques, and/or surgery. Conventional medicine took a great leap forward in the mid-1800s when Joseph Lister, a British surgeon, began to understand and promote antiseptic surgery. Once antisepsis was understood thoroughly, many more lives were saved. From the early days of conventional medicine, it was most available to those with the money to go to professionals. In modern times, some countries consider health care a universal right, and others have made health care much more widely available than it has been in the past.

For centuries, many individuals did not have easy access to conventional medicine. Therefore, they turned to whatever folk medicine was available to them. Some of the practices in folk medicine were effective and some were not. Over time, some practitioners of conventional medicine as well as practitioners of alternative medicine have tried to incorporate those practices from folk medicine and from other cultures that seemed to be effective.

Because of heightened interest in alternative medicine, the government’s National Institutes of Health has set up the National Center for Complementary and Alternative Medicine (NCCAM) to provide information, support research, and set standards. It is estimated that as much as 40 percent of the U.S. population uses some form of alternative or complementary medicine.

**Types of Complementary and Alternative Medicine**

NCCAM classifies CAM (complementary and alternative medicine) practices into five major types:

1. **Alternative medical systems**, which are complete systems of theory and practice.
2. **Mind-body interventions**, which use the mind’s capacity to affect bodily function and symptoms.
3. **Biologically based therapies**, which use substances found in nature, such as herbs, foods, and vitamins.
4. **Manipulative** and **body-based therapies**, which are based on manipulation and/or movement of one or more parts of the body. This is sometimes called *natural healing*.
5. **Energy therapies**, which involve the use of energy fields.

**Alternative Medical Systems**

There are four major alternative medicine systems:

1. **Homeopathic medicine** is a system that believes that “like cures like.” Patients are treated with small, highly diluted quantities of medicinal substances that would actually cause those symptoms at higher doses.
It is theorized that the body reacts by healing itself in response to the smaller doses.

2. **Naturopathic medicine** theorizes that there is healing power within the body that can maintain and restore health. Naturopathic practitioners work to support this healing power through the use of nutritional counseling, supplements, exercise, and a combination of treatments from other alternative medicine practices.

3. **Traditional Chinese medicine** (TCM) is based on a concept of balanced *qi* (pronounced “chee”), or vital energy. It is believed that this energy regulates a person’s spiritual, emotional, mental, and physical balance through two opposing forces—yin (negative energy) and yang (positive energy). Disease is thought to result from yin and yang becoming imbalanced. Among the components of TCM are **acupuncture** (Figure 23-1), herbal and nutritional therapy, exercises, meditation, and massage. Qi Gong is one type of TCM that combines movement, meditation, and breathing.

4. **Ayurveda** emphasizes body, mind, and spirit in combination to prevent and treat disease. It has been practiced in India for 5,000 years and includes nutritional and herbal remedies and physical movement as well as meditation.

**Mind-Body Interventions**

Mind-body intervention techniques use the power of the mind to affect changes in body function and symptoms. Some mind-body interventions have moved from being part of complementary medicine and have become part of conventional medicine. Examples of this are behavioral therapy, which is widely used in certain mental illnesses and patient support groups and is now considered routine as part of the treatment of chronic illness.

Other techniques of mind-body intervention remain in the complementary and alternative medicine sphere. Meditation has been used on the Indian subcontinent for centuries. In studies, it has been shown that meditation can affect blood pressure and body temperature as well as other body functions. Prayer is regarded as an effective healing technique in some cases. Various therapies that use music, dance, and other creative outlets are used to change the course of some illnesses. In general, the power of the mind has been shown to play a role in the course of a disease.

**Biologically Based Therapies**

Biologically based therapies use food, herbs, vitamins, and minerals to relieve symptoms, maintain health, and, in some cases, cure diseases. Traditional Chinese medicine as well as medicines of other cultures have long used herbs to cure ailments and relieve symptoms. Many practitioners in the United States now use some of this ancient knowledge as well as more recent theories about vitamins, minerals, and dietary practices to provide guidance for preventing or healing disease. In addition, individuals are taking herbs and vitamins, often without specific guidance. The use of a particular substance for healing commonly spreads by word of mouth. For example, some people find relief from depression using the herb St. John’s Wort. Others use various minerals and vitamin combinations to relieve joint pain. Still others find that some plant extracts raise energy levels. There are problems with herbal medications in that they are not controlled by the FDA. Also many
individuals forget to mention they are taking herbals to their physicians, either because they do not think they are important or because they forget they are taking them. Sometimes they do not tell the doctor because they think the doctor will not approve. This can lead to complications and drug interactions. It is very important to convey this information to your physician to prevent interactions or overtreating for your condition.

**Manipulation and Body-Based Methods**

The two major types of manipulation or body-based methods are *chiropractic* and *therapeutic massage*. Chiropractic focuses primarily on the relationship between alignment of the body (particularly of the spine) and overall health. Chiropractors attempt to align the spine by moving the body in various ways, especially by turning the neck so as to position it properly (Figure 23-2).

Chiropractic uses many treatments and modalities in addition to manipulation by force. Some of the other chiropractic modalities or treatments include light force adjustments, activators, special tables for traction, and drop tables that allow the chiropractor to use less force to accomplish the same adjustment. Some chiropractors use a computerized tool called a precision adjuster that first measures the alignment and the problem areas then delivers a specific force to adjust the spine in the direction needed. They may also use the application of hot and cold, electrical stimulation and magnets to relax the muscles allowing the body to go back into alignment easier and stay in alignment longer.

Therapeutic massage (Figure 23-3) stimulates the skin, muscles, and connective tissue by manipulation. It promotes healing and a feeling of well-being. There are many different types of therapeutic massage techniques and modalities. Massage therapy has been around for a long time. There are many styles and types of massages and massage strokes, including Swedish massage, relaxation massage, deep tissue massage, therapeutic massage, pregnancy massage, reflexology, aromatherapy, infant massage, geriatric massage, sports massage and many, many others. All massage starts with touch. The style, depth, speed, and type of stroke is what makes the major difference. A relaxation massage is mostly long, gentle, gliding strokes called *effleurage*. A deep tissue or therapeutic massage will use *effleurage* strokes but will also include *petrissage* (kneading

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**MORE ABOUT . . .**

**St. John’s Wort**

It is rare for herbal medicines to be tested in scientific studies comparing them to popularly prescribed conventional medications. One exception is St. John’s Wort, which in a German clinical trial was found to be as effective as the most popularly prescribed antidepressant. Herbal medicines are usually much cheaper to produce than conventional medications. Many people fail to mention herbal preparations to their doctors and many may have adverse interactions with medications. One of the goals of NCCAM is to study more biologically based therapies to see how they measure up against conventional medicines.
strokes or compression), friction, and tapotement (percussion or tapping of the body). It is important for clients to find a massage therapist that has a touch and technique that they like. It is also a good idea for clients to check the therapist's credentials and training. A deep tissue massage does not have to hurt to go deep. Some therapists add scented essential oils to help the client relax depending on the goal of the massage. For example lavender is relaxing and can help a client relax.

Massage therapy can help with a lot of physical problems. It is also contraindicated in some conditions. For example, in an acute injury, the injured area should not be massaged for 48 hours. Pregnant women should not get a massage in the first trimester. If either the therapist or client is not sure if a particular massage is contraindicated, a medical doctor should be consulted. It is also important that the therapist know of any medical conditions so as not to harm the client unintentionally. A massage therapist may ask for a note from the physician before giving a client a massage.

Energy Therapies

Energy therapies are divided into two types. The first, biofield therapy, attempts to affect the energy fields that are assumed to surround the human body. One example of a biofield therapy is therapeutic touch, the laying on of hands. It is based on the belief that passing the healer's hands through the energy fields surrounding the body will help heal imbalances. Another example is reiki, a Japanese form of therapy in which energy is passed from the healer to the patient, who is thought to be healed in this process. There are many other types of energy therapies, such as quantum touch and healing touch, which are used successfully to help some people.

The second type of energy therapy is bioelectromagnetic-based therapy. This involves the use of electromagnetic fields, such as pulsed fields, magnetic fields, or AC- or DC-current fields.

Alternative Medicine Coding

Coding systems have been developed for use in CAM and nursing. An ABC coding system for CAM can be found at Alternative Link's Web site (www.alternativelink.com). It is estimated that there are 3 million alternative healthcare practitioners in the United States. The market for their services is continuing to increase. Currently, many insurance companies will pay for chiropractic care but not for many of the other CAM therapies. However, as the popularity of many of these methods increases, the willingness of health insurance companies to pay for alternative services will also increase. As it increases, coding for CAM will become standardized.

Vocabulary Review

In the previous section, you learned terms relating to complementary and alternative medicine. Before going on to the exercises, review the following terms and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>acupuncture [ä-kyu-PÜNK-chur]</td>
<td>Originally Chinese therapy that uses fine needles.</td>
</tr>
<tr>
<td>alternative medical system</td>
<td>Complete system of medical treatment outside the realm of conventional medicine.</td>
</tr>
<tr>
<td>alternative medicine</td>
<td>Medical therapies outside the realm of conventional medicine.</td>
</tr>
<tr>
<td>ayurveda [i-yur-VÄ-da, i-yur-VÉ-da]</td>
<td>Holistic alternative medicine system originally from India.</td>
</tr>
<tr>
<td>bioelectromagnetic-based therapy</td>
<td>Type of energy therapy that uses electromagnetic fields.</td>
</tr>
<tr>
<td>biofield therapy</td>
<td>Type of energy therapy that attempts to affect energy fields.</td>
</tr>
<tr>
<td>biologically based therapy</td>
<td>The use of foods, herbs, vitamins, and minerals to heal or prevent disease.</td>
</tr>
<tr>
<td>body-based therapy</td>
<td>See manipulative therapy.</td>
</tr>
<tr>
<td>CAM</td>
<td>Complementary and alternative medicine.</td>
</tr>
<tr>
<td>chiropractic [kî-rō-PRÄK-tûk]</td>
<td>Therapy based on alignment of the body (particularly the spine).</td>
</tr>
<tr>
<td>complementary medicine</td>
<td>A nonconventional medical practice used in combination with conventional medicine.</td>
</tr>
<tr>
<td>energy therapy</td>
<td>Therapy that uses energy fields.</td>
</tr>
<tr>
<td>homeopathic [hô-mê-ô-PÄTH-îk] medicine</td>
<td>Medical system that uses diluted doses of substances to stimulate immunity.</td>
</tr>
<tr>
<td>manipulative therapy</td>
<td>Therapy that uses manipulation of the body to treat patients.</td>
</tr>
<tr>
<td>mind-body intervention</td>
<td>Therapy that uses the power of the mind to affect the body.</td>
</tr>
<tr>
<td>naturopathic [nä-chãr-ô-PÄTH-îk] medicine</td>
<td>Therapy that uses the body’s own healing powers to maintain and restore health.</td>
</tr>
<tr>
<td>reiki [RÄ-kë]</td>
<td>Therapy that uses touch from a healer.</td>
</tr>
<tr>
<td>therapeutic massage</td>
<td>Stimulates the skin, muscles, and tissue to promote healing.</td>
</tr>
<tr>
<td>therapeutic touch</td>
<td>The laying on of hands to promote healing.</td>
</tr>
<tr>
<td>traditional Chinese medicine</td>
<td>Various practices that promote balance between yin and yang to promote and maintain health.</td>
</tr>
</tbody>
</table>
CASE STUDY

Working in a CAM office

Julie started a new job as an office assistant to Dr. Mira Sanchez, a chiropractor with a small practice. Dr. Sanchez shares an office with Jim Wilson, a trained massage therapist, and Fouad Sharma, a nutritional counselor who often recommends herbal preparations. Julie will serve as receptionist and office clerk for all three practitioners. An important part of Julie’s job is to take medical histories of new patients as well as to explain to patients about insurance reimbursement if any is available.

Critical Thinking
1. Should the medical histories include a list of medications?
2. Julie knows a lot about vitamins and herbs. Should she discuss any of these with patients?

COMPLEMENTARY AND ALTERNATIVE MEDICINE EXERCISES

Fill in the Blank

Complete the sentences below.

3. Originally a system of Indian medicine, _____________ is now a type of alternative medical system.
4. In traditional Chinese medicine, balance between _____________ and _____________ is considered essential.
5. Spinal manipulation is routinely performed by _____________.
6. Therapeutic touch uses _____________ fields while therapeutic _____________ uses manipulation.
7. Any type of alternative therapy used in conjunction with conventional medicine is called _____________ medicine.
8. Stimulating immunity by using diluted doses takes place in _____________ medicine.
9. A Japanese energy therapy is called _____________.
10. St. John’s Wort is used to relieve _____________.

USING THE INTERNET

Go to NCCAM’s Web site (www.nccam.nih.gov) and find information about one type of complementary or alternative medicine. Explain how the therapy is expected to heal or prevent disease.
CHAPTER REVIEW

The material that follows is to help you review this chapter.

DEFINITIONS

Define the following terms. Review the chapter before starting. Make sure you know how to pronounce each term as you define it.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. acupuncture [ä-kyū-PÜNK-chûr]</td>
<td>biologically based therapy</td>
</tr>
<tr>
<td>12. alternative medical system</td>
<td>body-based therapy</td>
</tr>
<tr>
<td>13. alternative medicine</td>
<td>CAM</td>
</tr>
<tr>
<td>14. ayurveda [i-yûr-VÄ-dâ, i-yûr-VĚ-dâ]</td>
<td>chiropractic [kî-rô-PRÄK-tîk]</td>
</tr>
<tr>
<td>15. bioelectromagnetic-based therapy</td>
<td>complementary medicine</td>
</tr>
<tr>
<td>16. biofield therapy</td>
<td>energy therapy</td>
</tr>
<tr>
<td>17. biologically based therapy</td>
<td>homeopathic [hō-mē-ô-PÁTH-îk] medicine</td>
</tr>
<tr>
<td>18. body-based therapy</td>
<td>manipulative therapy</td>
</tr>
<tr>
<td>19. CAM</td>
<td>mind-body intervention</td>
</tr>
<tr>
<td>21. complementary medicine</td>
<td>reiki [RĀ-kē]</td>
</tr>
<tr>
<td>22. energy therapy</td>
<td>therapeutic massage</td>
</tr>
<tr>
<td>23. homeopathic [hō-mē-ô-PÁTH-îk] medicine</td>
<td>therapeutic touch</td>
</tr>
<tr>
<td>24. manipulative therapy</td>
<td>traditional Chinese medicine</td>
</tr>
</tbody>
</table>
Answers to Chapter Exercises

1. Yes, because herbal preparations and vitamins can interact with medications.
2. No, Julie does not have the necessary training to recommend any supplements.
3. ayurveda
4. yin, yang
5. chiropractors
6. energy, massage
7. complementary
8. homeopathic
9. reiki
10. depression
11–30. Answers are available in the vocabulary reviews in this chapter.
A

Combining Forms, Prefixes, and Suffixes

Listed below are the word parts that appear throughout this textbook. The page numbers given in the index next to each word part indicate those pages on which the parts are defined and an example is also given there of how they are used in a medical term. When a combining form ends in a vowel, the vowel is surrounded with parentheses only in those cases where the term may also appear used in words without the vowel. For example: abdomin(o) represents the combining form used both in abdominoskeletal and in abdominal.

a-, without, ab-, abs-, away from, abdomin(o), abdomen, acanth(o), spiny; thorny, acetabul(o), cup-shaped hip socket, acromi(o), end point of the scapula, actin(o), light, -ad, toward, ad-, toward, to, aden(o), gland, adenoid(o), adenoid, gland, adip(o), fat, aden(o), adrenal glands, aer(o), air; gas, agglutin(o), agglutinin, alge, algesi, algi, algo, pain, -algia, pain, alveol(o), air sac, alveolus, ambi-, both, around, amn(o), amnion, amyl(o), starch, an-, without, an(o), anus, ana-, up, toward, andr(o), masculine, angi(o), vessel, ankyl(o), bent, crooked, ante-, before, anti-, against, aort(o), aorta, apo-, derived, separate, append(o), appendic(o), appendix, arteri(o), artery, arterio(o), arteriole, arthr(o), joint, articulation, -asthenia, weakness, ather(o), plaque; fatty substance, atr(o), atrium, aud(o), audit(o), hearing, aur(i), aur(o), auricul(o), ear, hearing, aut(o)-, self, bacill(i), bacilli; bacteria, bacteri(o), bacteria, balan(o), glans penis, bar(o), weight; pressure, bas(o), base, bi-, twice, double, bil(o), bile, bio, life, -blast, immature, forming, blast(o), immature cells, blephar(o), eyelid, brachi(o), arm, brachy-, short, brady-, slow, bronch(o), bronchi, bronchus, bronchiol(o), bronchiole, bucc(o), cheek, burs(o), bursa, cac(o), bad; ill, calc(o), calcit(o), calcium, calcane(o), heel bone, cali(o), calic(o), calix, capn(o), carbon dioxide, carcin(o), cancer, cardi(o), heart; esophageal opening of the stomach, carp(o), wrist bones, cata-, down, cec(o), cecum, -cele, hernia, celi(o), abdomen, -centesis, puncture, cephal(o), head, cerebell(o), cerebellum, cerebr(o), cerebrum, cerumin(o), wax, cervic(o), neck; cervix, cheil(o), chil(o), lip, chem(o), chemical, chir(o), hand, chlor(o), chlorine, green, chol(e), chole, bile, cholangi(o), bile vessel, cholecyst(o), gallbladder, choledoch(o), common bile duct, chondri(o), chondr(o), cartilage, chore(o), dance, chrom, chromat, chromo, color, chron(o), time, chyl(o), chyle, a digestive juice, chym(o), chyme, semifluid present during digestion, -cidal, destroying, killing, -cide, destroying, killing, cine(o), movement, circum-, around, -clasis, breaking, -clast, breaking, co-, col-, com-, con-, cor-, together, cochle(o), cochlea, col(o), colon(o), colon, colp(o), vagina, condyl(o), knob, knuckle, coni(o), dust, conjunctiv(o), conjunctiva, contra-, against, cor(o), core(o), pupil, come(o), cornea, cortic(o), cortex, costi, costo, rib, crani(o), cranium, crin(o), secrete, -crine, secreting, -crit, separate,
<table>
<thead>
<tr>
<th>Combining Forms, Prefixes, and Suffixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>cry(o), cold,</td>
</tr>
<tr>
<td>crypt(o), hidden; obscure,</td>
</tr>
<tr>
<td>cyan(o), blue,</td>
</tr>
<tr>
<td>cycl(o), circle; cycle; ciliary body,</td>
</tr>
<tr>
<td>cyst(o), cysti, bladder, cyst, cystic duct,</td>
</tr>
<tr>
<td>cyt(o), cell,</td>
</tr>
<tr>
<td>-cyte, cell,</td>
</tr>
<tr>
<td>-cytosis, condition of cells,</td>
</tr>
<tr>
<td>dacr(o), tears,</td>
</tr>
<tr>
<td>dactyl(o), fingers, toes,</td>
</tr>
<tr>
<td>de-, away from,</td>
</tr>
<tr>
<td>dent(i), dento, tooth,</td>
</tr>
<tr>
<td>derm(o), derma, dermat(o), skin,</td>
</tr>
<tr>
<td>-derma, skin,</td>
</tr>
<tr>
<td>-desis, binding,</td>
</tr>
<tr>
<td>dextr(o), right, toward the right,</td>
</tr>
<tr>
<td>dir-, dif-, dir-, dis-, not, separated,</td>
</tr>
<tr>
<td>dia-, through,</td>
</tr>
<tr>
<td>dips(o), thirst,</td>
</tr>
<tr>
<td>dorsi(o), dorsi, back,</td>
</tr>
<tr>
<td>duoden(o), duodenum,</td>
</tr>
<tr>
<td>dynamo, force; energy,</td>
</tr>
<tr>
<td>-dynia, pain,</td>
</tr>
<tr>
<td>dys-, abnormal; difficult,</td>
</tr>
<tr>
<td>echo, reflected sound,</td>
</tr>
<tr>
<td>ect(o), outside,</td>
</tr>
<tr>
<td>-ectasia, expansion; dilatation,</td>
</tr>
<tr>
<td>-ectasia, expanding; dilating,</td>
</tr>
<tr>
<td>-ectomy, removal of,</td>
</tr>
<tr>
<td>-edema, swelling,</td>
</tr>
<tr>
<td>electr(o), electricity; electric,</td>
</tr>
<tr>
<td>-ema, condition,</td>
</tr>
<tr>
<td>-emesis, vomiting,</td>
</tr>
<tr>
<td>-emia, blood,</td>
</tr>
<tr>
<td>-emic, relating to blood,</td>
</tr>
<tr>
<td>encephal(o), brain,</td>
</tr>
<tr>
<td>end(o), within,</td>
</tr>
<tr>
<td>enter(o), intestines,</td>
</tr>
<tr>
<td>eosin(o), red; ros(y),</td>
</tr>
<tr>
<td>epi-, over,</td>
</tr>
<tr>
<td>epididym(o), epididymis,</td>
</tr>
<tr>
<td>epiglott(o), epiglottis,</td>
</tr>
<tr>
<td>epis(o), vulva,</td>
</tr>
<tr>
<td>ergo, work,</td>
</tr>
<tr>
<td>erythri(o), red, redness,</td>
</tr>
<tr>
<td>esophag(o), esophagus,</td>
</tr>
<tr>
<td>-esthesia, sensation,</td>
</tr>
<tr>
<td>esthesio, sensation, perception,</td>
</tr>
<tr>
<td>ethmo, ethmoid bone,</td>
</tr>
<tr>
<td>etio, cause,</td>
</tr>
<tr>
<td>eu-, well, good, normal,</td>
</tr>
<tr>
<td>ex-, out of, away from,</td>
</tr>
<tr>
<td>exo-, external, on the outside,</td>
</tr>
<tr>
<td>extra-, without, outside of,</td>
</tr>
<tr>
<td>fasci(o), fascia,</td>
</tr>
<tr>
<td>femor(o), femur,</td>
</tr>
<tr>
<td>fibr(o), fiber,</td>
</tr>
<tr>
<td>fluor(o), light; luminous; fluorine,</td>
</tr>
<tr>
<td>-form, in the shape of,</td>
</tr>
<tr>
<td>fungi, fungus,</td>
</tr>
<tr>
<td>galac(o), milk,</td>
</tr>
<tr>
<td>gangli(o), ganglion,</td>
</tr>
<tr>
<td>gastr(o), stomach,</td>
</tr>
<tr>
<td>-gen, producing, coming to be,</td>
</tr>
<tr>
<td>gen(o), producing; being born,</td>
</tr>
<tr>
<td>-genesis, production of,</td>
</tr>
<tr>
<td>-genic, producing,</td>
</tr>
<tr>
<td>gero, geront(o), old age,</td>
</tr>
<tr>
<td>givin(g), gum,</td>
</tr>
<tr>
<td>gli(o), neuroglia,</td>
</tr>
<tr>
<td>-globin, protein,</td>
</tr>
<tr>
<td>-globulin, protein,</td>
</tr>
<tr>
<td>glomerul(o), glomerulus,</td>
</tr>
<tr>
<td>gloss(o), tongue,</td>
</tr>
<tr>
<td>gluc(o), glucose,</td>
</tr>
<tr>
<td>glyc(o), sugars,</td>
</tr>
<tr>
<td>glycogen(o), glycogen,</td>
</tr>
<tr>
<td>gnath(o), jaw,</td>
</tr>
<tr>
<td>gonad(o), sex glands,</td>
</tr>
<tr>
<td>gono, angle,</td>
</tr>
<tr>
<td>-gram, a recording,</td>
</tr>
<tr>
<td>granulo, granular,</td>
</tr>
<tr>
<td>-graph, recording instrument,</td>
</tr>
<tr>
<td>-graphy, process of recording,</td>
</tr>
<tr>
<td>gyn(o), gyne, gyneco, women,</td>
</tr>
<tr>
<td>hem(a), hemat(o), hemo, blood,</td>
</tr>
<tr>
<td>hemangi(o), blood vessel,</td>
</tr>
<tr>
<td>hemi-, half,</td>
</tr>
<tr>
<td>hepato, hepatic(o), liver,</td>
</tr>
<tr>
<td>hidri(o), sweat,</td>
</tr>
<tr>
<td>histi(o), histo, tissue,</td>
</tr>
<tr>
<td>home(o), homo, same; constant,</td>
</tr>
<tr>
<td>humer(o), humerus,</td>
</tr>
<tr>
<td>hydr(o), hydrogen, water,</td>
</tr>
<tr>
<td>hyp(o), hyper-, above normal; overly,</td>
</tr>
<tr>
<td>hypn(o), sleep,</td>
</tr>
<tr>
<td>hype-, below normal,</td>
</tr>
<tr>
<td>hyster(o), uterus, hystera,</td>
</tr>
<tr>
<td>-asis, pathological condition or state,</td>
</tr>
<tr>
<td>iatri(o), physician; treatment,</td>
</tr>
<tr>
<td>-ic, pertaining to,</td>
</tr>
<tr>
<td>ichty(o), dry; scaly; fish,</td>
</tr>
<tr>
<td>-ics, treatment, practice, body of</td>
</tr>
<tr>
<td>knowledge,</td>
</tr>
<tr>
<td>idio, distinct; unknown,</td>
</tr>
<tr>
<td>ile(o), ileum,</td>
</tr>
<tr>
<td>ili(o), ilium,</td>
</tr>
<tr>
<td>immu(n), safe; immune,</td>
</tr>
<tr>
<td>infra-, positioned beneath,</td>
</tr>
<tr>
<td>inguin(o), groin,</td>
</tr>
<tr>
<td>inter-, between,</td>
</tr>
<tr>
<td>infra-, within,</td>
</tr>
<tr>
<td>ir(o), irido, iris,</td>
</tr>
<tr>
<td>ischi(o), ischium,</td>
</tr>
<tr>
<td>-ism, condition, disease, doctrine,</td>
</tr>
<tr>
<td>iso-, equal, same,</td>
</tr>
<tr>
<td>-itis (pl. -itides), inflammation,</td>
</tr>
<tr>
<td>jejun(o), jejunum,</td>
</tr>
<tr>
<td>kal(i), potassium,</td>
</tr>
<tr>
<td>karyo, nucleus,</td>
</tr>
<tr>
<td>kerat(o), cornea,</td>
</tr>
<tr>
<td>ket(o), keton(o), ketone; acetone,</td>
</tr>
<tr>
<td>kin(o), kine, movement,</td>
</tr>
<tr>
<td>kinesi(o), kineso, motion,</td>
</tr>
<tr>
<td>-kinesia, movement,</td>
</tr>
<tr>
<td>-kinesis, movement,</td>
</tr>
<tr>
<td>labial(o), lip,</td>
</tr>
<tr>
<td>lacrim(o), tears,</td>
</tr>
<tr>
<td>lact(o), lacti, milk,</td>
</tr>
<tr>
<td>lamin(o), lamina,</td>
</tr>
<tr>
<td>lapar(o), abdominal wall,</td>
</tr>
<tr>
<td>laryng(o), larynx,</td>
</tr>
<tr>
<td>latero, lateral, to one side,</td>
</tr>
<tr>
<td>leiom(y), smooth muscle,</td>
</tr>
<tr>
<td>-lepsy, condition of having seizures,</td>
</tr>
<tr>
<td>-leptic, having seizures,</td>
</tr>
<tr>
<td>lepto, light, frail, thin,</td>
</tr>
<tr>
<td>leuk(o), white,</td>
</tr>
<tr>
<td>lingu(o), tongue,</td>
</tr>
<tr>
<td>lip(o), fat,</td>
</tr>
<tr>
<td>lith(o), stone,</td>
</tr>
<tr>
<td>lob(o), lobe of the lung,</td>
</tr>
<tr>
<td>log(o), speech, words, thought,</td>
</tr>
<tr>
<td>-logist, one who practices,</td>
</tr>
<tr>
<td>-logy, study, practice,</td>
</tr>
<tr>
<td>lumb(o), lumbar,</td>
</tr>
<tr>
<td>lymph(o), lymp,</td>
</tr>
<tr>
<td>lymphaden(o), lymph nodes,</td>
</tr>
<tr>
<td>lymphangi(o), lymphatic vessels,</td>
</tr>
<tr>
<td>lys(o), dissolution,</td>
</tr>
<tr>
<td>-lysis, destruction of,</td>
</tr>
<tr>
<td>-lytic, destroying,</td>
</tr>
<tr>
<td>macr(o), large; long,</td>
</tr>
<tr>
<td>mal-, bad; inadequate,</td>
</tr>
<tr>
<td>-malacia, softening,</td>
</tr>
<tr>
<td>mamm(o), breast,</td>
</tr>
<tr>
<td>-mania, obsession,</td>
</tr>
<tr>
<td>mast(o), breast,</td>
</tr>
<tr>
<td>mastoid(o), mastoid process,</td>
</tr>
<tr>
<td>maxill(o), maxilla,</td>
</tr>
<tr>
<td>meato, meatus,</td>
</tr>
<tr>
<td>medi(o), middle; medial plane,</td>
</tr>
<tr>
<td>mediastin(o), mediastinum,</td>
</tr>
<tr>
<td>medull(o), medulla,</td>
</tr>
<tr>
<td>meg(a), megal(o), large; million,</td>
</tr>
<tr>
<td>-megaly, enlargement,</td>
</tr>
<tr>
<td>melan(o), black; dark,</td>
</tr>
<tr>
<td>mening(o), meninges,</td>
</tr>
<tr>
<td>men(o), menstruation,</td>
</tr>
<tr>
<td>mes(o), middle; median,</td>
</tr>
<tr>
<td>meta-, after,</td>
</tr>
</tbody>
</table>

Appendix A   Combining Forms, Prefixes, and Suffixes   675
metacarp(o), metacarpal,
-meter, measuring device,
metr(o), uterus,
-metry, measurement,
micr(o), small; microscopic;
one-millionth; tiny,
mio, smaller; less,
om(o), single,
morph(o), structure; shape,
muc(o), mucus,
multi-, many,
muta, genetic change,
mugen(o), genetic change,
my(o), muscle,
myc(o), fungus,
myel(o), spinal cord; bone marrow,
myring(o), eardrum, middle ear,
narco, sleep; numbness,
nas(o), nose,
necr(o), death; dying,
neph(r)0, kidney,
neur(i), neuro, nerve,
noc(i), night,
normo, normal,
nucle(o), nucleus,
nyc(t)o, night,
ocul(o), eye,
odont(o), tooth,
od-oid, like, resembling,
olig(o)-, few; little; scanty,
-oma (-olig(o)-, few; little; scanty,
-oid, like, resembling,
ocul(o), eye,
or(i), or, an; some,
orco, onc(o), tumor,
onych(o), nail,
oo, egg,
oophor(o), ovary,
ophthalm(o), eye,
op-i, vision,
op-sia, vision,
op-sy, view of,
opt(o), optic(o), eye; sight,
or(o), mouth,
orch(o), arch(o), orchid, testis,
ort(o), straight; normal,
-os(o) (-pl. -oses), condition, state, process,
oseo, ossi, bone,
osicul(o), ossicle,
ost(e), osteo, bone,
ostomy, opening,
ott(o), ear,
ovo, ovo, egg; ova,
ovari(o), ovary,
ox(o), ox, oxygen,
-oxia, oxygened,
oxia, oxygen,
oxy, sharp; acute; oxygen,
pachy, thick,
pan-, pant(o)-, all, entire,
pancreat(o), pancreas,
par(a)-, beside; abnormal; involving
two parts,
-para, bearing,
parathyroid(o), parathyroid,
paresis, slight paralysis,
-parous, producing; bearing,
patell(o), knee,
path(o), disease,
-pathy, disease,
-ped(o), pe, pi, foot; child,
velo, velo, pelvic bone; hip,
-penia, deficiency,
-pepsia, digestion,
-per, through, intensely,
peri-, around, about, near,
pericard(o), pericardium,
perine(o), perineum,
peritone(o), peritoneum,
-pesy, fixation, usually done surgically,
phac(o), phak(o), lens,
-phage, -phagia, -phagy, eating,
-devouring,
phag(o), eating; devouring; swallowing,
phil(o), phile, philo, phila,
-phil, attraction; affinity for,
philiasia, speaking,
-philiasia, speaking,
-pheriesis, removal,
-phil, attraction; affinity for,
philiasia, speaking,
phileb(o), vein,
-phobia, fear,
phon(o), sound; voice; speech,
-phoniasia, speaking,
-phoresis, carrying,
-phoria, feeling; carrying,
phor(o), light,
phren(o), phreni, phrenico, mind;
diaphragm,
-phrenia, of the mind,
-phthisis, wasting away,
-phyllaxis, protection,
physi, physio, physical; natural,
-physis, growing,
physio, air; gas; growing,
phyr(o), plant,
phil(o), hair,
-plakia, plaque,
-plasia, formation,
-plasm, formation,
plasma, plasmo, plasm(o), plasma,
-plastic, forming,
-plasty, surgical repair,
-plegia, paralysis,
-plegic, one who is paralyzed,
pleur(o), pleura, rib; side; pleura,
pluri-, several, more,
-pnea, breath,
pleum(o), pneum(o), pneum(o),
pneum(o), lungs; air; breathing,
pod(o), foot,
-poiesis, formation,
-poietic, forming,
-poietin, one that forms,
pokiko, varied; irregular,
poly-, many,
-porosis, lessening in density,
pot-, after, following,
pre-, before,
pro-, before, forward,
proct(o), anus,
prostat(o), prostate gland,
pseud(o), false,
psych(o), psyche, mind,
-ptris, falling down; drooping,
pub(o), pubis,
pulmon(o), lung,
pupill(o), pupil,
pyel(o), renal pelvis,
pylor(o), pylorus,
pyo, pus,
-pyret(o), fever,
pyro, fever; fire; heat,
quadra-, quadri-, four,
rachi(o), spine,
radi(o), radiation; x-ray; radius,
re-, again, backward,
rect(o), rectum,
ren(i), reno, kidney,
retin(o), retina,
rhino, behind, backward,
rhabd(o), rod-shaped,
rhomb(o), striated muscle,
rhin(o), nose,
rhage, discharging heavily,
rhagia, heavy discharge,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
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rhaphy, surgical suturing,
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rhaphy, surgical suturing,
rhaphy, surgical suturing,
rhaphy, surgical suturing,
somn(o), somni, sleep,
-somnia, sleep,
son(o), sound,
-spasm, contraction,
spasmo, spasm,
sperm(a), spermato, sperm, semen;
- spermatozoa,
spher(o), round; spherical,
sphygm(o), pulse,
spin(o), spine,
spir(o), breath; breathe,
splanchn(o), splanchni, viscera,
splen(o), spleen,
spondyl(o), vertebral,
squamo, scale; squamous,
-stalis, contraction,
staphyl(o), grapelike clusters,
-stasis, stopping; constant,
-stat, agent to maintain a state,
-static, maintaining a state,
steat(o), fat,
steno, narrowness,
-stenosis, narrowing,
-stere(o), three-dimensional,
stern(o), sternum,
sterth(o), chest,
 stom(a), stomat(o), mouth,
-stomy, opening,
 strepto, twisted chains; streptococci,
styl(o), peg-shaped,
sub-, less than, under, inferior,
super-, more than, above, superior,
supra-, above, over,
syl-, sym-, syn-, sys-, together,
synov(o), synovial membrane,
syring(o), tube,
tachy-, fast,
tars(o), tarsus,
tel(o), tele(o), distant; end; complete,
ten(o), tendin(o), tendo, tenon(o), tendon,
terato, monster (as a malformed fetus),
test(o), testis,
thalam(o), thalamus,
therm(o), heat,
thorac(o), thoracico, thorax, chest,
thromb(o), blood clot,
thyr(o), thymus gland,
tibi(o), tibia,
tome, cutting instrument, segment,
tomy, cutting operation,
tono, tension; pressure,
tonsill(o), tonsils,
top(o), place; topical,
toxi, toxico, toxo, poison; toxin,
trache(o), trachea,
trachel(o), neck,
trans-, across, through,
trich(o), trichi, hair,
trigon(o), trigone,
trophic, nutritional,
tropho, food; nutrition,
trophy, nutrition,
tropia, turning,
tropic, turning toward,
tropo, condition of turning toward,
tympan(o), eardrum, middle ear,
uln(o), ulna,
ultra-, beyond, excessive,
uni-, one,
ur(o), urin(o), urine,
ureter(o), ureter,
ureth(o), urethra,
-uria, urine,
uter(o), uterus,
uve(o), uvea,
vag(o), vagus nerve,
vagin(o), vagina,
varico, varicosity,
vas(o), blood vessel, duct,
vasculo, blood vessel,
veni, ven(o), vein,
ventricul(o), ventricle,
-version, turning,
vertebr(o), vertebra,
vesic(o), bladder,
vivi, life,
vulv(o), vulva,
xanth(o), yellow,
xeno, stranger,
xer(o), dry,
xiph(o), sword; xiphoid,
zoo, life,
zym(o), fermentation; enzyme,
Recently, medical abbreviations have been linked to some of the worst medical errors, particularly those involving wrong doses of medication. As a result, the Joint Commission on Accreditation of Hospital Organizations (JCAHO) has come up with a list of nine prohibited abbreviations plus several as recommended for elimination in medical communication. For the prohibited abbreviations, it is suggested that the full words be substituted. Table A-1 shows the prohibited abbreviations, what they can be confused with, and what should be substituted. Table A-2 shows suggested replacements for abbreviations that have the potential to cause medical errors. JCAHO has also suggested that each healthcare organization come up with their own list of frequently used and potentially misunderstood abbreviations.

### TABLE A-1  Prohibited Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Potential Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. U (for unit)</td>
<td>Mistaken as zero, four or cc.</td>
<td>Write or speak “unit”</td>
</tr>
<tr>
<td>2. IU (for international unit)</td>
<td>Mistaken as IV (intravenous) or 10 (ten).</td>
<td>Write or speak “international unit”</td>
</tr>
<tr>
<td>3. Q.D. (once daily)</td>
<td>Mistaken for each other. The period after the Q can be mistaken for an “I” and the “O” can be mistaken for “I”.</td>
<td>Write or speak “daily” and “every other day”</td>
</tr>
<tr>
<td>4. Q.O.D. (every other day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Trailing zero (X.0 mg) [Note: Prohibited only for medication-related notations];</td>
<td>Decimal point is missed and dosage is either too large or too small.</td>
<td>Never write a zero by itself after a decimal point (X mg), and always use a zero before a decimal point (0.X mg)</td>
</tr>
<tr>
<td>6. Lack of leading zero (.X mg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. MS</td>
<td>Can mean morphine sulfate or magnesium sulfate. Potentially confused for one another.</td>
<td>Write or speak “morphine sulfate” or “magnesium sulfate”</td>
</tr>
<tr>
<td>8. MSO₄</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. MgSO₄</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TABLE A-2 Suggested Additional Abbreviations to Avoid.**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Potential Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>µg (for microgram)</td>
<td>Mistaken for mg (milligrams) resulting in one thousand-fold dosing overdose.</td>
<td>Write “mcg” or speak microgram</td>
</tr>
<tr>
<td>H.S. (for half-strength or Latin abbreviation for bedtime)</td>
<td>Mistaken for either half-strength or hour of sleep (at bedtime). q.H.S. mistaken for every hour. All can result in a dosing error.</td>
<td>Write out or speak “half-strength” or “at bedtime”</td>
</tr>
<tr>
<td>T.I.W. (for three times a week)</td>
<td>Mistaken for three times a day or twice weekly resulting in an overdose.</td>
<td>Write or speak “3 times weekly” or “three times weekly”</td>
</tr>
<tr>
<td>S.C. or S.Q. (for subcutaneous)</td>
<td>Mistaken as SL for sublingual, or “5 every”.</td>
<td>Write or speak “Sub-Q”, “subQ, or “subcutaneously”</td>
</tr>
<tr>
<td>D/C (for discharge)</td>
<td>Interpreted as discontinue whatever medications follow (typically discharge meds).</td>
<td>Write “discharge”</td>
</tr>
<tr>
<td>c.c. (for cubic centimeter)</td>
<td>Mistaken for U (units) when poorly written.</td>
<td>Write or speak “ml” for milliliters</td>
</tr>
<tr>
<td>A.S., A.D., A.U. (Latin abbreviation for left, right, or both ears)</td>
<td>Mistaken for OS, OD, and OU, etc.).</td>
<td>Write or speak “left ear,” “right ear” or “both ears”</td>
</tr>
</tbody>
</table>

Listed below are the medical abbreviations that you should learn while studying medical terminology.

<table>
<thead>
<tr>
<th>ABBREVIATION</th>
<th>MEANING</th>
<th>ABBREVIATION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>–</td>
<td>minus/concave</td>
<td>AGN</td>
<td>acute glomerulonephritis</td>
</tr>
<tr>
<td>+</td>
<td>plus/convex</td>
<td>AH</td>
<td>abdominal hysterectomy</td>
</tr>
<tr>
<td>aa, âa</td>
<td>of each</td>
<td>AIDS</td>
<td>acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>AA</td>
<td>Alcoholics Anonymous</td>
<td>AIH</td>
<td>artificial insemination homologous</td>
</tr>
<tr>
<td>AB</td>
<td>abortion</td>
<td>A-K</td>
<td>above the knee</td>
</tr>
<tr>
<td>ABG</td>
<td>arterial blood gases</td>
<td>ALL</td>
<td>acute lymphocytic leukemia</td>
</tr>
<tr>
<td>a.c.</td>
<td>before meals (Latin ante cibum), usually one-half hour preceding</td>
<td>ALS</td>
<td>amyotrophic lateral sclerosis</td>
</tr>
<tr>
<td>acc.</td>
<td>accommodation</td>
<td>ALT, AT</td>
<td>alanine transaminase</td>
</tr>
<tr>
<td>AcG</td>
<td>accelerator globulin</td>
<td>AM, a.m., A</td>
<td>morning (Latin ante meridiem)</td>
</tr>
<tr>
<td>Ach</td>
<td>acetylcholine</td>
<td>AMI</td>
<td>acute myocardial infarction</td>
</tr>
<tr>
<td>ACTH</td>
<td>adrenocorticotropic hormone</td>
<td>AML</td>
<td>acute myelogenous leukemia</td>
</tr>
<tr>
<td>ad</td>
<td>up to</td>
<td>AP</td>
<td>anteroposterior</td>
</tr>
<tr>
<td>a. d., AD</td>
<td>right ear (Latin aëris dexter)</td>
<td>A&amp;P</td>
<td>auscultation and percussion</td>
</tr>
<tr>
<td>ADD</td>
<td>attention deficit disorder</td>
<td>APTT</td>
<td>activated partial thromboplastin time</td>
</tr>
<tr>
<td>ad lib</td>
<td>freely (Latin aëribus ad libitum), as often as desired</td>
<td>ARD</td>
<td>acute respiratory disease</td>
</tr>
<tr>
<td>ADH</td>
<td>antidiuretic hormone</td>
<td>ARDS</td>
<td>adult respiratory distress syndrome</td>
</tr>
<tr>
<td>AF</td>
<td>atrial fibrillation</td>
<td>ARF</td>
<td>acute respiratory failure, acute renal failure</td>
</tr>
<tr>
<td>AFB</td>
<td>acid-fast bacillus (causes tuberculosis)</td>
<td>ARMD</td>
<td>age-related macular degeneration</td>
</tr>
<tr>
<td>AFP</td>
<td>alpha-fetoprotein</td>
<td>a. s., AS</td>
<td>left ear (Latin aëris sinister)</td>
</tr>
<tr>
<td>A/G</td>
<td>albumin/globulin</td>
<td>AS</td>
<td>aortic stenosis</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Meaning</td>
<td>Abbreviation</td>
<td>Meaning</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------</td>
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<td>----------------------------------------------</td>
</tr>
<tr>
<td>ASCVD</td>
<td>arteriosclerotic cardiovascular disease</td>
<td>CCU</td>
<td>coronary care unit</td>
</tr>
<tr>
<td>ASD</td>
<td>atrial septal defect</td>
<td>CDA</td>
<td>certified dental assistant</td>
</tr>
<tr>
<td>ASHD</td>
<td>arteriosclerotic heart disease</td>
<td>CEA</td>
<td>carcinogenic embryonic antigen</td>
</tr>
<tr>
<td>ASIS</td>
<td>anterior superior iliac spine</td>
<td>CHD</td>
<td>coronary heart disease</td>
</tr>
<tr>
<td>AST</td>
<td>aspartic acid transaminase</td>
<td>chemo</td>
<td>chemotherapy</td>
</tr>
<tr>
<td>ATN</td>
<td>acute tubular necrosis</td>
<td>CHF</td>
<td>congestive heart failure</td>
</tr>
<tr>
<td>a. u., AU</td>
<td>each ear (Latin <em>auris uterque</em>)</td>
<td>CIS</td>
<td>carcinoma in situ</td>
</tr>
<tr>
<td>AV</td>
<td>atrioventricular</td>
<td>CI</td>
<td>chlorine</td>
</tr>
<tr>
<td>AZT</td>
<td>Azidothymidine</td>
<td>CLL</td>
<td>chronic lymphocytic leukemia</td>
</tr>
<tr>
<td>B</td>
<td>bilateral</td>
<td>CML</td>
<td>chronic myelogenous leukemia</td>
</tr>
<tr>
<td>B-K</td>
<td>below the knee</td>
<td>CMV</td>
<td>cytomegalovirus</td>
</tr>
<tr>
<td>Ba</td>
<td>barium</td>
<td>CO</td>
<td>cardiac output</td>
</tr>
<tr>
<td>BaE</td>
<td>barium enema</td>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>baso</td>
<td>basophil</td>
<td>CP</td>
<td>cerebral palsy</td>
</tr>
<tr>
<td>BBB</td>
<td>blood-brain barrier</td>
<td>comp.</td>
<td>compound</td>
</tr>
<tr>
<td>BCP</td>
<td>biochemistry panel</td>
<td>CRS</td>
<td>corticotropic-releasing hormone</td>
</tr>
<tr>
<td>BE</td>
<td>barium enema</td>
<td>CS, C-section</td>
<td>caesarean section</td>
</tr>
<tr>
<td>BID, b.i.d.</td>
<td>twice a day (Latin <em>bis in die</em>)</td>
<td>CPK</td>
<td>creatine phosphokinase</td>
</tr>
<tr>
<td>BMT</td>
<td>bone marrow transplant</td>
<td>CPR</td>
<td>cardiopulmonary resuscitation</td>
</tr>
<tr>
<td>BNO</td>
<td>bladder neck obstruction</td>
<td>CRF</td>
<td>chronic renal failure</td>
</tr>
<tr>
<td>BP</td>
<td>blood pressure</td>
<td>CRH</td>
<td>corticotropic-releasing hormone</td>
</tr>
<tr>
<td>BPH</td>
<td>benign prostatic hypertrophy</td>
<td>CS</td>
<td>caesarean section</td>
</tr>
<tr>
<td>bpm</td>
<td>beats per minute</td>
<td>CT</td>
<td>computed tomography</td>
</tr>
<tr>
<td>BS</td>
<td>breath sounds</td>
<td>CTA</td>
<td>clear to auscultation</td>
</tr>
<tr>
<td>BUN</td>
<td>blood urea nitrogen</td>
<td>CTS</td>
<td>carpal tunnel syndrome</td>
</tr>
<tr>
<td>bx</td>
<td>biopsy</td>
<td>CT or CAT scan</td>
<td>computerized (axial) tomography</td>
</tr>
<tr>
<td>c, ã</td>
<td>with</td>
<td>CTA</td>
<td>clear to auscultation</td>
</tr>
<tr>
<td>C-section</td>
<td>caesarean section</td>
<td>CTS</td>
<td>carpal tunnel syndrome</td>
</tr>
<tr>
<td>C-spine</td>
<td>cervical spine (film)</td>
<td>CVA</td>
<td>cerebrovascular accident</td>
</tr>
<tr>
<td>C₁</td>
<td>first cervical vertebra</td>
<td>CVD</td>
<td>cerebrovascular disease</td>
</tr>
<tr>
<td>ca</td>
<td>calcium</td>
<td>cx</td>
<td>contraindicated</td>
</tr>
<tr>
<td>CA</td>
<td>carcinoma</td>
<td>Cx</td>
<td>cervix</td>
</tr>
<tr>
<td>CABG</td>
<td>coronary artery bypass graft</td>
<td>CXR</td>
<td>chest x-ray</td>
</tr>
<tr>
<td>CAD</td>
<td>coronary artery disease</td>
<td>cysto</td>
<td>cystoscopy</td>
</tr>
<tr>
<td>cap., caps.</td>
<td>capsule</td>
<td>D</td>
<td>diopeter</td>
</tr>
<tr>
<td>CAPD</td>
<td>continuous ambulatory peritoneal dialysis</td>
<td>D₁</td>
<td>first dorsal vertebra</td>
</tr>
<tr>
<td>CAT</td>
<td>computerized axial tomography</td>
<td>D &amp; C</td>
<td>dilation and curettage</td>
</tr>
<tr>
<td>cath</td>
<td>catheter</td>
<td>DDS</td>
<td>doctor of dental surgery</td>
</tr>
<tr>
<td>CBC</td>
<td>complete blood count</td>
<td>DIC</td>
<td>disseminated intravascular coagulation</td>
</tr>
<tr>
<td>cc, cc</td>
<td>cubic centimeter</td>
<td>d.t.d.</td>
<td>give of such doses</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Meaning</td>
<td>Abbreviation</td>
<td>Meaning</td>
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<td>---------</td>
</tr>
<tr>
<td>D₃W</td>
<td>dextrose 5% in water</td>
<td>ECT</td>
<td>electroconvulsive therapy</td>
</tr>
<tr>
<td>DAW</td>
<td>dispense as written</td>
<td>EDC</td>
<td>expected date of confinement (delivery)</td>
</tr>
<tr>
<td>dB</td>
<td>decibel</td>
<td>EEG</td>
<td>electroencephalogram</td>
</tr>
<tr>
<td>DDS</td>
<td>doctor of dental surgery</td>
<td>EENT</td>
<td>eye, ear, nose, and throat</td>
</tr>
<tr>
<td>def</td>
<td>decayed, extracted, or filled (primary teeth)</td>
<td>EGD</td>
<td>esophagogastroduodenoscopy</td>
</tr>
<tr>
<td>DEF</td>
<td>decayed, extracted, or filled (permanent teeth)</td>
<td>EIA, ELISA</td>
<td>Enzyme-linked immunosorbent assay</td>
</tr>
<tr>
<td>DES</td>
<td>diethylstilbestrol</td>
<td>elix.</td>
<td>elixir</td>
</tr>
<tr>
<td>diff</td>
<td>differential blood count</td>
<td>EMG</td>
<td>electromyogram</td>
</tr>
<tr>
<td>dil.</td>
<td>dilute</td>
<td>ENT</td>
<td>ear, nose, and throat</td>
</tr>
<tr>
<td>disc, D. C., dc</td>
<td>discontinue</td>
<td>e.m.p.</td>
<td>as directed</td>
</tr>
<tr>
<td>disp.</td>
<td>dispense</td>
<td>ENT</td>
<td>ear, nose, and throat</td>
</tr>
<tr>
<td>div.</td>
<td>divide</td>
<td>eos</td>
<td>eosinophils</td>
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<tr>
<td>DJD</td>
<td>degenerative joint disease</td>
<td>EQ</td>
<td>emotional “intelligence” quotient</td>
</tr>
<tr>
<td>DLE</td>
<td>discoid lupus erythematosus</td>
<td>ER</td>
<td>estrogen receptor</td>
</tr>
<tr>
<td>DM</td>
<td>diabetes mellitus</td>
<td>ERCP</td>
<td>endoscopic retrograde cholangiopancreatography</td>
</tr>
<tr>
<td>dmf</td>
<td>decayed, missing, or filled (primary teeth)</td>
<td>ERT</td>
<td>estrogen replacement therapy</td>
</tr>
<tr>
<td>DMF</td>
<td>decayed, missing, or filled (permanent teeth)</td>
<td>ESR</td>
<td>erythrocyte sedimentation rate</td>
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<tr>
<td>DNA</td>
<td>deoxyribonucleic acid</td>
<td>ESRD</td>
<td>end-stage renal disease</td>
</tr>
<tr>
<td>DOE</td>
<td>dyspnea on exertion</td>
<td>EST</td>
<td>electroshock therapy</td>
</tr>
<tr>
<td>DPT</td>
<td>diphtheria, pertussis, tetanus (combined vaccination)</td>
<td>ESWL</td>
<td>extracorporeal shock wave lithotripsy</td>
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<tr>
<td>DRE</td>
<td>digital rectal exam</td>
<td>ET tube</td>
<td>endotracheal intubation tube</td>
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<td>DSA</td>
<td>digital subtraction angiography</td>
<td>ETT</td>
<td>exercise tolerance test</td>
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<tr>
<td>DSM</td>
<td><em>Diagnostic and Statistical Manual of Mental Disorders</em></td>
<td>ex aq.</td>
<td>in water</td>
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<tr>
<td>DT</td>
<td>delirium tremens</td>
<td>ext.</td>
<td>extract</td>
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<tr>
<td>DTR</td>
<td>deep tendon reflex</td>
<td>FDA</td>
<td>Food and Drug Administration</td>
</tr>
<tr>
<td>DUB</td>
<td>dysfunctional uterine bleeding</td>
<td>FEF</td>
<td>forced expiratory flow</td>
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<td>DVA</td>
<td>distance visual acuity</td>
<td>FEV</td>
<td>forced expiratory volume</td>
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<td>DVT</td>
<td>deep venous thrombosis</td>
<td>FHT</td>
<td>fetal heart tones</td>
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<td>DW</td>
<td>distilled water</td>
<td>fld. ext.</td>
<td>fluid extract</td>
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<td>dx, Dx</td>
<td>diagnosis</td>
<td>FSH</td>
<td>follicle-stimulating hormone</td>
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<td>EBV</td>
<td>Epstein-Barr virus</td>
<td>FUO</td>
<td>fever of unknown origin</td>
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<td>ECC</td>
<td>endocervical curettage</td>
<td>FVC</td>
<td>forced vital capacity</td>
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<td>extracapsular cataract extraction</td>
<td>fx, Fx</td>
<td>fracture</td>
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<td>ECG, EKG</td>
<td>electrocardiogram</td>
<td>g. gm</td>
<td>gram</td>
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<td>ECHO</td>
<td>echocardiogram</td>
<td>G</td>
<td>gravida (pregnancy)</td>
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<td>Abbreviation</td>
<td>Meaning</td>
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<td>Meaning</td>
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<td>G-CSF</td>
<td>granulocyte colony-stimulating factor</td>
<td>IgM</td>
<td>immunoglobulin M</td>
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<td>GERD</td>
<td>gastroesophageal reflux disease</td>
<td>IM</td>
<td>intramuscular</td>
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<tr>
<td>GH</td>
<td>growth hormone</td>
<td>IMV</td>
<td>intermittent mandatory ventilation</td>
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<td>GI</td>
<td>gastrointestinal</td>
<td>inj</td>
<td>injection</td>
</tr>
<tr>
<td>GM-CSF</td>
<td>granulocyte macrophage colony-stimulating factor</td>
<td>IOL</td>
<td>intraocular lens</td>
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<td>GOT</td>
<td>glutamic oxaloacetic transaminase</td>
<td>IPPB</td>
<td>intermittent positive pressure breathing</td>
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<tr>
<td>gr</td>
<td>grain, gram</td>
<td>IOP</td>
<td>intraocular pressure</td>
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<td>gtt</td>
<td>drop</td>
<td>IQ</td>
<td>intelligence quotient</td>
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<tr>
<td>GTT</td>
<td>glucose tolerance test</td>
<td>IRDS</td>
<td>infant respiratory distress syndrome</td>
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<tr>
<td>Gy</td>
<td>unit of radiation equal to 100 rads</td>
<td>IRV</td>
<td>inspiratory reserve volume</td>
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<td>gyn</td>
<td>gynecology</td>
<td>IUD</td>
<td>intrauterine device</td>
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<td>H</td>
<td>hypodermic</td>
<td>IV</td>
<td>intravenous</td>
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<tr>
<td>h.</td>
<td>every hour (Latin <em>hora</em>)</td>
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<td>intravenous cholangiography</td>
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<td>h.s.</td>
<td>hour of sleep (Latin <em>hora somni</em>)</td>
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<td>intravenous pyelogram</td>
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<td>HBOT</td>
<td>hyperbaric oxygen therapy</td>
<td>IVU</td>
<td>intravenous urography</td>
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<td>HCG</td>
<td>human chorionic gonadotropin</td>
<td>K+</td>
<td>potassium</td>
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<td>HCT, Hct</td>
<td>hematocrit</td>
<td>KUB</td>
<td>kidney, ureter, bladder</td>
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<td>HD</td>
<td>hemodialysis</td>
<td>L</td>
<td>left</td>
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<tr>
<td>HDL</td>
<td>high-density lipoprotein</td>
<td>L₁</td>
<td>first lumbar vertebra</td>
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<td>HGB, Hgb, HB</td>
<td>hemoglobin</td>
<td>LDH</td>
<td>lactate dehydrogenase</td>
</tr>
<tr>
<td>HIV</td>
<td>human immunodeficiency virus</td>
<td>LDL</td>
<td>low-density lipoprotein</td>
</tr>
<tr>
<td>HR</td>
<td>heart rate</td>
<td>LH</td>
<td>luteinizing hormone</td>
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<tr>
<td>HRT</td>
<td>hormone replacement therapy</td>
<td>LLL</td>
<td>left lower lobe [of the lungs]</td>
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<td>HSG</td>
<td>hysterosalpingography</td>
<td>LMP</td>
<td>last menstrual period</td>
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<td>HSO</td>
<td>hysterosalpingooophorectomy</td>
<td>LP</td>
<td>lumbar puncture</td>
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<tr>
<td>HSV</td>
<td>herpes simplex virus</td>
<td>LUL</td>
<td>left upper lobe [of the lungs]</td>
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<tr>
<td>IBD</td>
<td>inflammatory bowel disease</td>
<td>LV</td>
<td>left ventricle</td>
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<td>IBS</td>
<td>irritable bowel syndrome</td>
<td>LVH</td>
<td>left ventricular hypertrophy</td>
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<td>ICCE</td>
<td>intracapsular cataract cryoextraction</td>
<td>M.</td>
<td>mix</td>
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<tr>
<td>ICD</td>
<td>International Classification of Diseases</td>
<td>MBC</td>
<td>maximal breathing capacity</td>
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<td>ICP</td>
<td>intracranial pressure</td>
<td>mcg</td>
<td>microgram</td>
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<td>IDDM</td>
<td>insulin-dependent diabetes mellitus</td>
<td>MCH</td>
<td>mean corpuscular hemoglobin</td>
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<td>IgA</td>
<td>immunoglobulin A</td>
<td>MCHC</td>
<td>mean corpuscular hemoglobin concentration</td>
</tr>
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<td>IgD</td>
<td>immunoglobulin D</td>
<td>MCP</td>
<td>metacarpophalangeal</td>
</tr>
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<td>IgE</td>
<td>immunoglobulin E</td>
<td>MCV</td>
<td>mean corpuscular volume</td>
</tr>
<tr>
<td>IgG</td>
<td>immunoglobulin G</td>
<td>MDI</td>
<td>metered dose inhaler</td>
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<td>Abbreviation</td>
<td>Meaning</td>
<td>Abbreviation</td>
<td>Meaning</td>
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<td>mEq</td>
<td>milliequivalent</td>
<td>oint., ung.</td>
<td>ointment, unguent</td>
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<tr>
<td>METS, mets</td>
<td>metastases</td>
<td>o.l., OL</td>
<td>left eye</td>
</tr>
<tr>
<td>mg</td>
<td>milligram</td>
<td>OM</td>
<td>otitis media</td>
</tr>
<tr>
<td>MI</td>
<td>mitral insufficiency; myocardial infarction</td>
<td>o.s., OS</td>
<td>left eye</td>
</tr>
<tr>
<td>ml</td>
<td>milliliter</td>
<td>OT</td>
<td>oxytocin</td>
</tr>
<tr>
<td>mono</td>
<td>monocyte</td>
<td>OTC</td>
<td>over the counter</td>
</tr>
<tr>
<td>MR</td>
<td>mitral regurgitation</td>
<td>o.u., OU</td>
<td>each eye</td>
</tr>
<tr>
<td>MRA</td>
<td>magnetic resonance angiography</td>
<td>oz.</td>
<td>ounce</td>
</tr>
<tr>
<td>MRSA</td>
<td>A form of <em>Staphylococcus aureus</em> that is resistant to a common group of antibiotics that include methicillin, penicillin, and amoxicillin</td>
<td>p</td>
<td>post, after</td>
</tr>
<tr>
<td>MRI</td>
<td>magnetic resonance imaging</td>
<td>P</td>
<td>para (live births)</td>
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<tr>
<td>MS</td>
<td>multiple sclerosis</td>
<td>P</td>
<td>phosphorus</td>
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<td>MS</td>
<td>mitral stenosis</td>
<td>p.c.</td>
<td>after meals (Latin <em>post cibum</em>), one-half hour after a meal</td>
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<td>MSH</td>
<td>melanocyte-stimulating hormone</td>
<td>PA</td>
<td>posteroanterior</td>
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<td>MUGA</td>
<td>multiple-gated acquisition scan</td>
<td>PAC</td>
<td>premature atrial contraction</td>
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<tr>
<td>multip</td>
<td>multiparous</td>
<td>Pap smear</td>
<td>Papanicolaou smear</td>
</tr>
<tr>
<td>MVP</td>
<td>mitral valve prolapse</td>
<td>PCP</td>
<td><em>Pneumocystis carinii</em> pneumonia</td>
</tr>
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<td>n., noct.</td>
<td>night (Latin, <em>nocte</em>)</td>
<td>PCV</td>
<td>packed cell volume</td>
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<td>NG</td>
<td>nasogastric</td>
<td>PDR</td>
<td><em>Physician’s Desk Reference</em></td>
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<td>N.S., NS</td>
<td>normal saline</td>
<td>PE tube</td>
<td>polyethylene ventilating tube (placed in the eardrum)</td>
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<td>N&amp;V</td>
<td>nausea and vomiting</td>
<td>PED</td>
<td>penile erectile dysfunction</td>
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<td>Na+</td>
<td>sodium</td>
<td>PEEP</td>
<td>positive end expiratory pressure</td>
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<td>NHL</td>
<td>non-Hodgkin’s lymphoma</td>
<td>PERRL, PERRLA</td>
<td>pupils equal, round, reactive to light (and accommodation)</td>
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<td>NIDDM</td>
<td>noninsulin-dependent diabetes mellitus</td>
<td>PET</td>
<td>positron emission tomography</td>
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<td>NMR</td>
<td>nuclear magnetic resonance (imaging)</td>
<td>PFT</td>
<td>pulmonary function tests</td>
</tr>
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<td>non rep.</td>
<td>do not repeat</td>
<td>PG</td>
<td>prostatglandins</td>
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<tr>
<td>NPO</td>
<td>nothing by mouth</td>
<td>pH</td>
<td>power of hydrogen concentration</td>
</tr>
<tr>
<td>NPO p MN</td>
<td>nothing by mouth after midnight</td>
<td>PID</td>
<td>pelvic inflammatory disease</td>
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<td>NSAID</td>
<td>nonsteroidal anti-inflammatory drug</td>
<td>PIP</td>
<td>proximal interphalangeal joint</td>
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<td>NVA</td>
<td>near visual acuity</td>
<td>PKU</td>
<td>phenylketonuria</td>
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<td>OA</td>
<td>osteoarthritis</td>
<td>PLT</td>
<td>platelet count</td>
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<td>OB</td>
<td>obstetrics</td>
<td>PM, p.m., P</td>
<td>afternoon (Latin <em>post meridiem</em>)</td>
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<td>OCD</td>
<td>obsessive-compulsive disorder</td>
<td>PMN, poly</td>
<td>polymorphonuclear neutrophil</td>
</tr>
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<td>OCP</td>
<td>oral contraceptive pill</td>
<td>PMP</td>
<td>previous menstrual period</td>
</tr>
<tr>
<td>o.d., OD</td>
<td>right eye</td>
<td>PMS</td>
<td>premenstrual syndrome</td>
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<td>Abbreviation</td>
<td>Meaning</td>
<td>Abbreviation</td>
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<tr>
<td>PNS</td>
<td>peripheral nervous system</td>
<td>RNA</td>
<td>ribonucleic acid</td>
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<td>PND</td>
<td>paroxysmal nocturnal dyspnea; postnasal drip</td>
<td>ROM</td>
<td>range of motion</td>
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<td>p.o.</td>
<td>by mouth (Latin <em>per os</em>)</td>
<td>RT</td>
<td>radiation therapy</td>
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<td>PRN, p.r.n.</td>
<td>repeat as needed (Latin <em>pro re nata</em>)</td>
<td>RUL</td>
<td>right upper lobe [of the lungs]</td>
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<td>PSA</td>
<td>prostate-specific antigen</td>
<td>RP</td>
<td>retrograde pyelogram</td>
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<td>PSIS</td>
<td>posterior superior iliac spine</td>
<td>Rx</td>
<td>prescription</td>
</tr>
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<td>PT</td>
<td>prothrombin time</td>
<td>S, S</td>
<td>without</td>
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<td>PTCA</td>
<td>percutaneous transluminal coronary angioplasty</td>
<td>SA</td>
<td>sinoatrial</td>
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<td>PTH</td>
<td>parathyroid hormone, parathormone</td>
<td>SAH</td>
<td>subarachnoid hemorrhage</td>
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<tr>
<td>PTSD</td>
<td>post-traumatic stress disorder</td>
<td>SARS</td>
<td>severe acute respiratory syndrome</td>
</tr>
<tr>
<td>PTT</td>
<td>partial thromboplastin time</td>
<td>seg</td>
<td>segmented mature white blood cells</td>
</tr>
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<td>pulv., pwdr.</td>
<td>powder</td>
<td>SG</td>
<td>specific gravity</td>
</tr>
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<td>PUVA</td>
<td>psoralen—ultraviolet A light therapy</td>
<td>SGOT</td>
<td>serum glutamic oxaloacetic transaminase</td>
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<tr>
<td>PVC</td>
<td>premature ventricular contraction</td>
<td>SGPT</td>
<td>serum gluamic pyruvic transaminase</td>
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<tr>
<td>PPD</td>
<td>purified protein derivative</td>
<td>SIDS</td>
<td>sudden infant death syndrome</td>
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<td>primip</td>
<td>primiparous</td>
<td>Sig.</td>
<td>patient directions such as route and timing of medication (Latin <em>signa, inscription</em>)</td>
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<td>PRL</td>
<td>prolactin</td>
<td>SL</td>
<td>sublingual</td>
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<td>qam</td>
<td>every morning</td>
<td>SLE</td>
<td>systemic lupus erythematosus</td>
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<tr>
<td>q.d.</td>
<td>every day (Latin <em>quaque dies</em>)</td>
<td>SNOMED</td>
<td>Systematized Nomenclature of Medicine</td>
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<td>q.h.</td>
<td>every hour</td>
<td>SOB</td>
<td>shortness of breath</td>
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<td>q.i.d.</td>
<td>four times a day</td>
<td>sol., soln.</td>
<td>solution</td>
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<tr>
<td>q.o.d.</td>
<td>every other day</td>
<td>SOM</td>
<td>serous otitis media</td>
</tr>
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<td>QNS</td>
<td>quantity not sufficient</td>
<td>s.o.s.</td>
<td>if there is need</td>
</tr>
<tr>
<td>q. s.</td>
<td>sufficient quantity</td>
<td>sp.</td>
<td>spirit</td>
</tr>
<tr>
<td>r</td>
<td>roentgen</td>
<td>SPECT</td>
<td>single photon emission computed tomography</td>
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<td>R</td>
<td>rectal</td>
<td>SPP</td>
<td>suprapubic prostatectomy</td>
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<td>R</td>
<td>right</td>
<td>SR; sed. rate</td>
<td>sedimentation rate</td>
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<tr>
<td>RA</td>
<td>rheumatoid arthritis</td>
<td>ss, s$s$</td>
<td>one-half</td>
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<td>Ra</td>
<td>radium</td>
<td>stat</td>
<td>immediately</td>
</tr>
<tr>
<td>rad</td>
<td>radiation absorbed dose</td>
<td>STH</td>
<td>somatotropin hormone</td>
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<td>RAI</td>
<td>radioactive iodine</td>
<td>subc, subq, s.c.</td>
<td>subcutaneously</td>
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<td>RBC</td>
<td>red blood cell count</td>
<td>supp., suppos.</td>
<td>suppository</td>
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<td>RD</td>
<td>respiratory disease</td>
<td>susp.</td>
<td>suspension</td>
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<td>RDH</td>
<td>registered dental hygienist</td>
<td>SV</td>
<td>stroke volume</td>
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<td>RDS</td>
<td>respiratory distress syndrome</td>
<td>sym, Sym, Sx</td>
<td>symptoms</td>
</tr>
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<td>RIA</td>
<td>radioimmunoassay</td>
<td>syr.</td>
<td>syrup</td>
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<td>RLL</td>
<td>right lower lobe [of the lungs]</td>
<td>T$_1$</td>
<td>first thoracic vertebra</td>
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</table>

684  Appendix B  Abbreviations—Ones to Use and Ones to Avoid
<table>
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<tr>
<th>Abbreviation</th>
<th>Meaning</th>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
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<tbody>
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<td>TC</td>
<td>total cholesterol</td>
<td>TURP</td>
<td>transurethral resection of the prostate</td>
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<td>t.i.d.</td>
<td>three times a day</td>
<td>Tx</td>
<td>treatment</td>
</tr>
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<td>tab.</td>
<td>tablet</td>
<td>UA</td>
<td>urinalysis</td>
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<td>T&amp;A</td>
<td>tonsillectomy and adenoidectomy</td>
<td>UC</td>
<td>uterine contractions</td>
</tr>
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<td>TAH-BSO</td>
<td>total abdominal hysterectomy with bilateral salpingo-oophorectomy</td>
<td>u.d.</td>
<td>as directed</td>
</tr>
<tr>
<td>tal.</td>
<td>such</td>
<td>UGI(s)</td>
<td>upper gastrointestinal (series)</td>
</tr>
<tr>
<td>tal. dos.</td>
<td>such doses</td>
<td>ung.</td>
<td>ointment</td>
</tr>
<tr>
<td>TAT</td>
<td>Thematic Apperception Test</td>
<td>URI</td>
<td>upper respiratory infection</td>
</tr>
<tr>
<td>TB</td>
<td>tuberculosis</td>
<td>U/S</td>
<td>ultrasound</td>
</tr>
<tr>
<td>tbsp.</td>
<td>tablespoonful</td>
<td>U.S.P.</td>
<td>United States Pharmacopeia</td>
</tr>
<tr>
<td>TC</td>
<td>total cholesterol</td>
<td>UTI</td>
<td>urinary tract infection</td>
</tr>
<tr>
<td>TDM</td>
<td>therapeutic drug monitoring</td>
<td>U, u</td>
<td>unit</td>
</tr>
<tr>
<td>TIA</td>
<td>transient ischemic attack</td>
<td>VC</td>
<td>vital capacity</td>
</tr>
<tr>
<td>tinct., tr.</td>
<td>tincture</td>
<td>VCU, VCUG</td>
<td>voiding cystourethrogram</td>
</tr>
<tr>
<td>TLC</td>
<td>total lung capacity</td>
<td>VF</td>
<td>visual field</td>
</tr>
<tr>
<td>TMJ</td>
<td>temporomandibular joint</td>
<td>VLDL</td>
<td>very low-density lipoprotein</td>
</tr>
<tr>
<td>TNM</td>
<td>tumor, nodes, metastasis</td>
<td>V/Q, V/Q scan</td>
<td>ventilation/perfusion scan</td>
</tr>
<tr>
<td>tPA, TPA</td>
<td>tissue plasminogen activator</td>
<td>VRE</td>
<td>A form of enterococcus that is resistant to most antibiotics</td>
</tr>
<tr>
<td>TPN</td>
<td>total parenteral nutrition</td>
<td>VSD</td>
<td>ventricular septal defect</td>
</tr>
<tr>
<td>TPR</td>
<td>temperature, pulse, and respiration</td>
<td>VT</td>
<td>ventricular tachycardia</td>
</tr>
<tr>
<td>TSH</td>
<td>thyroid-stimulating hormone</td>
<td>WAIS</td>
<td>Wechsler Adult Intelligence Scale</td>
</tr>
<tr>
<td>tsp.</td>
<td>teaspoonful</td>
<td>WBC</td>
<td>white blood cell count</td>
</tr>
<tr>
<td>TSS</td>
<td>toxic shock syndrome</td>
<td>XRT</td>
<td>x-ray or radiation therapy</td>
</tr>
<tr>
<td>TUJP</td>
<td>transurethral incision of the prostate</td>
<td>ZDV</td>
<td>ZDV</td>
</tr>
<tr>
<td>TUNA</td>
<td>transurethral needle ablation</td>
<td></td>
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</tr>
</tbody>
</table>
The following glossary includes the key terms found throughout this text. The Spanish terms in blue for selected key terms are references to the Spanish Glossary available online at www.mhhe.com/medterm3e.

**Glossary of Key Terms**

**A**

- abdominal: [a-b-DÔM-í-nâl] cavity: Body space between the abdominal walls, above the pelvis, and below the diaphragm.
- abdominocentesis: [a-b-DÔM-í-nô-sên-TÊ-sis] Incision into the abdomen to remove fluid or relieve pressure.
- abortifacient: [a-bôr-ti-fâ-shênt] [abortifaciente]: Medication to prevent implantation of an ovum.
- abortion: [a-bôr-tô]: Premature ending of a pregnancy.
- abdominocentesis: [a-b-DÔM-í-nô-sên-TÊ-sis] Incision into the abdomen to remove fluid or relieve pressure.
- abscess: [AB-sê-sës] [absceso]: Localized collection of pus and other exudate, usually accompanied by swelling and redness; infection and swelling of the soft tissue of the jaw.
- absence seizure: Mild epileptic seizure consisting of brief disorientation with the environment.
- absorb: [a-b-SÔRB]: To take into.
- absorption: [a-b-SÔRP-shën] [absorción]: Passing of nutrients into the bloodstream.
- acetabulum: [as-ë-TAB-yû-lûm] [acetábulo]: Cup-shaped depression in the hip bone into which the top of the femur fits.
- acetone: [AS-ë-tô-në] [acetona]: Type of ketone normally found in urine in small quantities; found in larger quantities in diabetic urine.
- acetylcholine: [as-ë-têl-KÔ-lên] [acetilcolina]: Chemical that stimulates cells.
- achalasia: [a-kâ-LÂ-zhe-ë]: Inability of a muscle, particularly the cardiac sphincter, to relax.
- alcholhydria: [a-klor-HI-drê-å]: Lack of hydrochloric acid in the stomach.
- acidosis: [as-í-DÖ-sës] [acidosis]: Abnormal release of ketones in the body.
- acne: [AK-në] [acné]: Inflammatory eruption of the skin, occurring in or near sebaceous glands on the face, neck, shoulder, or upper back.
- acne vulgaris: [vûl-GAR-ës] [acne vulgar]: See acne.
- acquired active immunity: Resistance to a disease acquired naturally or developed by previous exposure or vaccination.
- acquired passive immunity: Inoculation against disease or poison, using antitoxins or antibodies from or in another person or another species.
- acromegaly: [âk-rô-MEG-å-lë] [acromegalie]: Abnormally enlarged features resulting from a pituitary tumor and hypersecretion of growth hormone.
- acromion: [a-KRÔ-më-ôn] [acromion]: Part of the scapula that connects to the clavicle.
- actinic keratosis: [âk-TIN-ë-kêr-å-tô-sës]: Overgrowth of horny skin that forms from over-exposure to sunlight; sunburn.
- acupuncture: [â-kyû-PÜNK-châr]: Originally Chinese therapy that uses fine needles.
- Adam's apple: [manzana de Adán]: Thyroid cartilage, supportive structure of the larynx; larger in males than in females; protrusion in the neck caused by a fold of thyroid cartilage.
- addict: [ĂD-ikt]: One who is dependent on a substance (usually illegal, as narcotics) on a recurring basis.
- Addison's disease: [ĂD-î-sôn]: Underactivity of the adrenal glands.
- adectomy: [a-dê-në-ku]: Removal of a gland.
- adenohypophysis: [ĂD-ë-nô-hi-PÎF-î-sës]: Anterior lobe of the pituitary gland.
- adenoiditis: [ĂD-ë-nôy-DÎ-tîs]: Inflammation of the adenoids.
- adenoids: [ĂD-ë-nôy-dë]: Collection of lymphoid tissue in the nasopharynx; pharyngeal tonsils.
- adipose: [ĂD-î-pôs]: Fatty; relating to fat.
- adrenal cortex: [a-DRÉ-nâl KÔR-tëks]: Outer portion of the adrenal gland; helps control metabolism, inflammations, sodium and potassium retention, and effects of stress.
adrenal gland [adrenal] One of two glands, each of which is situated on top of each kidney.
adrenal medulla [mē-DÜL-lə] Inner portion of adrenal glands; releases large quantities of hormones during stress.
adrenalin [ə-drē-nə-līn] [adrenaline] Epinephrine; secreted by adrenal medulla.
aerotitis media [ə-rō-TI-tīs] Inflammation of the middle ear caused by air pressure changes, as in air travel.
afferent [ə-FER-ənt] (sensory) neuron Neuron that carries information from the sensory receptors to the central nervous system.
afterbirth [AF-tēr-birth] [secundina] Placenta and membranes that are expelled from the uterus after birth.
agglutination [ə-glū-tīn-ā-shən] [aglutinación] Clumping of cells and particles in blood.
agglutinogen [ə-glū-tīn-ō-jēn] [aglutinógeno] Substances that cause agglutination.
aggressiveness [ə-grēs-iv-nēs] [aggressividad] Abnormal forcefulness toward others.
agitation [ə-gē-TAY-shən] [agitación] Abnormal restlessness.
agnosia [ə-gnō-sē-ə] [agnosia] Inability to receive and understand outside stimuli.
agranulocyte [ə-grān-yō-lō-kīt] [agranulocito] Leukocyte with nongranular cytoplasm.
AIDS [ādīs] See acquired immunodeficiency syndrome.
albinism [ə-līb-nīz-əm] [albinismo] Rare, congenital condition causing either partial or total lack of pigmentation.
albumin [əl-bū-mīn] [álbumina] 1. Simple protein; when leaked into urine, may indicate a kidney problem. 2. Simple protein found in plasma.
albuminuria [əl-bū-mī-nūr-ə] [albuminuria] Presence of albumin in urine, usually indicative of disease.
aldoosterone [əl-dōs-tō-ron] [aldoosterona] Hormone secreted by adrenal cortex; mineralocorticoid.
alimentary [əl-tī-mən-tē-ə] canal Muscular tube from the mouth to the anus; digestive tract; gastrointestinal tract.
allograft [əl-ō-grāft] [a]lo[inje][rto] See homograft.
aloe [ə-lō] (alopecia) Lack of hair in spots; baldness.
aloe [ə-loy] [alopecia areata] Loss of hair in patches.
alpha [əl-fā] cells Specialized cells that produce glucagon in the pancreas.
alpha rays Type of radioactive particles that have a low ability to penetrate the body.
alpha-hydroxy [əl-fā-hī-dō-KS-e] acid Agent added to cosmetics to improve the skin’s appearance.
alternative medical system Complete system of medical treatment outside the realm of conventional medicine.
alternative medicine Medical therapies outside the realm of conventional medicine.
alveolar [əl-VE-o-lər] Forming small sacs.
alveolus [əl-vō-lōz] [alvéolus] [alvéolo] Air sac at the end of each bronchiole.
Alzheimer’s [ALTS-hī-měrs] disease A type of degenerative brain disease causing thought disorders, gradual loss of muscle control, and, eventually, death.
amalgam [ə-MAL-gəm] Mixture of metals or other substances used in fillings.
amблиов [əm-bli-o-ləv] Feeling of conflicting emotions about a person or issue.
amnenorrhea [ə-men-ō-RE-a] [amenorrea] Lack of menstruation.
amino [ə-MĒ-no] acid [aminoacídio] Chemical compound that results from digestion of complex proteins.
amnesia [əm-NE-zē-ə] [amnesia] Loss of memory.
amniocentesis [ə-MIN-o-sē-nē-TÉ-sēs] [amniocentesis] Removal of a sample of amniotic fluid through a needle injected in the amniotic sac.
amnion [ə-MNē-on] [amnios] Innermost membrane of the sac surrounding the fetus during gestation.
amniotic [ə-men-ō-ÖT-ik] [amniótico] fluid Fluid surrounding the fetus and held by the amnion.
amputation [əm-pyū-tā-shən] [amputación] Cutting off of a limb or part of a limb.
amylase [ə-MIL-ē-s] [amilasa] Enzyme that is part of pancreatic juice and saliva and that begins the digestion of carbohydrates.
amyotrophic lateral sclerosis [ə-mō-trōf-ik] sklē-rō-sīs (ALS) Degenerative disease of the motor neurons leading to loss of muscular control and death.
anacusis [ə-nā-kū-sēs] [anacusia] Loss of hearing.
anal [ə-nāl] canal Part of the digestive tract extending from the rectum to the anus.
anal fistula [ə-nāl fīstū-lə] Small opening in the anal canal through which waste matter can leak.
analgésic [ən-alg-e-sik] [analgesico] Agent that relieves or eliminates pain.
anaphylaxis [ə-nā-fī-lāks-īs] [anafilaxia o anafilaxis] Life-threatening allergic reaction.
anaplasia Does not seem to be a term. It seems to be a typing error.
anaplastic [ə-nā-plās-ti-k] Reverting to a more immature form.
anastomosis [ə-nā-stō-mō-sēs] [anastomosis] Surgical connection of two blood vessels to allow blood flow between them; surgical union of two hollow structures.
androgen [ən-drō-jēn] [andrógeno] Any male hormone, such as testosterone.
amenia [ə-nē-men-ē] [anemia] Condition in which red blood cells do not transport enough oxygen to the tissues.
anesthetic [án-és-THÉT-ik] [anestésico] 1. Agent that relieves pain by blocking nerve sensations. 2. Agent that causes loss of feeling or sensation. 3. Drug that causes temporary loss of ability to perceive sensations at a conscious level.

aneurysm [ÀN-yú-rízrn] [aneurisma] Abnormal widening of an artery wall that bursts and releases blood; ballooning of the artery wall caused by weakness in the wall.


angioplasty [àn-je-Ö-plás-te] Opening of a blocked blood vessel, as by balloon dilation.

angiography [àn-je-ÖS-kó-pe] (angioplastia) Opening of a blocked blood vessel, as by balloon dilation.

angiography [àn-je-ÖS-kó-pe] (angioplastic) Opening of a blocked blood vessel, as by balloon dilation.

angiography [àn-je-ÖS-kó-pe] (angioplastic) Opening of a blocked blood vessel, as by balloon dilation.

angiotensin [àn-je-Ö-TEN-sín] (converting enzyme (ACE) inhibitor) Medication used for heart failure and other cardiovascular problems; acts by dilating arteries to lower blood pressure and makes the heart pump easier.


ankle [ÁNG-kì] (tobillo) Hinged area between the lower leg bones and the bones of the foot.

ankylolysis [ÀN-gi-lós-és-e-a] (anquilosis) Condition of the tongue being partially or completely attached to the bottom of the mouth.

ankylolysis [ÀN-gi-lós-és-e-a] (anquilosis) Condition of the tongue being partially or completely attached to the bottom of the mouth.

antibiotic [ÀN-té-bi-ÖT-ik] [antibiótico] Agent or drug that kills or slows the growth of harmful microorganisms.

antibody [ÀN-té-bôd-e] [anticuerpo] Specialized protein that fights disease; also called immunoglobulin.

anticoagulant See anticoagulant.

anticoagulant [ÀN-té-kö-AG-yú-lént] Agent that prevents the formation of dangerous blood clots.

anticonvulsant [ÀN-té-kön-VUL-sánt] Agent that lessens or prevents convulsions.

antidepressant [ÀN-té-dé-PRES-ént] Agent that controls the effects of clinical depression.

antidiabetic [ÀN-té-di-á-BÉT-ik] [antidiabético] Drug that lowers blood sugar or increases insulin sensitivity.


antidiuretic [ÀN-té-di-yú-RÉT-ik] hormone (ADH) Posterior pituitary hormone that increases water reabsorption.

antidote [ÀN-té-dó] [antidoto] Substance able to cancel out unwanted effects of another substance.

antiemic [ÀN-té-é-MÈT-ik] Agent that prevents vomiting.

antifungal [ÀN-té-FÜNG-á] [antifúngico] Agent or drug that kills or slows the growth of fungi.

antigen [ÀN-tí-jén] [antígeno] Any substance that can provoke an immune response.

antiglobulin [ÀN-té-GLÖB-yú-lín] test Test for antibodies on red blood cells.

antihistamine [ÀN-té-HÍS-ta-mén] [antihistamina] 1. Agent that controls allergic reactions by blocking the effectiveness of histamines in the body. 2. Drug that reduces the action of histamines; used in allergy treatments.


antihypertensive Agent that helps control high blood pressure.


anti-inflammatory (corticosteroids) Agent that reduces inflammation.

anti-inflammatory Agent that relieves the symptoms of inflammations.

antipruritic [ÀN-té-pró-RÍT-ik] Agent that controls itching.

antipsychotic [ÀN-té-sí-KÔT-ik] agent Agent that relieves agitation and some psychoses.

antisepptic Agent that kills or slows the growth of microorganisms.

antipsasmodic [àn-tee-spá-MÒD-ik] Pharmacological agent that relieves spasms; also decreases frequency of urination; agent that controls intestinal tract spasms.

antitoxin [àn-té-TÖK-sín] (antitoxina) Antibodies directed against a particular disease or poison.

antitubercular [àn-tee-TUB-krük-lär] Drug that stops the spread of tuberculosis.

antiviral [án-tè-ví-rál] Drug that stops or slows the spread of a virus.
anuria [án-yú-ré-a] [anuria] Lack of urine formation.
anus [A-nú̄s] [ano] Place at which feces exit the body.
anxiety [án-niskez] [áng-i-te] Abnormal worry.
aorta [á-ÖR-tá] [aorta] Largest artery of the body; artery through which blood exits the heart.
aortic stenosis [stē-NÖ-sís] Narrowing of the aorta.
aortic valve Valve between the aorta and the left ventricle.
apex [Ap-eks] [ape] Topmost section of the lung.
Apgar [AP-gár] score A rating of a newborn’s Activity, Pulse, Grimace, Appearance, Respiration.
aphagia [af-ag-é-a] [afagia] Inability to swallow.
aphakia [af-a-ké-a] [aphakia] Absence of a lens.
aphasia [af-á-FÁ-zé-a] [aphasia] Loss of speech.
apnea [Ap-né-a] [apnea] Cessation of breathing.
apocrine [AP-ör-krín] glands Glands that appear during and after puberty and secrete sweat, as from the armpits.
appendage [ä-PÉN-dij] [apéndice] Any body part (inside or outside) either subordinate to a larger part or having no specific central function.
appendicitis [ä-pén-dí-SÍ-rís] Inflammation of the appendix.
appendix [ä-PÉN-diks] [apéndice] Wormlike appendage to the cecum.
apraxia [ä-PRÁK-sé-a] [apraxia] Inability to properly use familiar objects.
arachnoid [ä-RÁK-nóyd] [aracnoide] Middle layer of meninges.
aroea [ä-RÖR-ö-la] [aréola] Darkish area surrounding the nipple on a breast.
arrhythmia [är-RITH-mé-a] [arritmia] Irregularity in the rhythm of the heartbeat.
arterial [är-TÉR-é-á] blood gases Laboratory test that measures the levels of oxygen and carbon dioxide in arterial blood.
arteriole [är-TÉR-é-ól] [arteriola] A tiny artery connecting to a capillary.
arteriotomy [är-tér-e-ÖT-ó-mé] Surgical incision into an artery, especially to remove a clot.
arthritis [är-tér-Ö-tís] [arthritis] Inflammation of an artery or arteries.
artery [ÄR-tér-e] [arteria] A thick-walled blood vessel that, in systemic circulation, carries oxygenated blood away from the heart.
arthralgia [är-THRA-L-jé-a] [arthralgia] Severe joint pain.
arthritis [är-THRÍ-tis] [arthritis] Any of various conditions involving joint inflammation.
arthrocentesis [ĂR-thró-së-n-TÉ-sís] [arthrocentesis] Removal of fluid from a joint with use of a puncture needle.
arthrodesis [ă-THRO-DÉ-sís] Surgical fusion of a joint to stiffen it.
arthroplasty [ă-THRÓ-plás-te] Surgical replacement or repair of a joint.
arthroscopy [är-THRÖS-kó-pe] Examination with an instrument that explores the interior of a joint.
articular [är-TIK-yú-lár] [cartilage] Cartilage at a joint.
antarticulation [ä-rik-TIK-yú-LÁ-shun] [articulación] Point at which two bones join together to allow movement.
asbestosis [äs-bés-TÖ-sís] [asbestosis] Lung disorder caused by long-term inhalation of asbestos (as in construction work).
ascites [äs-TÍ-tís] [ascitis] Fluid buildup in the abdominal and peritoneal cavities.
aspermia [ä-SPÉR-mé-a] [aspermia] Inability to produce sperm.
aspiration [äs-pí-RÁ-shun] [aspiración] Biopsy in which fluid is withdrawn through a needle by suction.
asthenia [äs-thë-NÖ-pe-a] [astenopía] Weakness of the ocular or ciliary muscles that causes the eyes to tire easily.
asthma [ÄZ-má] [asma] Chronic condition with obstruction or narrowing of the bronchial airways.
astigmatism [äs-TIG-má-tiım] [astigmatismo] Distortion of sight because of lack of focus of light rays at one point on the retina.
astirgent [ä-TRÍN-jént] Agent that removes excess oils and impurities from the surface of skin.
astrocyte, astroglia [ÄS-tró-sí, äs-TRÔG-lé-a] [astrocito, astroglía] A type of neuroglia that maintains nutrient and chemical levels in neurons.
astrocytoma [ÄS-tró-sí-TÖ-má] [astrocitoma] Type of glioma formed from astrocytes.
asystole [äs-SÍST-o-lé] [asistolia] Cardiac arrest.
ataxia [ät-AHK-sé-a] [ataxia] Condition with uncoordinated voluntary muscular movement, usually resulting from disorders of the cerebellum or spinal cord.
atelectasis [ät-é-LÉK-tá-sís] [atelectasia] Collapse of a lung or part of a lung.
atheroma [ät-hér-Ö-má] [atheroma] A fatty deposit (plaque) in the wall of an artery.
atresia [ä-TRE-zé-a] [atresia] Abnormal narrowing, as of the ureters or urethra.
atrial fibrillation [ä-trí-LÁ-shun] An irregular, usually rapid, heartbeat caused by overstimulation of the AV node.
atrioventricular [ā-trē-ŏ-vĕn-trīk-yû-lâr] bundle Bundle of fibers in the interventricular septum that transfer charges in the heart's conduction system; also called bundle of His.

atrioventricular block Heart block; partial or complete blockage of the electrical impulses from the atrioventricular node to the ventricles.

atrioventricular (AV) node Specialized part of the interatrial septum that sends a charge to the bundle of His.

atrioventricular valve One of two valves that control blood flow between the atria and ventricles.

atrium (pl., atria) [ā-trē-ōm (ā-trē-â)] [atrium] Either of the two upper chambers of the heart.

atrophypathy [āt-rŏ-fē] [atrofía] Wasting away of tissue, organs, and cells, usually as a result of disease or loss of blood supply.

audiogram [āw-dě-ō-grăm] [audiograma] Graph that plots the acoustic frequencies being tested.

audiologist [āw-dĕ-āl-ō-jist] [audiólogo] Specialist in evaluating hearing function.


auditory ossicles [āw-dĕ-tŏr-ĕ ēs-ī-kăl] Three specially shaped bones in the middle ear that anchor the eardrum to the tympanic cavity and that transmit vibrations to the inner ear.

aura [āw-ră] [aura] Group of symptoms that precede a seizure.

auricle [āw-rĭ-kăl] [auricular] Funnel-like structure leading from the external ear to the external auditory meatus; also called pinna.

auscultation [āw-sŭl-tăshŭn] [auscultación] Process of listening to body sounds via a stethoscope.


autograft [āw-tŏ-grăft] [autoinjerto] Skin graft using skin from one's own body.

autoimmune [āw-tŏ-ĭ-myü̇n] disease Any of a number of diseases, such as rheumatoid arthritis, lupus, and scleroderma, caused by an autoimmune response.

autoimmune response Overactivity in the immune system against oneself causing destruction of one's own healthy cells.

autonomic [āw-tŏ-nŏm-ĭk] nervous system Part of the peripheral nervous system that carries impulses from the central nervous system to glands, smooth muscles, cardiac muscle, and various membranes.

axis [āk-sĭs] [axis] Second cervical vertebra.

axon [āk-sŏn] [axon] Part of a nerve cell that conducts nerve impulses away from the cell body.

ayurveda [āy-yûr-vĕ-dā] Holistic alternative medicine system originally from India.

azoospermia [ā-zŏs-ŏ-sĕprĕ-mĕ-ă] [azoospermia] Semen without living sperm.


B

Babinski's [bă-bĭns-kĕs] reflex Reflex on the plantar surface of the foot.


bacterial endocarditis Bacterial inflammation of the inner lining of the heart.


balanitis [băl-ă-nĭ-tēs] [balanitis] Inflammation of the glans penis.

balloon catheter dilation Insertion of a balloon catheter into a blood vessel to open the passage so blood can flow freely.

balloon valvuloplasty [văl-ŭvŭ-lo-plăs-tē] Procedure that uses a balloon catheter to open narrowed orifices in cardiac valves.

barium [băr-ĭ-əm] Contrast medium that shows up as white on an x-ray.

Bartholin's [băr-thŏ-lĭ-nĭs] gland One of two glands on either side of the vagina that secrete fluid into the vagina.

basal cell carcinoma [băs-ăl sĕl kăr-sĭn-ō-mă] Slow-growing cancer of the basal cells of the epidermis, usually a result of sun damage.

basal ganglia [băs-ăl găn̩-gĭ-lē-ă] Large masses of gray matter within the cerebrum.

base [ bás] [base] Bottom section of the lung.

basophil [băs-ŏ-fĭl] [basófilo] Leukocyte containing heparin and histamine.

basophilia [băs-ŏ-fĭ-lē-ă] [basofilia] Condition with an increased number of basophils in the blood.

behavior modification Substitution of a beneficial behavior pattern for a destructive behavior pattern.

behavior therapy Therapy that includes the use of behavior modification.

Bell's palsy [bĕls-păl̩z] Paralysis of one side of the face; usually temporary.

benign [bĕn-ĭn] Encapsulated; not malignant.

beta [bĕtă] blocker Agent that lowers blood pressure by reducing contraction strength of the heart muscle; slows heartbeat.

beta [bĕtă] cells Specialized cells that produce insulin in the pancreas.

beta rays Type of radioactive particles that have a medium ability to penetrate the body.

bicuspid [bĭkūs-pĭd] Fourth and fifth tooth from the median of the jawline with two cusps.

bicuspids [bĭkūs-pĭdz] valvex Atrioventricular valve on the left side of the heart.

bile [bīl] [bilis] Yellowish-brown to greenish fluid secreted by the liver and stored in the gallbladder; aids in fat digestion.

bilirubin [bĭl-īrŭ-bĭn] [bilirubina] Substance produced in the liver; elevated levels may indicate liver disease or hepatitis when found in urine; pigment contained in bile.

Billroth's [bĭl-rŏths] I Excision of the pylorus.

Billroth's II Resection of the pylorus with the stomach.

biochemistry panel Common group of automated tests run on one blood sample.

bioelectromagnetic-based therapy Type of energy therapy using electromagnetic fields.

biofield therapy Type of energy therapy that attempts to affect energy fields.
bioscopic therapy Treatment of cancer with agents from the body that increase immune response.
biochemically-based therapy The use of foods, herbs, vitamins, and minerals to heal or prevent disease.
biochemistry [BL-kem-ÂŠ] [biokemie] The study of the chemical processes in living organisms.
biopsy [BL-ÎD-se] [biopsia] Excision of tissue for microscopio examination.
bipolar [bÎl-PÎr-lar] disorder Condition with drastic mood swings over a period of time.

birth control pills or implants Medication that controls the flow of hormones to block ovulation.

birthmark Lesion (especially a hemangioma) visible at or soon after birth; nevus.

B lymphocytes [LÎM-fí-sëts], B cells Lymphocyte that manufactures antibodies.

black lung See anthracosis.
blackhead [punto negro] See comedo.
bladder [BLÄD-ö] [vejiga] Organ where urine collects before being excreted from the body.
bladder cancer Malignancy of the bladder.
blepharitis [blÎf-Ö-RÎ-tis] [blefaritis] Inflammation of the eyelid.
blepharochalasis [blÎf-Ö-rÎ-KÎL-ä-sis] Loss of elasticity of the eyelid.
blepharoptosis [blÎf-Ö-rÎP-tô-sis] Drooping of the eyelid.
blepharospasm [BLÉ-fä-rô-späzm] Involuntary eyelid movement; excessive blinking.
blindness [çeguela] Loss or absence of vision.
blood [blöd] [sangre] Essential fluid made up of plasma and other elements that circulates throughout the body (arteries, veins, capillaries, and heart); delivers nutrients to and removes waste from the body's cells.
blood chemistry Test of plasma for presence of a particular substance such as glucose.
blood culture Test of a blood specimen in a culture medium to observe for particular microorganisms.
blood indices [IN-di-sez] Measurement of the characteristics of red blood cells.
blood pressure Measure of the force of blood surging against the walls of the arteries.
blood sugar, blood glucose Test for glucose in blood.
blood [blöd] system Body system that includes blood and all its component parts.
blood types or groups Classification of blood according to its antigen and antibody qualities.
blood vessel Any of the tubular passageways in the cardiovascular system through which blood travels.
body [kuerpo] Middle portion of the uterus; middle section of the stomach.

body-based therapy See manipulative therapy.
bone [hueso] Hard connective tissue that forms the skeleton of the body.
bone grafting Transplantation of bone from one site to another.

bone head Upper, rounded end of a bone.
buccally [BUK-äl-le] Inside the cheek.
bulla (pl., bules) [BUL-ā (BUL-i)] [bulla] Bubble-like blister on the surface of the skin.
bundle of His [hīs, hīs] See atriocentric bundle.
bunion [BŪN-yōn] [bunio] An inflamed bursa at the foot joint, between the big toe and the first metatarsal bone.
burn (quemadura) Damage to the skin caused by exposure to heat, chemicals, electricity, radiation, or other skin irritants; bubble-like blister on the surface of the skin caused by exposure to heat, chemicals, electricity, radiation, or other skin irritants.
bursa (pl., bursae) [BŪR-sā (BŪR-sē)] [bursa] Sac lined with a synovial membrane that fills the spaces between tendons and joints.
bursectomy [būr-SĒK-tō-mē] [bursectomy] Removal of a bursa.
bursitis [būr-SĪ-tēs] [bursitis] Inflammation of a bursa.
bror A structure (usually a vein graft) that creates a new passage for blood to flow from one artery to another artery or part of an artery; used to create a detour around blockages in arteries.

calcaneus [kāl-KA-ne-ās] [calcáneo] Heel bone.
calcar [KĀL-kār] [calcär] Spur.
calcitonin [kāl-sī-TŌ-nīn] [calcitonia] Hormone secreted by the thyroid gland and other endocrine glands; helps control blood calcium levels.
calcium [KĀL-sē-ōm] [calcío] Mineral important in the formation of bone.
calcium channel blocker Medication that lessens the ability of calcium ions to enter heart and blood vessel muscle cells; used to lower blood pressure and normalize some arrhythmias.
calices, calyces (sing., calix, calyx) [KĀL-i-sēz (KĀ-līks)] [calices, sing., cáliis] Cup-shaped structures in the renal pelvis for the collection of urine.
callus [KĀL-ōs] [callo] Mass of hard skin that forms as a cover over broken skin on certain areas of the body, especially the feet and hands.
CAM Complementary and alternative medicine.
candidiasis [kān-dī-DĪ-sē-sīs] [candidiasis] Yeastlike fungus on the skin, caused by Candida; characterized by pruritus, white exudate, peeling, and easy bleeding; examples are thrush and diaper rash.
canine [KĀ-nīn] Cuspid.
capillary [KĀP-ē-lār-ē] [capilar] A tiny blood vessel that forms the exchange point between the arterial and venous vessels.
carbon dioxide (CO₂) [dióxido de carbono] Waste material transported in the venous blood.
carbuncle [KĀR-bung-kl] [carbunclo] Infected area of the skin producing pus and usually accompanied by fever.
carcinoma in situ [kār-sī-NŌ-mā in ŚĪ-tē] Localized malignancy that has not spread; contained at a site without spreading.
cardiac arrest Sudden stopping of the heart; also called asystole.
cardiac catheterization [kāth-ē-tēr-ē-ZĀ-shūn] Process of passing a thin catheter through an artery or vein to the heart to take blood samples, inject a contrast medium, or measure various pressures.
cardiac cycle Repeated contraction and relaxation of the heart as it circulates blood within itself and pumps it out to the rest of the body or the lungs.
cardiac enzyme tests/studies Blood tests for determining levels of enzymes during a myocardial infarction; serum enzyme tests.
cardiac MRI Viewing of the heart by magnetic resonance imaging.
cardiac [KĀR-dē-ēk] muscle Striated involuntary muscle of the heart.
cardiac scan Process of viewing the heart muscle at work by scanning the heart of a patient into whom a radioactive substance has been injected.
cardiac tamponade [tām-pō-NĀD] Compression of the heart caused by fluid accumulation in the pericardial sac.
cardiomyopathy [KĀR-dē-ō-mē-ŌP-ē-thē] [cardiomiopatía] Disease of the heart muscle.
cardiopulmonary [KĀR-dē-ō-PǚL-mō-nē-ē] bypass Procedure used during surgery to divert blood flow to and from the heart through a heart-lung machine and back into circulation.
cardiotoxic [KĀR-dē-ō-TŌN-ik] Medication for congestive heart failure; increases the force of contractions of the myocardium.
cardiovascular [KĀR-dē-ō-VĀS-kyū-lār] Relating to or affecting the heart and blood vessels.
cardiovascular [KĀR-dē-ō-VĀS-kyū-lār] system Body system that includes the heart and blood vessels; circulatory system.
carotid [kā-RŌT-īd] artery Artery that transports oxygenated blood to the head and neck.
carpal [KĀR-pāl] tunnel syndrome Pain and paresthesia in the hand due to repetitive motion injury of the median nerve.
carpus, carpal [KĀR-pūs, KĀR-pāl] bone Wrist; wrist bone.
cartilage [KĀR-tī-lāj] [cartilago] Flexible connective tissue found in joints, fetal skeleton, and the lining of various parts of the body.
cartilaginous [kär-ti-LĀ-ĭ-nūs] disk Thick, circular mass of cartilage between the vertebrae of the spinal column.
casting [ko-lado] Forming of a cast in a mold; placing of fiber-glass or plaster over a body part to prevent its movement.
castration [kās-TRĀ-shūn] [castración] Removal of the testicles.
casts Materials formed in urine when protein accumulates; may indicate renal disease.
CAT (computerized axial tomography) scan Scan that shows images as detailed slices of a body part or organ.
catalepsy [KĀT-ā-lēp-sē] Trancelike state with holding of one pose for a long period of time.
cataract [KĀT-ā-rākt] [catarata] Cloudiness of the lens of the eye.
catecholamines [kāt-ē-KŌL-ā-mēn] [catecolaminas] Hormones, such as epinephrine, released in response to stress.
cathartic [kā-THĀR-tĭk] Agent that induces vomiting; also a strong laxative for emptying the bowels.
cauterization [kāw-Tār-i-ZĀ-shūn] [cauterización] Removal or destruction of tissue using chemicals or devices, such as laser-guided equipment.
cauterize [KĀW-tār-i-zĭ] [cauterizar] To apply heat to an area to cause coagulation and stop bleeding.
cauterizing [KĀW-tār-i-zĭ-ĭng] Destroying tissue by burning.
cavity [kā-VA-tĭ] Tooth decay.
cecum [SĒ-kūm] [ciego] Pouch at the top of the large intestine connected to the bottom of the ileum.
cell [sēl] Smallest unit of a living structure.
cell body Part of a nerve cell that has branches or fibers that reach out to send or receive impulses.
cell-mediated immunity Resistance to disease mediated by T cells.
cellulitis [sēl-yū-LĪ-tĭs] [celulitis] Severe inflammation of the dermis and subcutaneous portions of the skin, usually caused by an infection that enters the skin through an opening, such as a wound; characterized by local heat, redness, pain, and swelling.
cementum [sē-MĒN-tūm] Bony material surrounding the root of the tooth.
central incisor Tooth on either side of the center jawline.
central nervous system The brain and spinal cord.
cerebellitis [sēr-ē-bēl-TĪ-tĭs] [cerebelitis] Inflammation of the cerebellum.
cerebellum [sēr-ē-BEL-ŭm] One of the four major divisions of the brain; division that coordinates musculoskeletal movement.
cerebral angiogram X-ray of the brain's blood vessels after a dye is injected.
cerebral cortex [SĒR-ē-brāl KŌR-tēks] Outer portion of the cerebrum.
cerebral palsy [SĒR-ē-brāl PĀWL-zē] Congenital disease caused by damage to the cerebrum during gestation or birth and resulting in lack of motor coordination.
cerebrospinal [SĒR-ē-brō-spē-nāl] fluid (CSF) Watery fluid that flows throughout the brain and around the spinal cord.
cerebrovascular [SĒR-ē-brō-VĀS-kī-ŭ-lĕrm] accident (CVA) Neurological incident caused by disruption in the normal blood supply to the brain; stroke.
cerebrum [SĒR-ē-brūm, sē-RE-brūm] [cerebrum] One of the four major divisions of the brain; division involved with emotions, memory, conscious thought, moral behavior, sensory interpretations, and certain bodily movement.
cerumenous [sē-RŪ-mīn-ŭs] glands Glands that secrete a waxy substance on the surface of the ear.
cervical [SĒR-vē-kĭl] vertebrae Seven vertebrae of the spinal column located in the neck.
cervicitis [sēr-vī-sī-tĭs] Inflammation of the cervix.
cervix [SĒR-viks] [cervix] Protective part of uterus, located at the bottom and protruding through the vaginal wall; contains glands that secrete fluid into the vagina.
cesarean [sē-ZĀ-re-ăn] section Surgical removal of the fetus through the abdomen.
chalazion [kā-ZĀ-zē-ŏn] [chalazión] Nodular inflammation that usually forms on the eyelid.
chancroid [SHĀNG-kröyd] Bacterial infection that can be sexually transmitted; results in sores on the penis, urethra, or anus.
cheeks [karrillos] Walls of the oral cavity.
cheilitis [kē-LĪ-tĭs] [queilitis] Inflammation of the lips.
cheiloplasty [KĒ-lō-plās-tē] Repair of the lips.
chemistry profile See blood chemistry.
chemotherapy [KĒ-mō-thār-ă-pēl] Treatment of cancer that uses drugs or chemicals to destroy malignant cells.
cherry angioma [kēr-ē-ē-ăng-ē-ŭm] A dome-shaped vascular angiomatous lesion that usually occurs in the elderly.
Cheyne-Stokes respiration [chān stōks ré̄s-pī-RĀ-shūn] Irregular breathing pattern with a period of apnea followed by deep, labored breathing that becomes shallow, then apneic.
chiropractic [kī-rō-PRĀK-tĭk] Therapy based on alignment of the body (particularly the spine).
chiropractor [kī-rō-PRĀK-tŏr] [quiropráctico] Health care professional who works to align the spinal column so as to treat certain ailments.
chlamydia [klā-mī-dī-ē-ă] [clamidia] Sexually transmitted bacterial infection affecting various parts of the male or female reproductive systems; the bacterial agent itself.
choleasoma [klo-ā-zō-mā] [claoisma] Group of fairly large, pigmented facial patches, often associated with pregnancy.
cholangitis [kō-lōng-ī-tĭs] [colangitis] Inflammation of the bile ducts.
cholecystitis [kō-le-sis-TĪ-tĭs] [colecistitis] Inflammation of the gallbladder.
cholecystography [kō-le-sis-TŌG-rā-fe] [colecistografia] X-ray of the gallbladder.


cholelithotripsy [kō-le-ÎTH-ô-trîp-se] Breaking up or crushing of stones in the body, especially gallstones.

cholesteatoma [kō-lēs-te-Ô-TÔ-mâ] Fatty cyst within the middle ear.

cholesterol [kō-LĒS-tër-ôl] [colesterol] Fatty substance present in animal fats; cholesterol circulates in the bloodstream, sometimes causing arterial plaque to form.


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conductivity [kənd-duk-TĪV-ī-tē] [conductividad] Ability to transmit a signal.

condyle [KÖN-dīl] Rounded surface at the end of a bone.

condyloma [kən-dī-lō-mā] [condiloma] Growth on the external genitalia.

cones [kōnz] [conos] Specialized receptor cells in the retina that perceive color and bright light.

congenital [kən-jēn-ī-tāl] heart disease Heart disease (usually a type of malformation) that exists at birth.

congestive [kən-jēs-tīv] heart failure Inability of the heart to pump enough blood out during the cardiac cycle; collection of fluid in the lungs results.

conization [kō-nī-zā-shūn] [conización] Removal of a cone-shaped section of the cervix for examination.

conjunctiva (pl., conjunctiva) [kōn-JUNK-tī-vā (kōn-JUNK-tī-vē)] [conjuntiva] Mucous membrane lining the eyelid.

conjunctivitis [kōn-jūn-tī-vīt-is] [conjuntivitis] Inflammation of the conjunctiva of the eyelid.

connective [kōn-NĒK-tīv] tissue Fibrous substance that forms the body’s supportive framework.

constipation [kōn-stī-PĀ-shūn] [constipación] Difficult or infrequent defecation.

contraction [kōn-strī-kā-shūn] [contracción] Compression or narrowing caused by contraction, as of a vessel.

contact lenses Corrective lenses worn on the surface of the eye.

contraception [kōn-trā-SĒP-shūn] [anticoncepción] Method of controlling conception by blocking access or interrupting reproductive cycles; birth control.

contracture [kōn-TRĀ-kūr] Extreme resistance to the stretching of a muscle.

contraindicated [kōn-trā-in-dī-KĀ-tēd] Inadvisable to use; said especially of a drug that might cause complications when used in combination with other drugs or when used on a patient with a particular set of symptoms.

convolutions [kōn-vō-lū-shūn] [circuitucción] Folds in the cerebral cortex; gyri.

copulation [kōp-yū-lō-shūn] [copulación] Sexual intercourse.

cordotomy [kōrd-dōt-ō-mē] [cordotomía] Removing part of the spinal cord.

corium [KŌ-ri-ūm] [corium] See dermis.


cornea [KōR-nē-ā] [cornea] Transparent anterior section of the eyeball that bends light in a process called refraction.

coronal [KōR-ō-nāl] plane Imaginary line that divides the body into anterior and posterior positions.

coronary angioplasty See angioplasty.

coronary [KÖR-ō-nār-e] artery Blood vessel that supplies oxygen-rich blood to the heart.

coronary artery disease Condition that reduces the flow of blood and nutrients through the arteries of the heart.

coronary bypass surgery See bypass.

corpus callosum [KÖR-pūs kā-LO-sūm] Bridge of nerve fibers that connects the two hemispheres of the cerebral.

corpus luteum [KÖR-pūs lu-te-um] Structure formed after the graafian follicle fills with a yellow substance that secretes estrogen and progesterone.
Cushing’s [KUSH-ings] syndrome Group of symptoms caused by overactivity of the adrenal glands.
cusp [kusp] Sharp-pointed tooth projection.
cusp [KUS-pid] Third tooth from the median of the jawline with a cusp.
cuticle [KYU-tik-uhl] Thin band of epidermis that surrounds the edge of nails, except at the top.
cyanosis [si-ah-no-sis] [cianosis] Bluish or purplish coloration, of the skin, caused by inadequate oxygenation of the blood.
cytokinesis Surgical removal of the bladder.
cyctic fibrosis [SIS-tik fi-BRO-sis] Disease that causes chronic airway obstruction and also affects the bronchial tubes.
cytisitis [si-ash-TI-tis] Inflammation of the bladder.
cystopexy [SI-TS-o-peek-seel] Surgicalfixing of the bladder to the abdominal wall.
cystoscope [SI-TS-o-skop] Cystoscopy Tubular instrument for examining the interior of the bladder.
cystoscopy [SI-TS-o-skos-i) The insertion of a cystoscope to examine the bladder with light.
cytoplasm [SI-TS-o-plazm] Outer portion of a cell surrounding the nucleus.
cytotoxic [si-TS-o-TOK-sik] Cell T cell that helps in destruction of infected cells of the body.

defecation [deh-FAY-kuh-shun] [defecaciun] Release of feces from the anus.
degenerative arthritis Arthritis with erosion of the cartilage.
deglutition [deh-gluht-IISH-un] [degluccion] Swallowing.
deliriousness [deh-lih-REE-uhs-ness] Mental confusion, often with hallucinations, usually having a physical cause such as a high fever.
delusional [deh-LUH-see-un-al] Having false beliefs resulting from disordered thinking.
dementia [deh-MEN-shay-uh] [demencia] 1. Deterioration in mental capacity, usually in the elderly. 2. Disorder, particularly in older adulthood, with multiple cognitive defects.
demylination [deh-MIL-ee-uh-nay-shun] Destruction of myelin sheath, particularly in MS.
dendrite [DEN-drite] [dendrita] A thin branching extension of a nerve cell that conducts nerve impulses toward the cell body.
densitometer [den-si-TOM-ee-tur] Device that measures bone density using light and X-rays.
dentin [DEN-tin] Inner bony layer of the crown of a tooth.
dentist [DEN-tist] Practitioner trained in dentistry.
depigmentation [deh-pig-MEN-shun] Loss of color of the skin.
depolarization [deh-poh-lay-ZEN-shun] [depolarización] Contracting state of the myocardial tissue in the heart’s conduction system.
depression [deh-PREE-shun] [depresion] Disabling condition with a loss of interest and pleasure in almost all activities.
dermabrasion [deh-muh-BRA-shun] [dermabrasión] Removal of wrinkles, scars, tattoos, and other marks by scraping with brushes or emery papers.
dermatitis [deh-MAT-i-tis] [dermatitis] Inflammation of the skin.
dermatochalasis [deh-MAT-oh-kah-LASS-ee-us] [dermatocalasia] Loss of elasticity of the eyelid.
dermatology [deh-muh-TOH-luh-jee] [dermatologia] Medical specialty that deals with diseases of the skin.
dermis [deh-MISS] [dermis] Layer of skin beneath the epidermis containing blood vessels, nerves, and some glands.
diabetes [deh-bee-pees] [diabetes] See Type I diabetes, Type II diabetes.
diabetes insipidus [in-SIP-i-dus] Condition caused by hyposecretion of antidiuretic hormone.
diabetes mellitus [deh-bee-pee-mus] [mell-i-tus] See Type I diabetes, Type II diabetes.
diabetic neuropathy [nuh-NOP-uh-thee] Loss of sensation in the extremities due to diabetes.
diagnostic [deh-see-AH-nick] Helping to finalize a diagnosis.
diagnostic imaging Use of imaging techniques in diagnosing illness.
dialysis [deh-YAY-liss] [diálisis] Method of filtration used when kidneys fail.
diaphoresis [dī-ā-fōrēs-ās] [diaphoresis] Excretion of fluid by the sweat glands; sweating.
diaphragm [dī-ā-frām] [diaphragma] Muscle that divides the abdominal and thoracic cavities; membranous muscle between the abdominal and thoracic cavities that contracts and relaxes during the respiratory cycle; contraceptive device that covers the cervix and blocks sperm from entering; used in conjunction with spermicide.
diaphysis [dī-ā-fīs-ās] [diáfisis] Long middle section of a long bone; shaft.
diarrhea [dī-ā-rē-ā] [diarrea] Loose, watery stool.
diarthroses (sing., diarthrosis) [dī-ā-rōs-thrō-sāz] (dī-ārthrō-sāz) Freely moveable joints.
diastole [dī-ā-stō-lē] [diástole] Relaxation phase of a heartbeat.
diencephalon [dī-ēn-sēf-ā-lōn] [diencephalo] One of the four major structures of the brain; it is the deep portion of the brain and contains the thalamus.
diffuse [dī-fyu̯s] Spreading evenly.
digestion [dī-Jē-shūn] [digestión] Conversion of food into nutrients for the body and into waste products for release from the body.
digestive [dī-ē-Jē-sīv] system Body system that includes all organs of digestion and waste excretion, from the mouth to the anus.
digital subtraction angiography Use of two angiograms done with different dyes to provide a comparison between the results.
dilator [dī-lā-tōr] Implement used to enlarge an opening.
dioptr [dī-ō-prē-tēr] Unit of refracting power of a lens.
diphtheria [dī-fā-thēr-ē-ā] [difteria] Acute infection of the throat and upper respiratory tract caused by bacteria.
diplopia [dī-plō-pē-ā] [diplópia] Double vision.
disk [disk] [disco] See cartilaginous disk.
diskography [dīs-kō-gō-ρē-fēl] [discografía] Radiographic image of an intervertebral disk by injection of a contrast medium into the center of the disk.
dislocation [dislokaˈsion] Movement of a joint out of its normal position as a result of an injury or sudden, strenuous movement.
dissociative [dī-sō-ˈsē-ə-tīv] disorder Condition with a gradual or sudden loss of the ability to integrate memory, identity, and other mental abilities with the environment.
distal [dīs-tāl] Away from the point of attachment to the trunk.
diuretic [dī-yūr-ēt-ik] Pharmacological agent that increases urination; medication that promotes the excretion of urine.
diverticula [dī-věr-tik-ū-lā] Small pouches in the intestinal walls.
diverticulitis [dī-věr-tik-ū-lē-sīt-īs] [diverticulitis] Inflammation of the diverticula.
diverticulosis [dī-věr-tik-ū-lō-sīs] [diverticulosis] Condition in which diverticula trap food or bacteria.
dopamine [dō-pā-mēn] [dopamina] Substance in the brain or manufactured substance that helps relieve symptoms of Parkinson’s disease.
dorsal [dōr-sāl] At or toward the back of the body.
dorsal [dōr-sāl] cavity Main cavity on the back side of the body containing the cranial and spinal cavities.
dorsal vertebrae Thoracic vertebrae.
drilling Cutting of a decayed area out of a tooth with a small dental drill.
drug [drūg] [droga] Biological or chemical agents that can aid or alter body functions.
druglist [drūg-līst] [boticario] See pharmacist.
ductless gland Endocrine gland.
ductus arteriosus [dūk-tus ˈār-tēr-ō-ō-sōs] [dúctus arteriosus] Structure in the fetal circulatory system through which blood flows to bypass the fetus’s nonfunctioning lungs.
ductus venosus [dūk-tus ˈvē-nō-sōs] [dúctus venosus] Structure in the fetal circulatory system through which blood flows to bypass the fetal liver.
duodenal [dū-ō-dē-nāl] ulcer Ulcer in the duodenum.
duodenum [dū-ō-dē-nūm] [duodeno] Top part of the small intestine where chyme mixes with bile, pancreatic juices, and intestinal juice to continue the digestive process.
duritis [dūr-ī-tīs] Inflammation of the dura mater.
dwarfism [dwarf-īz-īm] [enanismos] Abnormally stunted growth caused by hyposecretion of growth hormone, congenital lack of a thyroid gland, or a genetic defect.
dyscrasia [dī-skrās-ā-ə] [dyscrasia] Any disease with abnormal particles in the blood.
dysentery [dī-sen-tēr-e] [disentería] Irritation of the intestinal tract with loose stools.
dysmenorrhea [dīs-mēn-or-ē-ā] [dismenorreoa] Painful menstruation.
dyspareunia [dīs-pār-ū-nē-ə] [dyspareunia] Painful sexual intercourse due to any of various conditions, such as cysts, infection, or dryness, in the vagina.
dyspepsia [dīs-pēp-sē-ə] [dyspepsia] Indigestion.
dysphagia [dīs-fā-ja-ə] [disfagia] Difficulty in swallowing.
dysphasia [dīs-fā-za-ə] [disfasia] Speech difficulty.
dysphonias [dīs-fōn-ē-əs] [disfonía] Hoarseness usually caused by laryngitis.
dysplasia [dīs-plā-zē-ə] [dysplasia] Abnormal tissue growth.
dyspnea [dīs-pē-nē-ə] [disnea] Difficult breathing.
dysrhythmia [dīs-rīth-me-ə] [disritmia] Abnormal heart rhythm.
dystonia [dīs-tō-nē-ə] [distonia] Abnormal tone in tissues.
dysuria [dīs-yūr-ē-ə] [disuria] Painful urination.

E
ear [ěr] [oreja, oído] Organ of hearing.
eardrum [ěr-drum] [tambor de oído] Oval, semitransparent membrane that moves in response to sound waves and produces vibrations.
ecchymosis (pl., ecchymoses) [ēk-ī-MÔ-sís (ēk-ī-MÔ-sez)] [equimosis] Purplish skin patch (bruise) caused by broken blood vessels beneath the surface.

eccrine [ēk-ři-n] glands [glândulas ecrinas] Sweat glands that occur all over the body, except where the apocrine glands occur.

echocardiography [ē-kō-kär-de-ō-G-ra-fe] [ecocardiografia] Use of sound waves to produce images showing the structure and motion of the heart.

eczema [ēk-zē-mä] [eczema] Severe inflammatory condition of the skin, usually of unknown cause.

edema [ē-DE-mä] [edema] Retention of water in cells, tissues, and cavities, sometimes due to kidney disease.

afferent [ēf-ër-ënt] (motor) neuron Neuron that carries information to the muscles and glands from the central nervous system.

ejaculation [ē-jāk-yū-LĀ-shūn] [eyaculación] Expulsion of semen outside the body.

ejection fraction Percentage of the volume of the contents of the left ventricle ejected with each contraction.

elbow [ē-Lō-b] [codo] Joint between the upper arm and the forearm.


electrocauterization [ē-LĒK-trō-CAW-tér-i-ZHĀ-shūn] Destruction by burning tissue.

electroconvulsive [ē-LĒK-trō-kōn-VUL-sív] therapy (ECT) See electroshock therapy.


electroencephalogram (EEG) [ē-LĒK-trō-ēn-SĒF-ā-lō-grām] [electroencefalógrafo] Record of the electrical impulses of the brain.

electrolyte [ē-LĒK-trō-līt] [electrólito] Any substance that conducts electricity and is decomposed by it.


electrophoresis [ē-lek-trō-FÖR-ē-sís] [electroforese] Process of separating particles in a solution by passing electricity through the liquid.

electroshock [ē-LĒK-trō-shōk] therapy (EST) Passing of electric current through a specific area of the brain to change or “scramble” communication from that area to the thought processes.

elimination [ē-lī-mī-nā-shūn] The conversion of waste material from a liquid to a semisolid and removal of that material via defecation.

embolectomy [ēm-bō-LĒK-tō-me] [embolectomía] Surgical removal of an embolus.

embolic [ēm-bō-lik] stroke Sudden stroke caused by an embolus.

embolus [ĒM-bō-lūs] [embolo] Mass of foreign material blocking a vessel; clot from somewhere in the body that blocks a small blood vessel in the brain.

embryo [ĒM-brē-ō] Fertilized ovum until about 10 weeks of gestation.

emesis [ē-MĒ-sís] [emesis] See regurgitation.

emollient [ē-MÔL-ē-ënt] Agent that smooths or softens skin.

emphysema [ēm-fy-ē-Sē-mä] [enfisema] Chronic condition of hyperinflation of the air sacs; often caused by prolonged smoking.

empyema [ēm-pē-ē-mä] [empíemia] Pus in the pleural cavity.


encapsulated [ēn-KĀP-sū-lā-tēd] Held within a capsule; benign.

encephalitis [ēn-sēf-ā-LĪ-tis] [encefalitis] Inflammation of the brain.

encephalogram [ēn-SĒF-ā-lō-grām] [encefalograma] Record of the radiographic study of the ventricles of the brain.

endarterectomy [ēn-där-tēr-ĒK-tō-me] Surgical removal of the diseased portion of the lining of an artery.

endocarditis [ēn-dō-kär-di-tis] [endocarditis] Inflammation of the endocardium, especially an inflammation caused by a bacterial (for example, staphylococci) or fungal agent.

endocardium [ēn-dō-KĀR-dē-ūm] [endocardio] Membranous lining of the chambers and valves of the heart; the innermost layer of heart tissue.


endocrine [ēn-dō-krīn] system Body system that includes glands which secrete hormones to regulate certain body functions.

endodontist [ēn-dō-DÔN-tist] Dentist who specializes in root canal work.

endolymph [ēn-dō-līmf] [endolinfa] Fluid inside the membranous labyrinth.

endometriosis [ēn-dō-mē-tē-ō-Sē-sis] [endometriosis] Abnormal condition in which uterine wall tissue is found in the pelvis or on the abdominal wall.

endometrium [ēn-dō-MĒ-tē-ōm] [endometrio] Inner mucous layer of the uterus.

endoscope [ēn-dō-skōp] [endoscopio] Tube used to view a body cavity.

endosteam [ēn-DÔS-tē-ōm] [endostio] Lining of the medullary cavity.

endothelium [ēn-dō-Thē-lē-ōm] [endotelio] Lining of the arteries that secretes substances into the blood.

endotracheal intubation [ēn-dō-TRĀ-kē-āl in-tū-BĀ-shūn] (ET) Insertion of a tube through the nose or mouth, pharynx, and larynx and into the trachea to establish an airway.

endovascular [ēn-dō-VAS-kār-lār] surgery Any of various procedures performed during cardiac catheterization, such as angioscopy and atherectomy.

end-stage renal disease (ESRD) The last stages of kidney failure.

energy therapy Therapy using energy fields.

enteric-coated [ēn-TĒR-ik] Having a coating (as on a capsule) that prevents stomach irritation.

enteritis [ēn-tēr-ī-tis] [enteritis] Inflammation of the small intestine.

enucleation [ē-nū-kle-ē-ā-shūn] [enucleación] Removal of an eyeball.
enuresis [èn-yú-RÉ-sis] [enuresis] Urinary incontinence.

enzyme [ÉN-zım] [enzima] Protein that causes chemical changes in substances in the digestive tract.

enzyme-linked immunosorbent assay (ELISA) Test used to screen blood for the presence of antibodies to different viruses or bacteria.

eosinophil [è-o-SIN-ò-fil] [eosinófilo] Type of granulocyte.

eosinophilia [È-o-sín-ò-FIL-è-à] [eosinofilía] Condition with an abnormal number of eosinophils in the blood.

epicardium [èp-i-KÁR-de-ùm] [epicardio] Outermost layer of heart tissue.

epidermis [èp-i-DÈRM-ùs] [epidermis] Outer portion of the skin containing several strata.

epidermoid [èp-i-DÈR-móyd] Resembling epithelial cells.


epididymis [èp-i-DÍD-i-mís] [epidídimo] Group of ducts at the top of the testis where sperm are stored.

epididymitis [èp-i-díd-i-MÍ-tís] [epididimitis] Inflammation of the epididymis.

epidural [èp-i-DÚR-àl] space Area between the pia mater and the meninges of the spinal cord.

epigastric [èp-i-GÁS-trík] region Area of the body immediately above the stomach.

epiglottis [èp-i-GLÔ-tís] [epiglote] Cartilaginous flap that covers the larynx during swallowing to prevent food from entering the airway; movable flap of tissue that covers the trachea.

epiglottitis [èp-i-glôt-ÌT-îs] [epiglotitis] Inflammation of the epiglottis.

epilepsy [ÈP-i-LÉP-se] Chronic recurrent seizure activity.

epinephrine [ÈP-i-NÉF-rín] [epinefrina] Hormone released by the adrenal medulla in response to stress; adrenaline.

epiphor [è-PIF-o-ù] [epifora] Excessive tearing.

epiphyseal [èp-i-FÍF-e-àl] plate Cartilaginous tissue that is replaced during growth years, but eventually calcifies and disappears when growth stops.

epiphysis [è-píf-i-SÍ-tís] [epifisis] Inflammation of the epiphysis.

epispadias [èp-i-SPÁ-de-às] [epispadias] Birth defect with abnormal opening of the urethra on the top side of the penis.

epistaxis [ÈP-i-STÁK-sís] Bleeding from the nose, usually caused by trauma or a sudden rupture of the blood vessels of the nose.

epithalamus [ÈP-i-THÁL-à-mús] [epíptalamo] One of the parts of the diencephalon; serves as a sensory relay station.

epithelial [èp-i-THÉ-le-àl] tissue Tissue that covers or lines the body or its parts.


erosion [erózíon] Wearing away of the surface of the skin, especially when caused by friction.

eructation [è-rú-ták-TÁ-shún] [eructación] Belching.

erythroblastosis fetalis [è-rí-thô-blas-TÓ-sís fe-TÁL-îs] Incompatibility disorder between a mother with Rh negative and a fetus with Rh positive.

erythrocyte [è-rí-thô-Ró-sít] [eritroctito] Mature red blood cell.

erythrocyte sedimentation rate (ESR) Test for rate at which red blood cells fall through plasma.

erythropenia [è-rí-thô-ró-PÉ-né-à] [eritropenia] Disorder with abnormally low number of red blood cells.

erythropoietin [è-rí-thô-ró-PÓY-è-tín] [eritropoyetina] Hormone released by the kidneys to stimulate red blood cell production.

esophagitis [è-so-fá-ÁT-îs] [esofagitis] Inflammation of the esophagus.

esophagoplasty [è-so-FÁH-gó-plás-te] [esofagoplastia] Repair of the esophagus.

esophagoscopy [è-so-fá-GÓS-kô-pe] [esofagoscopy] Examination of the esophagus with an esophagoscope.

esophagus [è-so-FÁS-gú-sis] [esófago] Part of the alimentary canal from the pharynx to the stomach.

esotropia [ès-o-TRÔ-pé-à] [esotropía] Deviation of one eye inward.

essential hypertension High blood pressure without any known cause.

estrogen [ÈS-trô-jén] [estrógeno] One of the primary female hormones produced by the ovaries.

ethmoid [ETH-móyd] bone Irregular bone of the face attached to the sphenoid bone.

ethmoid sinuses Sinuses on both sides of the nasal cavities between each eye and the sphenoid sinus.

eupnea [yúp-NÉ-a, YÜP-né-à] [eupnea] Normal breathing.

eustachian [yú-STÁ-shún, yû-STÁ-ké-à-nû] tube Tube that connects the middle ear to the pharynx.

euthenasia [yú-thé-NÁ-è-à] Assisting in the suicide of or putting a person with an incurable or painful disease to death.

evoked potentials [è-VÔKT pô-TÉN-shûls] Record of the electrical wave patterns observed in an EEG.

exanthematous [èks-zàN-thÉM-à-tús] viral disease Viral disease that causes a rash on the skin.


excitability [èk-SÍ-tà-BÍL-i-te] [excitabilidad] Ability to respond to stimuli.

excoriation [èks-KÕ-re-À-shún] [excoriación] Injury to the surface of the skin caused by a scratch, abrasion, or burn, usually accompanied by some oozing.

excrete [èks-KRIÉT] To separate out and expel.


exfoliative biopsy The scraping of skin cells from the skin surface for examination.

exhale [èks-há-LÁ-shún] [exhalación] Breathing out.

exocrine [èk-SÒ-krín] gland [exocrine] 1. Any gland that releases substances through ducts to a specific location. 2. Gland that secretes through ducts toward the outside of the body.

exophthalmos, exophthalmus [èk-sòf-THÁL-mós] [exoftalmía] Abnormal protrusion of the eyeballs; abnormal protrusion of the eyes typical of Graves' disease.

exostosis [èks-òs-TÔ-sís] [exostosis] Abnormal bone growth capped with cartilage.

exotropia [èks-ò-TÔ-pé-à] Deviation of one eye outward.

expectorants [èk-SPEK-tô-rànts] Agents that promote the coughing and expelling of mucus.
expiration [e-ks-pi-RÄ-shun] [espiración] Exhalation.

external fixation device Device applied externally to hold a limb in place.

external nares [NÄR-ës] See nostrils.

external respiration Exchange of air between the body and the outside environment.

extracorporeal shock wave lithotripsy (ESWL) Breaking of kidney stones by using shock waves from outside the body.

exudate [EKS-yu-dät] (exudado) Any fluid excreted out of tissue, especially fluid excreted out of an injury to the skin.

eye [i] (ojo) Organ of sight.

eyebrow [EY-brōw] (ceja) Clump of hair, usually about a half an inch above the eye, that helps to keep foreign particles from entering the eye.

eyelashes [I-lash-ëz] [pestaña] Group of hairs protruding from the end of the eyelid; helps to keep foreign particles from entering the eye.

eyelid [I-lid] [párpado] Moveable covering over the eye.

eyestrain [vista fatigada] Asthenopia.

eye tooth [I-tūth] Cuspid.

F

fainting See syncope.

fallopian [fâ-LO-pè-ân] tube One of the two tubes that lead from the ovaries to the uterus; uterine tube.

farsightedness (hyperopia) Hyperopia.

fascia (pl., fasciae) [FÃSH-é-ä (FÃSH-é-ë)] (fascia) Sheet of fibrous tissue that encloses muscles.

fasting blood sugar Test for glucose in blood following a fast of 12 hours.

fatty acid Acid derived from fat during the digestive process.

feces [FÉ-sē] [heces] Semisolid waste that moves through the large intestine to the anus, where it is released from the body.

femoral [FÉM-ö-räl, FÈ-mö-räl] artery An artery that supplies blood to the thigh.

femur [FÉ-mûr] (femur) Long bone of the thigh.

fertilization [FÉR-til-i-zë-shun] Union of an egg cell(s) with sperm.

fetus [FÉ-tüs] Developing product of conception from 8 weeks to birth.

fever blister Eruption around the mouth or lips; herpessimplex virus Type 1.

fibrillation [fi-brî-LÄ-shun] [fibrilación] Random, chaotic, irregular heart rhythm.

fibrin [fi-brîn] clot Clot-forming threads formed at the site of an injury during coagulation where platelets clump together with various other substances.

fibrinogen [fi-brîn-ö-jën] (fibrinógeno) Protein in plasma that aids in clotting.

fibroid [fi-bröyd] [fibroide] Benign tumor commonly found in the uterus.

fibula [fîB-yu-lä] (peronel) Smallest long bone of the lower leg.

filling An amalgam placed into a drilled space to prevent further tooth decay.

filtration [fil-TRÄ-shun] [filtración] Process of separating solids from a liquid by passing it through a porous substance.

fimbriae [fîM-brë-e] (fimbrias) Hairlike ends of the uterine tubes that sweep the ovum into the uterus.

first bicuspid Fourth tooth from the median of the jawline.

first molar Sixth tooth from the median of the jawline.

first-degree burn Least severe burn, causes injury to the surface of the skin without blistering.


fistula [Fîs-te-lä] (fistula) Abnormal opening in tissue.

flaccid [flâ-sëd] (flácido) Without tone; relaxed.

flagellum [flä-JÉL-üm] (flagelo) Tail at the end of a sperm that helps it move.

flat bones Thin, flattened bones that cover certain areas, as of the skull.

flatulence [FLÄT-yu-lens] [flatulencia] Gas in the stomach or intestines.

flatus [FLÄ-tús] (flato) Gas in the lower intestinal tract that can be released through the anus.

fluoride [FLÜR-iđ] Substance given as a mouth wash to prevent tooth decay.

fluoroscopy [flōr-ÖS-kō-pe] X-ray in which the image is projected onto a fluorescent screen.

flutter [aleteo] Regular but very rapid heartbeat.

Foley catheter Indwelling catheter held in place by a balloon that inflates inside the bladder.

follicle-stimulating hormone (FSH) Hormone necessary for maturation of oocytes and ovulation; hormone released by the anterior pituitary to aid in production of ova and sperm.

follicular [fôl-lös-ki-ray] (făr-lär) Containing glandular sacs.

Fontan’s [FÔN-tan] operation Surgical procedure that creates a bypass from the right atrium to the main pulmonary artery; Fontan’s procedure.

fontanelle [fôn-tä-nél] (fontanela) Soft, membranous section on top of an infant’s skull.

foramen [för-A-mën] (agujero) Opening or perforation through a bone.

foramen magnum [för-A-män] (agujero) Opening in the occipital bone through which the spinal cord passes.


forceps [för-seps] Surgical implement used to grasp and remove something.

foreskin [för-skin] (prepuçio) Fold of skin at the top of the labia minora; flap of skin covering the glans penis; removed by circumcision in many cultures.

fossa (pl., fossae) [fös-á] (fós-ë) Depression, as in a bone.

fovea centralis [fô-ve-ä-sên-trä-lis] Depression in the center of the macula lutea; perceives sharpest images.

fracture [frä-k-chür] (fractura) A break, especially in a bone.

frenulum [fren-û-lum] (frenilo) Mucous membrane that attaches the tongue to the floor of the mouth.
frontal [FRÚN-tōl] bone Large bone of the skull that forms the top of the head and forehead.

frontal lobe One of the four parts of each hemisphere of the cerebrum.

frontal [FRÚN-tōl] plane Imaginary line that divides the body into anterior and posterior positions.

frontal sinuses Sinuses above the eyes.

fulguration [fül-gū-RÁ-shün] [fulguración] Destruction of tissue using electric sparks or by high-frequency current.

full [fül] Complete (set of dentures).

fundus [FÚN-dūs] [fondo] Top portion of the uterus; upper portion of the stomach.


furuncule [FYÚ-rūn-kə] [furúnculo] Localized skin infection, usually in a hair follicle and containing pus; boil.

G
gait [gāt] [marcha] Manner of walking.

gallbladder [GÄWL-blād-ér] [vesícula biliar] Organ on lower surface of liver; stores bile.

gallop [gal-o] Triple sound of a heartbeat, usually indicative of serious heart disease.

gallstones [kál-cú-lo biliar] Calculi in the gallbladder.

gamete [GĀM-ēt] [gameto] Sex cell; see ovum.

gamma globulin [GĀ-má GLŌ-B-yū-līn] 1. Globulin that arises in lymphatic tissue and functions as part of the immune system. 2. Antibodies given to prevent or lessen certain diseases.

gamma rays Commonly used radioactive particles with high penetrating ability.

ganglitis [gâng-glē-ī-tīs] [ganglitis] Inflammation of a ganglion.

ganglion (pl., ganglia, ganglions) [GÄNG-glē-ōn (-ä, -ōns)] [ganglion] Any group of nerve cell bodies forming a mass or a cyst in the peripheral nervous system; usually forms in the wrist.

gangrene [GÄNG-grēn] [gangrena] Death of an area of skin, usually caused by loss of blood supply to the area.

gastrectomy [gās-TRĒ-kō-mē] [gastrectomia] Removal of part or all of the stomach.

gastric bypass See gastric resection.

gastric resection or gastric bypass Removal of part of the stomach and repair of the remaining part.

gastritis [gās-TRĪ-tīs] [gastritis] Inflammation of the stomach.

gastroenteritis [GĀS-trō-ēn-tēr-ī-tīs] [gastroenteritis] Inflammation of the stomach and small intestine.

gastroscopy [gās-TROS-kō-pe] [gastroscopia] Examination of the stomach using an endoscope.

gene therapy Method of treatment using genetically changed cells to cure or lessen the symptoms of disease.

generic [jē-NĀR-ēk] [genérico] Shortened version of a chemical name.


genital herpes See herpes simplex virus Type 2.

geriatric [jÉR-ē-Á-trīk] Of or relating to old age.


gestation [jēs-TĀ-shün] [gestación] Period of fetal development from fertilization until delivery; usually about 40 weeks.

gigantism [jî-găn-tîz-um] [gigantismo] Abnormally fast and large growth caused by hypersecretion of growth hormone.


gingivitis [jîn-jî-VĬ-tĭs] Inflammation of the gums.

gland [glândula] Any organized mass of tissue secreting or excreting substances.

glans penis [glâns PĔ-nĭs] Sensitive area at the tip of the penis.

glaucoma [glāw-KŎ-mă] [glaucoma] Any of various diseases caused by abnormally high eye pressure.


glioma [gli-Ŏ-mă] [glioma] Tumor that arises from neuroglia.

globin [GLŌ-bîn] [globina] Protein molecule; in the blood, a part of hemoglobin.

globulin [GLŌB-yū-lîn] [globulina] Any of a family of proteins in blood plasma.

glomerulonephritis [glō-MĂR-yū-lŏ-nēf-RĬ-tĭs] Inflammation of the glomeruli of the kidneys.


glossitis [glos-ŚĪ-tĭs] [glositis] Inflammation of the tongue.

glossorrhaphy [glos-SŎR-ŏ-fē] Suture of the tongue.

glottis [GŁÔT-ĭs] [glōtis] Part of the larynx consisting of the vocal folds of mucous membrane and muscle.

glucagon [GLŪ-kŎ-gŏn] [glucagon] Hormone released by the pancreas to increase blood sugar.


glucose [GLŪ-kŏs] [gluca] Form of sugar found in the blood; may indicate diabetes when found in the urine; sugar found in fruits and plants and in various parts of the body.

glucose tolerance test (GTT) Blood test for body’s ability to metabolize carbohydrates; taken after a 12-hour fast, then repeated every hour for 4 to 6 hours after ingestion of a sugar solution.


glycated hemoglobin Blood test for an average of glucose levels over the previous 2-3 months.

glycogen [GLĪ-kŏ-jên] [glucógeno] Converted glucose stored in the liver for future use; starch that can be converted into glucose.


goioter [GŌ-yĕr-ĕ] [bocio] Abnormal enlargement of the thyroid gland as a result of its overactivity or lack of iodine in the diet.

gonad [GŎ-năd] [gónada] Male or female sex organ; see ovary.

goniometer [gō-nē-ŎM-ĕ-tĕr] [goniometro] Instrument that measures angles or range of motion in a joint.

gonorrea [gō-nō-RE-ā] [gonorrea] Sexually transmitted inflammation of the genital membranes.
gouty arthritis, gout [GÖWT-t, göwt] Inflammation of the joints, present in gout; usually caused by uric acid crystals.

graafian follicle [grä-FÉ-án FÖL-ī-kl] Follicle in the ovary that holds an oocyte during development and then releases it.

grade Maturity of a tumor.

graft Any tissue or organ implanted to replace or mend damaged areas.

grand mal [mâhl] seizure See tonic-clonic seizure.

granulocyte [GRÀN-yô-lô-sít] Leukocyte with granular cytoplasm.

granulocytosis [GRÀN-yô-lô-sô-TÔ-sís] [granulocytosis] Condition with an abnormal number of granulocytes in the bloodstream.

Graves' [grāvz'] disease Overactivity of the thyroid gland.

gravida [GRÄV-ī-dâ] [grávida] Pregnant woman.

grey (gy) Unit of measure equal to 100 rads.

greenstick fracture Fracture with twisting or bending of the bone but no breaking; usually occurs in children.

group therapy Talk therapy under the leadership of a psychotherapist in which the members of the group discuss their feelings and try to help each other improve.

growth hormone (GH) Hormone released by the anterior pituitary.

gums [güms] [jencía] Dense fibrous tissue that forms a protective covering around the sockets and the part of the jawline inside the oral cavity; fleshy sockets that hold the teeth.

gynecologist [ji-nê-KÔL-ô-jíst] [ginecólogo] Specialist who diagnoses and treats the processes and disorders of the female reproductive system.

gyrus (pl., gyri) [jî-rûs (jî-ri)] [circunvolución] See convolution.

H

hair follicle [FÖL-ī-kl] Tubelike sac in the dermis out of which the hair shaft develops.

hair root [raiz de pelo] Portion of the hair beneath the skin surface.

hair shaft Portion of the hair visible above the skin surface.

hairline fracture Fracture with no bone separation or fragmentation.

halitosis [hâl-î-TÔ-sís] [halitosis] Foul mouth odor.

hard palate [PÁL-ăt] Hard anterior portion of the palate at the roof of the mouth; hardening of the arteries.

hearing [audiçon] Ability to perceive sound.

heart [härt] [corazón] Muscular organ that receives blood from the veins and sends it into the arteries.

heart block See atrioventricular block.

heart transplant Implantation of the heart of a person who has just died into a person whose diseased heart cannot sustain life.

heel [hēl] [talon] Back, rounded portion of the foot.

helper cell T cell that stimulates the immune response.


hematocrit [HÊ-mâ-tô-kräit, HÊM-ä-tô-kräit] [hematócrito] Measure of the percentage of red blood cells in a blood sample.

hematocytoblast [HÊ-mâ-tô-SÎ-tô-bläss] [hemocitoblasto] Most immature blood cell.


heme [hêm] Pigment containing iron in hemoglobin.


hemodialysis [HÊ-mô-di-AL-î-sís] [hemodiálisis] Dialysis performed by passing blood through a filter outside the body and returning filtered blood to the body.

hemoglobin [hê-mô-GLÔ-bin] [hemoglobin] Protein in red blood cells essential to the transport of oxygen.

hemolysis [hê-MÔL-î-sís] [hemolisis] Disorder with breakdown of red blood cell membranes.

hemophilia [hê-mô-FIL-ë-ä] [hemofilia] Hereditary disorder with lack of clotting factor in the blood.


hernia [hê-rë-NE-ä] [hermia] Hernia (hernia) Abnormal protrusion of tissue through muscle that contains it.

hemorrhagic [hêm-ë-râg-ïk] stroke Stroke caused by blood escaping from a damaged cerebral artery.

hemorrhagic disease See hemorrhagic stroke.


hemorrhoids [HÊM-ô-rôydz] [hemorroides] Varicose condition of veins in the anal region; swollen, twisted veins in the anus.

hemostatic [hê-mô-STAT-ïk] Agent that stops bleeding.

hemotórax [hê-mô-THÔ-râks] [hemotórax] Blood in the pleural cavity.

heparin [HÊP-ë-rin] [heparina] Anticoagulant present in the body; also, synthetic version administered to prevent clotting; substance in blood that prevents clotting.

hepatic lobectomy [hê-PAT-ëk lô-BÈK-tô-mê] [hepatolitigecotomía] Removal of one or more lobes of the liver.

hepatitis [hêp-ë-Tît-ës] [hepatitis] Inflammation or disease of the liver.

hepatomegaly [HÊP-ë-tô-MÈG-ë-ë] [hepatomegalia] Enlarged liver.

hepatopathy [hêp-ë-TÔP-ë-thë] [hepatopatía] Liver disease.

hernia [HÊR-në-ä] [hermia] Hernia (hernia) Abnormal protrusion of tissue through muscle that contains it.

herniated [HÊR-në-tê-dë] disk Protrusion of an intervertebral disk into the neural canal.

herpes [HÊR-pës] [herpes] An inflammatory skin disease caused by viruses of the family Herpesviridae.

herpes simplex virus Type 1 Herpes that recurs on the lips and around the area of the mouth, usually during viral illnesses or states of stress.

herpes simplex virus Type 2 Herpes that recurs on the genitalia; can be easily transmitted from one person to another through sexual contact.

herpes zoster [ZÖS-tër] Painful herpes that affects nerve roots; shingles.

heterograft [HÊT-ë-rô-gräft] [heterojrjerto] Skin graft using donor skin from one species to another; xenograft.

hiatal hernia [hī-ā-tāl HĒR-nē-ā] Protrusion of the stomach through an opening in the diaphragm.

high blood pressure [presión arterial alta] See hypertension.

hilum (also hilus) [HĪ-lūm (HĪ-las)] [hilio] 1. Portion of the kidney where blood vessels and nerves enter and exit. 2. Midsection of the lung where the nerves and vessels enter and exit.

hirsutism [HĒR-sū-tizm] [hirsutismo] Abnormal hair growth due to an excess of androgens.

histamine [HĪS-tā-mēn] [histamine] Substance released by basophils and eosinophils; involved in allergic reactions.

histiocytic [HĪS-tē-ō-SÎT-īk] lymphoma Lymphoma with malignant cells that resemble histiocytes.

hives [urticaria] See urticaria.

Hodgkin's lymphoma, Hodgkin's disease Type of lymph cancer of uncertain origin that generally appears in early adulthood.

Holter [HŌL-tēr] monitor Portable device that provides a 24-hour electrocardiogram.

homeopathic [hō-mē-ō-PĀTH-īk] medicine Medical system that uses diluted doses of substances to stimulate immunity.

homograft [HŌ-mō-grāft] [homoinjerto] Skin graft using donor skin from one person to another; allograft.

hordeolum [hōr-DĒ-ō-lūm] [orzuelo] Infection of a sebaceous gland of the eyelid; sty.

hormone [HŌR-mōn] [hormona] Chemical secretion from glands such as the ovaries; substance secreted by glands and carried in the bloodstream to various parts of the body; chemical substance in the body that forms in one organ and moves to another organ or part on which the substance has an effect; manufactured version of that chemical substance.

hormone replacement therapy (HRT) Treatment with hormones when the body stops or decreases the production of hormones by itself; ingestion of hormones to replace hormones when the body stops or decreases the production of hormones by itself.

human growth hormone (HCG) Naturally occurring substance in the body that promotes growth; synthesized substance that serves the same function.

human immunodeficiency [HĪ-m-yō-nō-de-FLISH-ēn-se] virus (HIV) Virus that causes AIDS; spread by sexual contact and exchange of body fluids, and shared use of needles.

humerus [HŪ-MER-ūs] [húmero] Long bone of the arm connecting to the scapula on top and the radius and ulna at the bottom.

humoral [HŪ-MÔR-āl] immunity Resistance to disease provided by plasma cells and antibody production.


hydrocele [HĪ-dro-sèl] [hidrocele] Fluid-containing hernia of the testis.

hydrocephalus [hī-dro-sef-ā-lūs] [hidrocefalia] Overproduction of fluid in the brain.


hymen [HĪ-mēn] [himen] Fold of mucous membranes covering the vagina of a young female; usually ruptures during first intercourse.


hyperchromatic [HĪ-pēr-kro-MĀT-īk] Intensely colored.

hyperopia [hī-pēr-ō-pē-ā] Focusing behind the retina causing vision distortion; farsightedness.


hyperplastic [hī-pēr-PLĀS-tīk] Excessive in development (of cells).


hypersecretion [HĪ-pēr-sē-krē-shūn] Abnormally high secretion, as from a gland.

hypersensitivity [HĪ-pēr-sēn-sē-TĪ-ve] [hipersensibilidad] Abnormal reaction to an allergen.


hypertension [HĪ-pēr-TĒN-shūn] Chronic condition with blood pressure greater than 140/90.

hypertensive heart disease Heart disease caused, or worsened, by high blood pressure.

hyperthyroidism [HĪ-pēr-THĪ-rōyd-īzm] [hipertiroïdismo] Overactivity of the thyroid gland.

hyperthyroplasy [hī-pēr-THī-ro-plās-ī] Abnormal increase in muscle size.

hyperventilation [HĪ-pēr-vēn-ī-LĀ-shūn] [hiperventilación] Abnormally fast breathing in and out, often associated with anxiety.


hypnotic [hīp-NŌT-īk] Agent that induces sleep.

hyperadrenalism [HĪ-pō-ā-DREHN-ā-izm] [hipoadrenalismo] Underactivity of the adrenal glands.

hypochondria [hī-pō-KÔN-drē-āk] condition of preoccupation with imagined illnesses in the patient's body.

hypochondriac [hī-pō-KÔN-drē-āk] regions Left and right regions of the body just below the cartilage of the ribs and immediately above the abdomen.

hypodermis [hī-pō-DĒR-mīs] [hipodermis] Subcutaneous skin layer; layer below the dermis.

hypogastric [hī-pō-GĀS-trīk] region Area of the body just below the umbilical region.

hypoglycemia [HĪ-pō-gli-SĒ-mē-ā] [hipoglucemia] Abnormally low level of glucose in the blood.

hypoglycemic [HĪ-pō-gli-SĒ-mē-īk] [hipoglucémico] Agent that lowers blood glucose.


hypopharynx [HĪ-pō-FĀR-īnks] [hipofaringe] Laryngopharynx.


hypophysial [hī-pō-SĪS-iās] [hipofisio] Pituitary gland.

hypoplastic [HĪ-pō-PLĀS-tīk] Underdeveloped, as tissue.

hypopnea [hī-pō-nē-ā] Shallow breathing.

hyposecretion [HĪ-pō-sē-KRĒ-shūn] Abnormally low secretion, as from a gland.
hypospadias [HĪ-pō-SPĀ-dē-ās] [hipospadias] Birth defect with abnormal opening of the urethra on the bottom side of the penis.

hypotension [HĪ-pō-TĒN-shûn] [hipotensión] Chronic condition with blood pressure below normal.

hypothalamus [HĪ-pō-THĀL-ā-mūs] [hipotálamo] One of the parts of the diencephalon; serves as a sensory relay station; gland in the nervous system that releases hormones to aid in regulating pituitary hormones.

hypothyroidism [HĪ-pō-THĪ-rōyd-izm] [hipotiroidismo] Underactivity of the thyroid gland.


hypoxemia [hī-pōk-SÉ-mē-ā] [hipoxemia] Deficient amount of oxygen in the blood.

hypospadias [hī-pōk-Sē-ā] [hipoxia] Deficient amount of oxygen in tissue.

hysterectomy [hīs-tĕr-ÉK-tŏ-mē] [histerectomía] Removal of the uterus.

hysterosalpingography [HĪS-tēr-ōsál-pĭng-GŌG-ră-fē] [histerosalpingografía] X-ray of the uterus and uterine tubes after a contrast medium has been injected.

hysteroscopy [hīs-tĕr-OS-kō-pĕ] [histeroscopia] Examination of the uterus using a hysteroscope.

icterus [i-kēr-ūs] [icterus] Jaundice.

ileitis [ĭ-lē-ī-tis] [ileitis] Inflammation of the ileum.

ileostomy [ĭ-lē-ōs-tŏ-mē] [ileostomía] Creation of an opening into the ileum.

ileum [ĭ-lē-ŭm] [ileon] Bottom part of the small intestine that connects to the large intestine.

ileus [ĭ-lē-ūs] [ileo] Intestinal blockage.

iliac [ĭ-lē-āk] regions Left and right regions of the body near the upper portion of the hip bone.

ilium [ĭ-lē-ŏm] [ileum] Wide portion of the hip bone.

imaging [ĭ-măjĭng] Production of a visual output using x-rays, sound waves, or magnetic fields.

immunity [ĭ-mĭnĭ-tē] [inmunidad] Resistance to particular pathogens.

immunization [ĭ-mŭn-i-zāĭn-ĕn] [vaccinación] Vaccination.


immunosuppressive [ĭ-mŭn-o-sŭp-ĭs-ĭv] disease Disease that flourishes because of lowered immune response.

impacted fracture Fracture in which a fragment from one part of the fracture is driven into the tissue of another part.

impetigo [ĭmpĕ-tĭ-gō] [impetigino] A type of pyoderma.

implant 1. To attach to the lining of the uterus in the first stage of pregnancy. 2. Artificial replacement tooth that has an extension set into bone.

impotence [ĭm-pōt-ĕns] [impotencia] Inability to maintain an erection for ejaculation.

in utero [ĭn YŪ-tĕr-ŏ] Within the uterus; unborn.

incisal [ĭn-sĭzhal] biopsy Removal of a part of a tumor for examination.

incisor [ĭn-sī-zhūr] First and second tooth next to the median of the jawline.

incomplete fracture Fracture that does not go entirely through a bone.

incontinence [ĭn-kōn-tē-nĕns] [incontinencia] Inability to prevent excretion of urine or feces.

incus [ĭnkūs] [incus] One of the three auditory ossicles; the anvil.

indwelling [ĭn-dĭ-wĕlĭng] Of a type of catheter inserted into the body.

infarct [ĭn-fărkt] [infarto] Area of necrosis caused by a sudden drop in the supply of arterial or venous blood.

infarction [ĭn-fĕrk-shûn] [infarto] Sudden drop in the supply of arterial or venous blood, often due to an embolus or thrombus.


inferior [ĭn-fĕr-ĕ-o̞r] Below another body structure.


inferior vena cava [ĭn-fĕr-ĕ-o̞r vē-nə-kāv-ə] Large vein that draws blood from the lower part of the body to the right atrium.

infertility [ĭn-fĕr-tĭl-ĭ-tē] [infertilidad] Inability to fertilize ova.

inflammatory [ĭn-flă-mă-tĭ-rē-əl] Having an inflamed appearance (red and swollen).

infusion [ĭn-fyü-ŏn] Administration of a fluid through an intravenous tube at a slow and steady rate.

inguinal [ĭn-gwĭ-nāl] regions Left and right regions of the body near the upper portion of the hip bone.


inhibiting factor Substance in a hormone that prevents the secretion of other hormones.

insertion [ĭn-sĕr-ĭ-shŏn] Point at which a muscle attaches to a movable bone.

inspiration [ĭn-sĭ-prā-shûn] [inspiración] Inhalation.

insulin [ĭn-sŭ-lĭn] [insulina] Substance released by the pancreas to lower blood sugar.

insulin-dependent diabetes mellitus (IDDM) See Type I diabetes.

integument [ĭn-tĕg-ŭ-mĕnt] [tejumento] Skin and all the elements that are contained within and arise from it.

integumentary [ĭn-tĕg-ŭ-mĕn-tă-rē] system Body system that includes skin, hair, and nails.

intercostal muscles [ĭn-tĕrkōs-tŏl] [intercostal] Muscles between the ribs.

interferon [ĭn-tĕr-fĕr-ŏn] Protein produced by T cells and other cells; destroys disease-causing cells with its antiviral properties.

interleukin [ĭn-tĕr-lŭk-ĭn] [interleuquina] Protein produced by T cells; helps regulate immune system.

intermittent claudication Attacks of limping, particularly in the legs, due to ischemia of the muscles.

internal fixation device Device, such as a pin, inserted in bone to hold it in place.

internal respiration Exchange of oxygen and carbon dioxide between the cells.

interneuron [ĭn-tĕr-nū-rŏn] [interneurona] Neuron that carries and processes sensory information.
interstitial [in-tér-STÎSH-âl] therapy Brachytherapy in which the radioactive substance is placed within the tissue or tumor.


intraocular [in-trâ-KÅR-de-âk] tumor A tumor within one of the heart chambers.

intracavitary [in-trâ-CÄV-i-tár-â] therapy Brachytherapy in which the radioactive substance is placed in a cavity near a cancerous lesion.


intracutaneous [in-trâ-kû-TÄ-në-âs] Injected just beneath the outer layer of skin.

intradermal [in-trâ-DER-mâl] [intradérmico] From within the skin, particularly from the dermis; See intracutaneous.

intradermal [in-trâ-DER-mâl] test Test that injects antigen or protein between layers of skin.

intramuscular [in-trâ-MUS-kyû-lär] Injected deep into muscle tissue.

intraosseous [in-trâ-ÔS-ë-âs] Injected directly into bone.

intraspinal [in-trâ-SPI-nâl] Injected directly into spinal spaces.


intraterine [in-trâ-YÜ-rê-ên] device (IUD) Contraceptive device consisting of a coil placed in the uterus to block implantation of a fertilized ovum.

intravascular stent Stent placed within a blood vessel to allow blood to flow freely.

intravenous (IV) [in-trâ-VÊ-nûs] [intravenoso (IV)] Administered through a tube into a vein.

introitus [in-trô-OÖS-tîs] [introite] External opening or entrance to a hollow organ, such as a vagina.

intussusception [in-tüs-sû-SÉP-shûn] Prolapse or collapse of an intestinal part into a neighboring part. One section collapses into another like a telescope.

invasive [in-VÄ-siv] Infiltrating other organs; spreading.

involuntary muscle Muscle not movable at will.

iodine [I-ô-dîn] Substance used in radiopharmaceuticals for contrast medium and radiation therapy.

ion [I-ôn] Positively charged particle used to ionize tissue.

ionize [I-ôn-iz] To destroy cells by changing neutral particles to ions using x-rays.

iridectomy [îr-î-DÎK-tô-mê] [iridectomía] Removal of part of the iris.

iridotomty [îr-î-DÎT-ô-mê] Incision into the iris to relieve pressure.

iris [îrîs] [iris] Colored part of the eye; contains muscles that expand and contract in response to light.

iritis [î-RI-tis] [iritis] Inflammation of the iris.


irregular bones Any of a group of bones with a special shape to fit into certain areas of the skeleton, such as the skull.

ischemia [îs-KÉ-më-â] [isquemia] Localized blood insufficiency caused by an obstruction.

ischium [îs-kë-ûm] [isquion] One of the three fused bones that form the pelvic girdle.

islets of Langerhans [LÂN-gër-hâns] Specialized cells in the pancreas that release insulin and glucagon.

isthmus [ÎS-mûs] [istmo] Narrow region at the bottom of the uterus opening into the cervix; narrow band of tissue connecting the two lobes of the thyroid gland.

jaundice [JÄWN-dis] Ictericia Excessive bilirubin in the blood causing yellowing of the skin.

jejunum [jë-JÜ-nûm] [yeyuno] Middle section of the small intestine.

joint [jöynt] [empalme] Place of joining between two or more bones.

Kaposi's sarcoma [KÂ-pös-së sår-KÔ-mâ] Skin cancer associated with AIDS.

Kegel [KÉ-gēl] exercises Exercises to strengthen pubic muscles.

keloid [KÉ-lëyd] [queleoido] Thick scarring of the skin that forms after an injury or surgery.

keratin [KÉ-râ-tîn] [queratina] Hard, horny protein that forms nails and hair.

keratitis [kér-å-TI-tîs] [queratitis] Inflammation of the cornea.


keratosis [kér-å-TÔ-sïs] [queratosis] Lesion on the epidermis containing keratin.

ketoacidosis [KÉ-tô-å-sôt-DÔ-sïs] [cetoacidosis] Condition of high acid levels caused by the abnormal release of ketones in the body.

ketone [KÉ-tô-nê] [cetona] Substance that results from the breakdown of fat; indicates diabetes or starvation when present in the urine.

ketonuria [kë-to-nûr-å] [cetonuria] Increased urinary excretion of ketones, usually indicative of diabetes or starvation.

ketosis [kë-tô-sïs] [cetosis] Condition caused by the abnormal release of ketones in the body.

kidney [KÎD-nê] [rinôn] Organ that forms urine and reabsorbs essential substances back into the bloodstream.

kidney failure Loss of kidney function.

kidney, ureter, bladder (KUB) X-ray of three parts of the urinary system.

kyphosis [kî-fô-sïs] [cifosis] Abnormal posterior spine curvature.

labia majora [LÂ-bë-â mâ-JÖR-å] Two folds of skin that form the borders of the vulva.

labia minora [mî-NÖR-å] Two folds of skin between the labia majora.

labor [LÂ-bôr] Process of expelling the fetus and placenta from the uterus.

labyrinthitis [LÂB-å-rin-THÎ-tîs] [laberintitis] Inflammation of the labyrinth.

lacrimal [LÂK-rî-mâl] bone Thin, flat bone of the face.
lacrimal  [LÄK-räl-mä]  glands  Glands  that  secrete  liquid  to  moisten  the  eyes  and  produce  tears.
lacrimation  [lärk-räl-Mä-shun]  [lagrimeo]  Secretion  of  tears,  usually  excessively.
lactation  [læk-Tä-shun]  [laktación]  Production  of  milk  from  the  breasts  following  delivery.
lactiferous  [læk-TF-ér-sus]  [lactifero]  Producing  milk.
lamina  (pl.,  laminae)  [LÄM-i-nä  (LÄM-i-ne)]  [laminia]  Thin,  flat  part  of  either  side  of  the  arch  of  a  vertebra.
laminectomy  [LÄM-i-NÄK-tö-mé]  Removal  of  part  of  an  intervertebral  disk.
laparoscopy  [lap-ä-ROS-kö-pe]  [laparoscopia]  Use  of  a  lighted  tubular  instrument  inserted  through  a  woman's  navel  to  perform  a  tubal  ligation  or  to  examine  the  fallopian  tubes.
large  intestine  Passageway  in  the  intestinal  tract  for  waste  received  from  the  small  intestine  to  be  excreted  through  the  anus;  also,  the  place  where  water  reabsorption  takes  place.
laryngitis  [lär-in-Ji-tis]  [laringitis]  Inflammation  of  the  larynx.
laryngopharynx  [lär-RING-gō-far-inks]  Part  of  the  pharynx  below  and  behind  the  larynx.
laryngoplasty  [lär-RING-gō-pläs-té]  [laringoplastia]  Repair  of  the  larynx.
laryngoscopy  [LÄR-ing-GÖS-kö-pe]  [laringoscopia]  Visual  examination  of  the  mouth  and  larynx  using  an  endoscope.
laryngospasm  [lär-RING-gō-späs-m]  Sudden  contraction  of  the  larynx,  which  may  cause  coughing  and  may  restrict  breathing.
laryngostomy  [LÄR-ing-GÖS-tö-mé]  [laringostomía]  Creation  of  an  artificial  opening  in  the  larynx.
laryngotracheobronchitis  [lär-RING-gō-TRÄ-kē-o-brön-kë-tis]  Inflammation  of  the  larynx,  trachea,  and  bronchi.
laryngotracheotomy  [lär-RING-gō-trä-kē-ÖT-ö-mé]  Incision  into  the  larynx  and  trachea.
larynx  [LÄR-ingks]  [laringe]  Organ  of  voice  production  in  the  respiratory  tract,  between  the  pharynx  and  the  trachea;  voice  box.
lateral  [LÄT-ér-äl]  To  the  side.
lateral  incisor  Second  tooth  from  the  median  of  the  jawline.
lateral  plane  Imaginary  line  that  divides  the  body  perpendicularly  to  the  median  plane.
laxative  [LÄK-ä-dv]  Agent  that  induces  bowels  to  move  in  order  to  relieve  constipation.
left  atrium  Upper  left  heart  chamber.
left  lower  quadrant  Quadrant  on  the  lower  left  anterior  side  of  the  patient's  body.
left  upper  quadrant  Quadrant  on  the  upper  left  anterior  side  of  the  patient's  body.
left  ventricle  Left  lower  heart  chamber.
leukemia  [lee-KAY-mé-a]  General  term  for  a  number  of  disorders  with  excessive  white  blood  cells  in  the  bloodstream  and  bone  marrow.
leukoderma  [leukodor-mä]  [leucoderma]  Absence  of  pigment  in  the  skin  or  in  an  area  of  the  skin.
leukorrhea  [lēk-o-kë-RAY-ë]  [leucorrea]  Abnormal  vaginal  discharge;  usually  whitish.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lid  [lîd]  [líd]  Lid  of  the  patient's  body.
lipase  [lip-ase]  Enzyme  contained  in  pancreatic  juice.
lipid  [lip-id]  profile  Laboratory  test  that  provides  the  levels  of  lipids,  triglycerides,  and  other  substances  in  the  blood.
lipid-lowering  Helpful  in  lowering  cholesterol  levels.
lips  [läb-ïa]  Two  muscular  folds  formed  around  the  outside  boundary  of  the  mouth.
liver  [lîv-ër]  [hígado]  Organ  important  in  digestive  and  metabolic  functions;  secretes  bile.
liver  biopsy  Removal  of  a  small  amount  of  liver  tissue  to  examine  for  disease.
lobectomy  [lō-KEK-tö-më]  [lobectomía]  1.  Removal  of  one  of  the  lobes  of  a  lung.  2.  Removal  of  a  portion  of  the  brain  to  treat  certain  disorders.
lobotomy  [lō-BÖT-ë-më]  [lobotomía]  Incision  into  the  frontal  lobe  of  the  brain.
lung  bone  Any  bone  of  the  extremities  with  a  shaft.
lordosis  [lord-DÖ-sis]  [lordosis]  Abnormal  anterior  spine  curvature  resulting  in  a  sway  back.
Lou  Gehrig's  disease  See  amyotrophic  lateral  sclerosis.
low  blood  pressure  [pren-sion  arterial  baia]  See  hypotension.
lumbar  [lüm-bär]  [spinal]  puncture  Withdrawal  of  cerebrospinal  fluid  from  between  two  lumbar  vertebrae.
lumbar  [lüm-bär]  regions  Left  and  right  regions  of  the  body  near  the  abdomen.
lumbar  [lüm-bär]  vertebrae  Five  vertebrae  of  the  lower  back.
lumen  [lüm-æn]  Channel  inside  an  artery  through  which  blood  flows.
lumpectomy  [lüm-PÉK-tö-më]  [noductomía]  Surgical  removal  of  a  localized  breast  tumor.
lung  [ľung]  [pulmôn]  One  of  two  organs  of  respiration  (left  lung  and  right  lung)  in  the  thoracic  cavity  where  oxygenation  of  blood  takes  place.
lunula  (pl.,  lunulae)  [LÜ-nû-lä  (LÜ-nû-le)]  [lúnula]  Half-moon  shaped  area  at  the  base  of  the  nail  plate.
luteinizing  [lüt-e-ën-iz-ïng]  hormone  (LH)  Hormone  essential  to  ovulation;  hormone  released  to  aid  in  maturation  of  ova  and  ovulation.
lymph  [limf]  [linfa]  Fluid  that  contains  white  blood  cells  and  other  substances  and  flows  in  the  lymphatic  vessels.
lymphadenopathy [lim-fad-ē-NÖP-ā-the] [linfadenopatía] Swollen lymph nodes.
lymphadenotomy [lim-fad-dø-NÖ-tō-mē] Incision into a lymph node.
lymphatic [lim-FÄT-ik] and immune [i-MYŪN] system Body system that includes the lymph, glands of the lymphatic system, lymphatic vessels, and the specific and nonspecific defenses of the immune system.
lymph node Specialized organ that produces lymphocytes and filters harmful substances from the tissues and assists in the immune response.
lymph node dissection Removal of a cancerous node for microscopic examination.
lymphocyte [lim-fō-sīt] [linfocito] Type of agranulocyte; white blood cells made in the bone marrows that are crucial to the body's defense against disease and infection.
lymphocytic [lim-fō-SĪT-ik] lymphoma Lymphoma with malignant cells that resemble large lymphocytes.
lymphoma [lim-FO-mā] [linfoma] Cancer of the lymph nodes.

M
macrocytosis [MÄK-rō-sī-TÔ-sīs] [macrocitosis] Disorder with abnormally large red blood cells.
macrophone [MÄK-rō-fā] [macrófago] Special cell that devours foreign substances.
amacula [MÄK-yū-lā] [mácula] Inner ear structure containing hairlike sensors that move to maintain equilibrium.
macula lutea [lu-TÉ-ā] Small, yellowish area located in the center of the retina, which has a depression called the fovea centralis.
macular [MÄK-yū-lā] degeneration Gradual loss of vision caused by degeneration of tissue in the macula.
macule [MÄK-yūl] Small, flat, noticeably colored spot on the skin.
magnetic resonance imaging (MRI) Imaging produced by tracking the magnetic properties in the nuclei of various cells.
malignant melanoma [mēl-ā-NÖ-Mā] Virulent skin cancer originating in the melanocytes, usually caused by overexposure to the sun.
malleolus (pl., malleoli) [mā-LĒ-ō-lūs (mā-LĒ-ō-lī)] Rounded protrusion of the fibula or fibula on either side of the ankle.
malleus [MÄL-e-ūs] [malleus] One of the three auditory ossicles; the hammer.
malocclusion [māl-ō-KLŪ-zhūns] Abnormal closures of the top teeth in relation to the bottom teeth.
mammary [MÄM-ā-re] glands Glandular tissue that forms the breasts, which respond to cycles of menstruation and birth.
mammography [mā-MÖG-rā-fe] [mamografía] X-ray imaging of the breast as a cancer screening method.
mammaplasty [MÄM-ō-plās-tē] [mamoplastia] Plastic surgery to reconstruct the breast, particularly after a mastectomy.
mastible [MÄN-dī-bl] [mandíbula] U-shaped bone of the lower jaw.
manc [MÄN-ik] Having a dangerously elevated mood.
mammary-depressive [MÄN-ik de-PRĒ-sīv] disorder See bipolar disorder.
manipulative [mā-NĪP-ā-lā-tīv] Done without an incision, as in the reduction of a fracture.
manipulative therapy Therapy that uses manipulation of the body to treat patients.
Mantoux [mān-TŪ] test Test for tuberculosis in which a small dose of tuberculin is injected intradermally with a syringe.
marrow [MÄR-ō] [médula] Connective tissue filling the medullary cavity, often rich in nutrients.
mastectomy [mās-TĒK-tō-mē] [mastectomía] Removal of a breast.
mastication [mās-ṭi-KĀ-shūn] [masticación] Chewing.
mastitis [mās-TĪ-tīs] [mastitis] Inflammation of the breast.
mastoid [MÄS-tōyd] process Protrusion of the temporal bone that sits behind the ear.
mastoiditis [mās-tōyd-Ī-tīs] Inflammation of the mastoid process.
mastopexy [MÄS-tō-pēk-sē] Surgical procedure to attach sagging breasts in a more normal position.
maxillary [MÄK-sī-lār-ē] bone Bone of the upper jaw.
maxillary sinus Sinus on either side of the nasal cavity below the eyes.
meatotomy [mē-ā-TŌT-ō-mē] Surgical enlargement of the meatus.
meatus [mē-Ā-tūs] [meato] External opening of a canal, such as the urethra.
median [MÉ-de-āl] At or near the middle (of the body).
mediastinal [mē-dē-nāl] Surgical plane Imaginary line that divides the body into equal left and right halves.
mediastinoscopy [mē-dē-ās-tū-NŌS-kō-pee] Visual examination of the mediastinum and all the organs within it using an endoscope.
mediastinum [MĒ-de-ās-TĪ-num] [mediastino] Median portion of the thoracic cavity; septum between two areas of an organ or cavity.
medication, medicine [mēd-i-KĀ-shūn, MĒD-i-sīn] [medicación, medicina] Drug that serves a therapeutic purpose.
medulla [mē-DÛL-ā] [médula] Soft, central portion of the kidney.
medulla oblongata [mē-DÛL-ā òb-lōn-GÄ-tā] Part of the brain stem that regulates heart and lung functions, swallowing, vomiting, coughing, and sneezing.
medullary [MĒD-ū-lār-ē] Large and fleshy.
medullary [MĒD-ū-lār-ē] cavity Soft center cavity in bone that often holds marrow.
megakaryocyte [mēg-ā-KĀ-rē-ō-sīt] [megacariocito] Large cell in red bone marrow that forms platelets.
melanin [MĒL-ā-nīn] [melanina] Pigment produced by melanocytes that determines skin, hair, and eye color.
melanocyte [MĒL-ā-nō-sīt] [melanocito] Cell in the epidermis that produces melanin.
melanocyte-stimulating [mê-LÂN-o-sít] [MSH] Hormone released by the pituitary gland.

melatonin [mê-lô-TÔN-in] Hormone released by the pineal gland; affects sexual function and sleep patterns.

melena [mê-LE-nä] [melena] Old blood in the stool.

membranous labyrinth One of the two tubes that make up the semicircular canals.

menarche [mê-nAR-kê] [menarca] First menstruation.

Meniere’s [mê-n-YÈRZ] disease Elevated pressure within the cochlea.

meninges (sing., meninx) [mê-NIN-jês] (Mê-nînks) [meninges] Three layers of membranes that cover and protect the brain and spinal cord.

meningioma [mê-NIN-jê-Ö-mâ] [meningioma] Tumor that arises from the meninges.

meningitis [mê-nîn-Î-tîs] [meningitis] Inflammation of the meninges.

meningocele [mê-NÎNG-o-sël] [meningocele] In spina bifida cystica, protrusion of the spinal meninges above the surface of the skin.

meningomyelocele [mê-nîn-jô-MÎ-Î-lô-sël] [meningomielocele] In spina bifida cystica, protrusion of the meninges and spinal cord above the surface of the skin.

menometrorrhagia [MÊN-o-mê-trô-RÂ-jê-ä] [menometrorrhagia] Irregular or excessive bleeding between or during menstruation.

menopause [MÊN-o-påwz] [menopausia] Time when menstruation ceases; usually between ages 45 and 55.

menorrhagia [mê-nô-RÂ-jê-ä] [menorrhagia] Excessive menstrual bleeding.

menstruation [mê-nû-strû-Â-shûn] [menstruación] Cyclic release of uterine lining through the vagina; usually every 28 days.

mental retardation Condition with below average intellectual functioning.

mesentery [MÊS-ên-têr-ë] [mesenterio] Membranous tissue that attaches small and large intestines to the muscular wall at the dorsal part of the abdomen.

mesothelioma [MÊZ-ô-thê-le-Ö-mâ] [mesothelioma] Rare cancer of the lungs associated with asbestosis.

metabolism [mê-TÂB-ô-lëm] The chemical changes in cells that provide energy or vital processes and activities and through which new material is assimilated.

metabolize [mê-TÂB-ô-lëz] To change chemically or physically so as to make useful.

metacarpal [MÊT-â-KÂR-päl] [metacarpiano] One of five bones of the hand between the wrist and the fingers.

metaphysis [mê-TÂF-i-sîs] [metáfisis] Section of a long bone between the epiphysis and diaphysis.

metastasis [mê-TÂS-tâ-sîs] [metastasis] Spread of malignant cells to other parts of the body; spread of a cancer from a localized area.

metatarsal [MÊT-à-târ-sâl] Bones Bones of the foot between the instep (arch) and the toes.

metrorrhagia [mê-trô-RÂ-jê-ä] [metrorragia] Uterine bleeding between menstrual periods.

microcytosis [MÎK-rô-sî-TÔ-sîs] [microcitosis] Disorder with abnormally small red blood cells.

microgia [mî-KRÔG-le-ä] [microgia] A type of neuroglia that removes debris.

microphage [MÎK-rô-fâj] [micrófago] Small phagocytic cell that devours foreign substances.

midbrain [cerebro medio] Part of the brainstem involved with visual reflexes.

middle lobe Middle section of the right lung.

mid-sagittal [mîd-SÂ]-tâll] plane See medial plane.

mind-body intervention Therapy that uses the power of the mind to affect the body.


minimally invasive Done with the smallest incision possible, such as the clearing of arterial blockages with tiny probes that use lasers.

miotic [mî-ÔT-îk] Agent that causes the pupil to contract.

miscarriage [mîs-KAR-ij] [aborto espontáneo] Spontaneous, premature ending of a pregnancy.


mitral [MÎ-trâl] insufficiency or reflux Backward flow of blood due to a damaged mitral valve.

mitral stenosis Abnormal narrowing at the opening of the mitral valve.

mitral valve [MÎ-trâl] See bicuspid valve.

mitral valve prolapse Backward flow of blood into the left atrium due to protrusion of one or both mitral cusps into the left atrium during contractions.

mixed-episode disorder See bipolar disorder.


Moh’s [mô] surgery 1. Removal of thin layers of malignant tissue until nonmalignant tissue is found. 2. Removal of a carcinoma after mapping with a chemical to establish the narrowest possible margin of affected tissue.

molar [MÔ-lâr] Any of the three teeth at the back of the mouth furthest from the median of the jawline.

monocyte [MÔN-ô-sît] [monócito] Type of agranulocyte.

mons pubis [mônz pyü-BIS] Mound of soft tissue in the external genitalia covered by pubic hair after puberty.

morning-after pill See abortifacient.

mouth [boca] Cavity in the face in which food and water are ingested.

multiple-gated acquisition (MUGA) angiography Radioactive scan showing heart function.

multiple myeloma [mî-è-LÔ-mâ] Malignant tumor of the bone marrow.

multiple sclerosis [MÎL-ë-pâl sklë-RÔ-sîs] (MS) Degenerative disease with loss of myelin, resulting in muscle weakness, extreme fatigue, and some paralysis.

murmur [soplô] Soft heart humming sound heard between normal beats.

muscle [MÜS-ël] [músculo] Contractile tissue that plays a major role in body movement.

muscle relaxant Agent that relieves muscle stiffness.

muscle [MÜS-ël] tissue Tissue that is able to contract and relax.
muscular dystrophy [MÚS-kyú-lár DÍS-tró-fé] [distrofia muscular] Progressive degenerative disorder affecting the musculoskeletal system and, later, other organs.


mutation [mú-tá-shú-n] Alteration in DNA to produce defective cells.


myasthenia gravis [mi-ás-THÉ-né-á GRÁV-í-s] Disease involving overproduction of antibodies that block certain neurotransmitters; causes muscle weakness.

mydriatic [mi-dré-ÁT-lík] Agent that causes the pupil to dilate.

myelin sheath [MÍ-é-lín sheth] Fatty tissue that covers axons.

myelogram [MÍ-é-ló-grám] [mielograma] X-ray of the spinal cord after a contrast medium has been injected.

myelography [MÍ-é-ló-LÓG-rá-fé] [mielografía] Radiographic imaging of the spinal cord.

myeloma [mi-é-LÓ-má] [mieloma] Bone marrow tumor.

myocardial infarction Sudden drop in the supply of blood to an area of the heart muscle, usually due to a blockage in a coronary artery.

myocarditis [MÍ-ó-kár-DÍ-tís] [miocarditis] Inflammation of the myocardium.

myocardium [mi-ó-KÁR-dé-úm] [miocardio] Muscular layer of heart tissue between the epicardium and the endocardium.


myometrium [MÍ-ó-MÉ-tré-úm] [miometrio] Middle layer of muscle tissue of the uterus.

myopia [mi-ó-pee-á] [miopía] Focusing in front of the retina causing visual distortion; nearsightedness.

myoplasty [MÍ-ó-plás-té] [mioplastia] Surgical repair of muscle tissue.

myositis [mi-ó-SÍ-tís] [miotisitis] Inflammation of a muscle.

myringitis [mi-rín-JI-tís] [myringitis] Inflammation of the eardrum.

myringotomy [mi-rín-GÓT-ó-mé] Insertion of a small tube to help drain fluid from the ears (particularly of children).

myxedema [mi-ked-e-MA-má] [miixedema] Advanced adult hypothyroidism.

N

nail [uña] Thin layer of keratin that covers the distal portion of fingers and toes.

narcolepsy [NÁR-kó-lép-se] [narcolepsia] Nervous system disorder that causes uncontrollable, sudden lapses into deep sleep.

narcotic [nár-KÒT-lík] Agent that relieves pain by inducing a stuporous or euphoric state.

nasal bones Bones that form the bridge of the nose.

nasal cavity 1. Cavity on either side of the nasal septum. 2. Opening in the external nose where air enters the body.

nasal septum [SÉP-túm] Cartilaginous division of the external nose.

nasopharyngitis [NÁ-zó-fá-rín-JI-tís] Inflammation of the nose and pharynx.


nasopharynx [NÁ-zó-FÁR-ingks] [nasofaringe] Portion of the throat above the soft palate.

natural immunity Inherent resistance to disease found in a species, race, family group, or certain individuals.

naturaloplastic medicine Therapy that uses the body's own healing powers to maintain and restore health.

nausea [NÁW-zhé-á] [náusea] Sick feeling in the stomach.


nebulizers [NÉB-yú-lí-zérz] Devices that deliver medication through the nose or mouth in a fine spray to the respiratory tract.

necrosis [né-kró-sís] [necrosis] Death of tissue or an organ or part due to irreversible damage; usually a result of oxygen deprivation.

necrotic [né-KRÓ-tík] Containing dead tissue.

needle biopsy Removal of cells for examination by aspirating them with a needle.

needle holder Surgical forceps used to hold and pass a suturing needle through tissue.

neonate [NÉ-ó-nát] Infant under four weeks old.

neonatology [NÉ-ó-ná-TÓL-ó-jé] Medical specialty that diagnoses and treats disorders of neonates.

neoplasms [NÉ-ó-plázm] [neoplasma] Abnormal tissue growth; tumor; new growth.


nephritis [né-frí-tís] [nefritis] Inflammation of the kidneys.

nephroblastoma [né-fró-blás-tó-má] [nefroblastoma] See Wilms' tumor.


nephroscopy [né-fró-sé-kó-pé] Surgical fixation of a kidney to the abdominal wall.


nephrosis [né-fró-sís] Disorder caused by loss of protein in the urine.

nephrostomy [né-fró-stó-mé] Establishment of an opening from the renal pelvis to the outside of the body.

nerv [nérv] [nervio] Bundle of neurons that bear electrical messages to the organs and muscles of the body.

nerve cell Basic cell of the nervous system having three parts: cell body, dendrite, and axon; neuron.
nerve conduction velocity Timing of the conductivity of an electrical shock administered to peripheral nerves.

nerve impulse Released energy that is received or transmitted by tissue or organs and that usually provokes a response.

nervous [nÉR-vus] system Body system that includes the brain, spinal cord, and nerves and controls most body functions by sending and receiving messages.

nervous tissue Specialized tissue that forms nerve cells and is capable of transmitting messages.

neural [núr-æl] canal Space through which the spinal cord passes.

neurectomy [núr-ri-kto-mé] [neurectomía] Surgical removal of a nerve.

neurilemma [núr-ri-LÉM-ā] [neurilema] Membranous covering that protects the myelin sheath.

neuritis [núr-RÍ-tis] [neuritis] Inflammation of the nerves.

neuroglia [núr-RÖG-lé-a] [neuroglial] [núr-RÖG-lé-a] cell Cell of the nervous system that does not transmit impulses.


neuron [núr-é-on] [neurona] Basic cell of the nervous system having three parts; nerve cell.

neuroplasty [núr-ô-PLÁS-te] Surgical repair of a nerve.

neuroretina [núr-ô-RÉT-i-ná] Thick layer of nervous tissue in the retina.

neuorrhaphy [núr-ô-RÁ-fé] Suturing of a severed nerve.

neurosis (pl., neuroses) [núr-RO-sís (núr-RO-séz)] Behavior condition usually involving anxiety that a patient can cope with that does not rise to the level of psychosis.

neurosurgeon [núr-ô-SÉR-jún] [neurocirujano] Medical specialist who performs surgery on the brain and spinal cord.

neurotomy [núr-ÔT-ó-mé] Dissection of a nerve.

neurotransmitters [núr-ô-tránmèt-sérz] [neurotransmisor] Various substances located in tiny sacs at the end of the axon.

neutrophil [nú-ô-trô-fíl] [neutrófilo] Type of leukocyte; granulocyte.

nevus (pl., nevi) [nÉV-vús (NÉ-ví)] [nevo] Birthmark.

nipple [nÎP-îl] [pezón] Projection at the apex of the breast through which milk flows during lactation.

nitré [nî-trá] Any of several medications that dilate the veins, arteries, or coronary arteries; used to control angina.


nocturia [nók-TO-re-à] [nocturia] Nighttime urination.

nodular [nôd-gâl] [lî-râ] Former in tight clusters.

node [nôd-ô-vâl] [nódulo] Small knob of tissue.

non-Hodgkin’s lymphoma Cancer of the lymph nodes with some cells resembling healthy cells and spreading in a diffuse pattern.

noninsulin-dependent diabetes mellitus (NIDDM) See Type II diabetes.

nonsteroidal [nôn-STÉR-ôy-dâl] anti-inflammatory drug (NSAID) [agentes de antiflamatorios no esteroides, AINE] Agent or drug that reduces inflammation without the use of steroids.

norepinephrine [nôr-é-pin-é-frin] [norepinefrina] Hormone secreted by adrenal medulla.

nose [nôz] [nariz] External structure supported by nasal bones and containing nasal cavity.

nosebleed [epistaxis] See epistaxis.

nostrils [nôs-trîls] [nariz] External openings at the base of the nose; also called external nares.

Novocaine [nôv-kâ-kán] An anesthetic injected near the site being treated.

nuclear medicine Medical specialty for treating diseases with radioactive substances.

nucleus pulposus [nûs-klâ-ûs pûl-PÖ-sús] Fibrous mass in the center portion of the intervertebral disk.

nyctalopia [nîk-tâ-LÔ-pé-à] [nîctalopia] Night blindness.

nystagmus [nîs-STÂG-mûs] [nîstagmo] Excessive involuntary eyeball movement.

O

obesity [ô-BÉS-î-rrê] [obesidad] Abnormal accumulation of fat in the body.

obsessive-compulsive disorder Condition with obsessive-compulsive feelings.


occipital [ôk-SÎP-î-tál] bone Bone that forms the lower back portion of the skull.

occipital lobe [ôk-SÎP-î-tál lôb] One of the four parts of each hemisphere of the cerebrum.

occlusion [ôk-KLÎ-zûn] [oclusión] Blocking of a blood vessel; the closing of a blood vessel.


olecranon [ô-LÉK-râ-non] [ólecranon] Curved end of the ulna to which tendons of the arm muscles attach; bony prominence of the elbow.

olfactory [ôl-fâk-tô-rrê] organs Organs at the top of the nasal cavity containing olfactory receptors.

oligodendroglia [ôl-gô-dên-drôg-lë-à] [oligodendroglia] A type of neuroglia that produces myelin and helps to support neurons.

oligodendroglialoma [ôl-gô-dên-drô-gle-Ö-mâ] [oligodendroglialoma] Type of glioma formed from oligodendrogliala.

oligomenorrhea [ôl-gô-mên-ô-RR-ë-à] [oligomenorréa] Scanty menstrual period.


oligospermia [ôl-gô-spêr-më-à] [oligospermia] Scanty production of sperm.

oliguria [ôl-gû-GÎ-rrê-à] [oliguria] Scanty urine production.

oncogene [ôn-KÔ-rrê-à] DNA fragment that causes malignancies.

onychia, onychitis [ô-nî-kê-à, ôn-î-KÎ-tîs] [onyquia] Inflammation of the nail.

onychopathy [ôn-î-KÔP-î-rrê] [onicopatía] Disease of the nail.
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**occyte** [ō-sīt] [oocito] Immature ovum produced in the gonads.

**ooophorectomy** [ō-ô-fôr-EK-tô-mé] [oooforectomía] Removal of an ovary.

**open fracture** Fracture with an open skin wound; compound fracture.

**operation** Any surgical procedure, such as the removal, transplant, or manipulation of tissue.

**ophthalmologist** [ōf-thâl-MÔL-ô-jist] [oftalmólogo] Medical specialist who diagnoses and treats eye disorders.

**ophthalmoscopy** [ōf-thâl-MÔS-kô-pe] [oftalmoscopía] Visual examination of the interior of the eye.

**opportunistic** [ōp-pûr-rû-nûs-tik] Infection Infection that takes hold because of lowered immune response.

**optic nerve** Nerve that transmits nerve impulses from the eye to the brain.

**optician** [ōp-TISH-ûn] Technician who makes and fits corrective lenses.

**optometrist** [ōp-TÔM-ë-trist] [optometrista] Nonmedical specialist who examines the eyes and prescribes lenses.

**oral administration** Swallowing of pills or liquids via the mouth.

**orchidectomy** [õr-kî-DÉK-tô-me] [orquitectomía] Removal of a testicle.

**orchietomy** [õr-kè-EK-tô-me] [orquiectomía] Removal of a testicle.

**organ** [ôr-gân] Group of specialized tissues that performs a specific function.

**organ of Corti** [KÔR-tî] Structure on the basilar membrane with hairlike receptors that receive and transmit sound waves.

**origin** [ôr-jen] Point at which muscles attach to stationary bone.

**oropharynx** [õr-ô-FAR-ingks] [orofaringe] Back portion of the mouth, a division of the pharynx.

**orthodontics** [õr-thô-DÔN-tîks] Dental specialization concerned with the correction and prevention of irregularities in the placement and appearance of teeth.

**orthopedist** [õr-thô-PÊ-dîst] [ortopedista], **orthopedic** [õr-thô-PÊD-îk] surgeon Physician who examines, diagnoses, and treats disorders of the musculoskeletal system.

**orthopnea** [õr-thôp-NÉ-á], [õr-THÔP-nè-á] [ortopnea] Difficulty in breathing, especially while lying down.

**orthosis, orthotic** [õr-THÔ-sîs], [õr-THÔT-îk] [ortosis, ortótica] External appliance used to immobilize or assist the movement of the spine or limbs.

**osseous** [ôs-sè-ús] tissue Connective tissue into which calcium salts are deposited.

**osseus** [ôs-sè-us] *labyrinth* One of the two tubes that make up the semicircular canals.

**ossification** [ôs-î-fi-KÃ-shûn] [osificación] Hardening into bone.

**ostalgia** [õs-tâl-je-á] [ostealgia] Bone pain.

**osteoarthritis** [õs-tê-ô-ar-THRÎ-tís] [osteoartritis] Arthritis with loss of cartilage.

**osteoblast** [õs-tê-ô-blást] [osteoblasto] Cell that forms bone.

**osteocasis** [õs-tê-ô-ÔK-lâ-sîs] [osteoclasia] Breaking of a bone in order to repair or reposition it.

**osteoclast** [õs-tê-ô-klást] [osteoclasto] Large cell that reabsorbs and removes osseous tissue.

**osteocyte** [õs-tê-ô-sît] [osteocito] Bone cell.

**osteodynia** [õs-tê-ô-ðÎN-e-á] [osteodinia] Bone pain.

**osteoma** [õs-tê-ô-mâ] [osteoma] Benign tumor, usually on the skull or mandible.

**osteomyelitis** [õs-tê-ô-mê-ô-LÎ-thîs] [osteomielitis] Inflammation of the bone marrow and surrounding bone.

**osteopath** [õs-tê-ô-pâr] [osteopata] Physician who combines manipulative treatment with conventional therapeutic measures.

**osteoplasty** [õs-tê-ô-plâs-tî] [osteoplastia] Surgical replacement or repair of bone.

**osteoporosis** [õs-tê-ô-pô-RÔ-sîs] [osteoporosis] Degenerative thinning of bone.

**osteosarcoma** [õs-tê-ô-sâr-KÔ-mâ] [osteosarcoma] Malignant tumor of bone.

**osteotomy** [õs-tê-ô-ÔT-tî] [osteotomía] Cutting of bone.

**otalgia** [õ-tál-gî-á] [otalgia] Pain in the ear.

**otitis externa** [õ-tî-tîs-ëks-TÉR-nâ] [otitis externa] Fungal infection of the external ear canal.

**otitis media** [MÈ-dè-á] [otitis media] Inflammation of the middle ear.

**otoliths** [Ô-to-lîths] [otolito] Small calcifications in the inner ear that help to maintain balance.

**otologist** [õ-tÔL-ô-jîst] [otólogo] Medical specialist in ear disorders.

**otoplasty** [õ-tô-plâs-tî] [otoplastia] Surgical repair of the outer ear.


**otorrhea** [Ô-to-rê-á] [otorragia] Bleeding from the ear.

**otorrhagia** [Ô-to-rê-á] [otorrea] Purulent discharge from the ear.

**otosclerosis** [Ô-to-skîl-RÔ-sîs] [otosclerosis] Hardening of bones of the ear.

**otoscopy** [Ô-tÔS-kô-pe] [otoscopia] Inspection of the ear using an otoscope.

**ovary** [Ô-vâ-rê] [ovario] One of two glands that produce ova; one of two female reproductive glands that secrete hormones in the endocrine system.

**overdose** [Ô-vër-dôs] Toxic dose of a substance.

**over-the-counter (OTC)** Available for sale without a doctor’s prescription.

**ovulation** [ÔV-yû-LÃ-shûn] [ovulación] Release of an ovum (or rarely, more than one ovum) as part of a monthly cycle that leads to fertilization or menstruation.

**ovum** [pl., ova] [Ô-vûm (Ô-vâ)] [óvulo] Mature female sex cell produced by the ovaries, which then travels to the uterus. If fertilized, it implants in the uterus; if not, it is released during menstruation to the outside of the body.

**oxytocin** [ôk-sî-TÔ-sîn] [oxitocina] Hormone given to induce labor; hormone released by the posterior pituitary gland to aid in uterine contractions and lactation.

**P**

**pacemaker** [marcapaso] Term for the sinoatrial (SA) node; also, an artificial device that regulates heart rhythm.

**palatine** [PÅL-å-rîn] bone Bone that helps form the hard palate and nasal cavity; located behind the maxillary bones.
palatine tonsils [PĂL-ă-tŏn TÔN-sîlz] Lymphatic tissue that works as part of the immune system; mounds of lymphatic tissue on either side of the pharynx.

palpitations [păl-pĭt-a-shŏnz] [palpitaciones] Uncomfortable pulsations of the heart felt as a thumping in the chest.

palsy [PÂW-ĕlz] [paralisis] Partial or complete paralysis.

pancreas [PĀN-krĕ-as] [páncreas] Digestive organ that secretes digestive fluids; endocrine gland that regulates blood sugar; gland of both the endocrine system (blood sugar control) and the digestive system (as an exocrine gland).


pancreatitis [PĀN-krĕ-ă-TĪ-tēs] [pancreatitis] Inflammation of the pancreas.

pancytopenia [PĀN-sĭ-tŏ-PE-nē-ă] [pancitopenia] Condition with a low number of blood components.

pansinusitis [pān-sĭ-nū-SĪ-tĭs] Inflammation of all the sinuses.

Papanicolaou (Pap) [pă-păn-NĬ-kō-lō-ŏn] smear Gathering of cells from the cervix and vagina to observe for abnormalities.

papilla (pl., papillae) [pă-PIL-ă (pă-PİL-e)] [papila] Tiny projection on the superior surface of the tongue that contains taste buds.

papillary [PĂP-ĭ-lār-e] Having papillae projecting from cells.

papillary [PĂP-ĭ-lār-e] layer Thin sublayer of the dermis containing small papillae (nipple-like masses).

papule [PĂP-yŏl] [pápula] Small, solid elevation on the skin.

para [PĀ-rā] Woman who has given birth to one or more viable infants.

paracentesis [PĂR-ă-sĕn-TĒ-sĭs] Incision into the abdominal cavity to remove fluid or relieve pressure.

paracystitis [PĀR-ă-KUS-sĭs] [paracystis] Impaired hearing.

paranasal sinuses [pār-ā-NĂ-săl SI-nûs-ez] Area of the nasal cavity where external air is warmed by blood in the mucous membrane lining.

paranoia [păr-ā-nō'ē-ă] Extreme unfounded mistrust of others.

parasiticide [păr-ā-sĬTĭ-sĬd] Agent that kills or slows the growth of parasites.

parasympathetic [păr-ā-sĭm-pă-THĬT-ĭk] nervous system Part of the autonomic nervous system that operates when the body is in a normal state.

parathormone [păr-ă-THŎR-mŏn] (PTH) [parathormona] Parathyroid hormone.

parathyroid [păr-ă-THĭ-royd] gland [paratraiode] One of four glands located adjacent to the thyroid gland on its dorsal surface that help maintain levels of blood calcium.

parathyroid hormone (PTH) Hormone released by parathyroid glands to help raise blood calcium levels.

parathyroidectomy [PĂR-ă-thĭ-royd-DEK-ŭ-mē] Removal of one or more of the parathyroid glands.


paresthesia [păr-ĕs-THĔ-zē-ă] Abnormal sensation, such as tingling.

parietal [păr-ĭ-tĕl] bone Flat, curved bone on either side of the upper part of the skull.

parietal lobe [păr-ĭ-tĕl ŏ-lŏb] One of the four parts of each hemisphere of the cerebrum.


Parkinson’s [PĀRK-ĭn-sŏn-sĭs] disease Degeneration of nerves in the brain caused by lack of sufficient dopamine.

paronychia [păr-ŏ-nĭ-Kĭ-ă] [paroniquia] Inflammation, with pus, of the fold surrounding the nail plate.


paroxysmal [păr-ōks-sĭ-măl] [paroxístico] Sudden, as a spasm or convulsion.

partial One or more artificial replacement teeth.

partial thromboplastin time (PTT) Test for ability of blood to coagulate.

parturition [păr-tŭr-ĭn] [parturición] Birth.

patch [plăch] Small area of skin differing in color from the surrounding area; plaque.

patch test Test for allergic sensitivity in which a small dose of antigen is applied to the skin on a small piece of gauge.

patella [pā-TĔL-ă] [rōtula] Large, sesamoid bone that forms the kneecap.

patent ductus arteriosus [PĀ-tĕnt DŬK-ŭ-sĕs ār-tĕr-ŏs-ŭ-sĭs] A condition at birth in which the ductus arteriosus, a small duct between the aorta and the pulmonary artery, remains abnormally open.

pathogen [pă-thŏ-ĕn] [patógeno] Disease-causing agent.

pathological fracture Fracture occurring at the site of already damaged bone.

peak flow meter Device for measuring breathing capacity.

pediatrics [pē-dĕ-tŏs-ĭks] Medical specialty that diagnoses and treats disorders in children from infancy through adolescence.

pediculated [pĕ-dĬk-kŭ-lĭ-tŏd] polyp Polyp that projects upward from a slender stalk.

pediculosis [pĕ-dĬk-kŭ-lo-ăsĭs] [pediculosis] Lice infection.


pelvic [pĕl-vĭk] cavity Body space below the abdominal cavity that includes the reproductive organs; cup-shaped cavity formed by the large bones of the pelvic girdle; contains female reproductive organs, sigmoid colon, bladder, and rectum.

pelvic girdle Hip bones.


pelvis [pĕl-vĭs] [pelvis] Cup-shaped ring of bone and ligaments at the base of the trunk.

pemphigus [pĕm-fĭ-gŭs] [péngfiko] Autoimmune disease that causes skin blistering.

penis [pĕnĭs] [pene] Male reproductive part that covers the urethra on the outside of the body.

pepsin [pĕp-sĭn] [pepsina] Digestive enzyme of gastric juice.

peptic ulcer Sore on the mucous membrane of the digestive system; stomach ulcer or gastric ulcer.

percussión [pĕr-ŭs-sŏn] percussion Tapping on the surface of the body to see if lungs are clear.

perfusion deficit Lack of flow through a blood vessel, usually caused by an occlusion.

pericarditis [pêr-i-kârd-Dî-ŭs] [pericarditis] Inflammation of the pericardium.

pericardium [pêr-i-KÄR-de-ŭm] [pericardio] Protective covering of the heart.

perilymph [pêr-i-lîm-f] Liquid secreted by the walls of the osseus labyrinth.

perimenopause [pêr-i-MÉ-nô-pâws] Three- to five-year period of decreasing estrogen levels prior to menopause.

perimetry [pêr-i-MÉ-tré-ŭm] [perimetro] Outer layer of the uterus.

perineum [pêr-i-NÊ-ŭm] [perineo] Space between the labia majora and the anus; area between the penis and the anus.


peristome [pêr-i-ÔS-tĕ-ŭm] [periostio] Fibrous membrane covering the surface of bone.

peripheral vascular disease Vascular disease in the lower extremities, usually due to blockages in the arteries of the groin or legs.

peristalsis [pêr-i-STÄL-sîs] [peristaltismo] Coordinated, rhythmic contractions of smooth muscle that force food through the digestive tract.

peritoneal [pêr-i-tô-NÊ-ăl] dialysis Type of dialysis in which liquid that extracts substances from blood is inserted into the peritoneal cavity and emptied outside the body.

peritoneoscopic [pêr-i-tô-nê-ÔS-kŏ-pe] [peritoneoscopia] Examination of the abdominal cavity using a peritoneoscope.

peritonitis [pêr-i-tô-NÎ-tîs] [peritonitis] Inflammation of the peritoneum.

permanent teeth Second set of teeth that erupt at regular intervals starting at around age six.

pertussis [pêr-TÜS-îs] [pertussis] Severe infection of the pharynx, larynx, and trachea caused by bacteria; whooping cough.

PET (positron emission tomography) scan [pôZ-î-trôn e-MI-shûn tô-MÔG-râ-fê] (TEP) Imaging of the brain using radioactive isotopes and tomography; a series of images that shows the distribution of substances through tissue.


petit mal [pê-TÉ-mâl] seizure See absence seizure.

Peyronie’s [pâ-ROHN-ës] disease Abnormal curvature of the penis caused by hardening in the interior of the penis.

pH Measurement of the acidity or alkalinity of a solution such as urine.

phacoemulsification [FÂ-kö-ĕ-mûls-ĭ-f-kâ-shûn] Use of ultrasound to break up and remove cataracts.

phagocytosis [FÂG-ô-sî-TÔ-sîs] [fagocitosis] Ingestion of foreign substances by specialized cells.

phalanges (sing., phalanx) [fâ-LÄNjê (FÄ-lângks)] [fâlanje] Long bones of the fingers and toes.

phantom limb, phantom pain Pain felt in a paralyzed or amputated limb.

pharmacist [FÂR-mâ-sîst] Person licensed to dispense medications.

pharmacodynamics [FÂR-mâ-kò-dî-NÄM-îks] Study of how drugs affect the body.

pharmacokinetics [FÂR-mâ-kô-kî-NÊT-îks] Study of how the body absorbs, metabolizes, and excretes drugs.

pharmacology [fâr-mâ-KÖL-ô-jê] [farmacología] Science that studies, develops, and tests new drugs.


pharyngitis [fâr-in-JÎ-tîs] [faringitis] Inflammation of the pharynx.

pharynx [FÂR-îngks] [faringe] Passageway at back of mouth for air and food; throat; tube through which food passes to the esophagus.

phenylketones [FÊN-î-KÊ-tôns] Substances that, if accumulated in the urine of infants, indicate phenylketonuria (PKU), a disease treated by diet.

phimosis [fî-MÔ-sîs] [fimosis] Abnormal narrowing of the opening of the foreskin.

phlebitis [fî-Bl-tîs] [flebitis] Inflammation of a vein.

phlebography [fî-BÔG-râ-fê] [flebografía] View of a vein by x-ray after injection of a contrast medium.

phlebotomy [fî-BÔT-ô-me] [flebotomía] Drawing blood from a vein via a small incision; See venipuncture.

phobia [fô-be-ă] Irrational or obsessive fear of something.

phosphorus [FÔS-fôr-îs] [fósforo] Mineral important to the formation of bone.

photophobia [fô-tô-FÔ-be-ă] [fotofobia] Extreme sensitivity to light.

physical therapy Movement therapy to restore use of damaged areas of the body.

pia mater [Pî-ă, PÊ-Ă MÂ-têr, MÂH-têr] [piamadre] Innermost layer of meninges.

pica [Pî-kâ] Eating disorder in which the patient compulsively eats nonnutritive substances, such as clay and paint.

pilonidal [pî-lô-NÎ-dâl] cyst Cyst containing hair, usually found at the lower end of the spinal column.

pineal [pî-NÎ-ăl] gland Gland located above pituitary gland; secretes melatonin.

pink eye Conjunctivitis.


pituitary [pî-TÛ-Î-tar-ë] gland Major endocrine gland; secretes hormones essential to metabolic functions.

placenta [pî-lâ-SÊN-tâ] [placenta] Nutrient-rich organ that develops in the uterus during pregnancy; supplies nutrients to the fetus.

placenta previa [pî-lâ-SÊN-tâ PRÊ-ve-ă] Placement of the placenta so it blocks the birth canal.

plantar [PLÂN-tar] wart Wart on the sole of the foot.

plaque [plâk] [placa] Microorganisms that grow on the crowns along the roots of teeth causing decay of teeth and breakdown of gums; see patch; buildup of solid material, such as a fatty deposit, on the lining of an artery.

plasma [PLÄZ-mâ] Liquid portion of unclotted blood.
plasma [pláz-má] (plasma) cell Specialized lymphocyte that produces immunoglobulins.

plasmapheresis [pláz-má-fó-RÉ-sís] (plasmáférésis) Process of removing blood from a person, centrifuging it, and returning only red blood cells to that person.

plastic surgery Repair or reconstruction (as of the skin) by means of surgery.

platelet [PLÁT-lèt] (plaqueta) Thrombocyte; part of a megakaryocyte that initiates clotting.

platelet count (PLT) Measurement of number of platelets in a blood sample.

play therapy Revealing of feelings through play with a trained therapist.

pleomorphic [ple-o-MÖR-fík] Having many types of cells.

pleura (pl., pleurae) [PLÚR-á (PLÚR-e)] (pleura) Double layer of membrane making up the outside of the lungs.

pleural cavity [PLÚR-ál KÄV-i-té] Space between the two pleura.

pleural effusion [PLÚR-ál é-FYÚ-zhún] Escape of fluid into the pleural cavity.

pleuritis, pleurisy [pla-rí-tis, PLÚR-í-sé] (pleuritis) Inflammation of the pleura.

pleurocentesis [PLÚR-ó-sën-THÉ-sís] Surgical puncture of pleural space.

pleuroscopy [PLÚR-ó-POHK-sé] Fixing in place of the pleura surgically, usually in case of injury or deterioration.

pneumobronchotomy [nú-mó-brôn-kót-o-mé] Incision of the lung and bronchus.

pneumoconiosis [nú-mó-kó-ne-Ô-sís] (neumoconiosis) Lung condition caused by inhaling dust.


pneumonia [nú-MÖ-ne-à] (neumonía) Acute infection of the alveoli.

pneumonitis [nú-mó-NÎ-tis] (neumonitis) Inflammation of the lung.

pneumotherax [nú-mó-THÖ-rák] (neumotórax) Accumulation of air or gas in the pleural cavity.

podagra [pó-DAG-rá] (podagra) Pain in the big toe, often associated with gout.

podiatrist [pó-DÍ-á-tríst] (podiatra) Medical specialist who examines, diagnoses, and treats disorders of the foot.

poikilocytosis [pó-ki-lo-sís-TÔ-sís] (poiquilocitosis) Disorder with irregularly shaped red blood cells.

polarization [pô-lár-i-ZÁ-shún] (polarización) Resting state of the myocardial tissue in the conduction system of the heart.

cystic [kést-ik] (cístico) kidney disease Condition with many cysts on and within the kidneys.

pulmonary [pú-ló-MÖN-ik] (pulmonéctomía) Disorder with an abnormal increase in red blood cells and hemoglobin.

polydipsia [pô-lô-dÍ-pé-á] (polydipsia) Excessive thirst.

polyp [pô-lîp] (polipo) Bulging mass of tissue that projects outward from the skin surface.


polypoid [pô-lî-pôyd] Containing polyps.

polyposis [pô-lî-pôs-sís] (poliposis) Condition with polyps, as in the intestines.

polysomnography (PSG) [pô-lô-sóm-NÖG-rá-fé] Recording of electrical and movement patterns during sleep.

polyuria [pô-lô-ú-rá-á] (poliuria) Excessive urination; excessive amount of water in the urine.

pom [pôm] (poms) Part of the brainstem that controls certain respiratory functions.

popliteal [pô-pó-LÎT-e-á] (pulpiteal) An artery that supplies blood to the cells of the area behind the knee.

pore (poro) Opening or hole, particularly in the skin.

positron emission tomography [tô-MÖG-rá-fé] (PET) scan Type of nuclear image that measures movement of areas of the heart.

posterior At or toward the back side (of the body).

postprandial [pôs-trá-PRÁN-dé-á] blood sugar Test for glucose in blood, usually about two hours after a meal.

post-traumatic stress disorder (PTSD) Condition of extreme traumatic stress that may occur and last for years after a traumatic time or incident.

PPD Purified protein derivative of tuberculin.


prematurity [pré-MÁ-chúr] Born before 37 weeks gestation.

premature atrial contractions (PACs) Atrial contractions that occur before the normal impulse; can be the cause of palpitations.

premature ventricular contractions (PVCs) Ventricular contractions that occur before the normal impulse; can be the cause of palpitations.


presbyacousis [préz-be-á-KÚ-sís] (presbíacusia) Age-related hearing loss.

presbyopia [préz-be-Ô-pe-á] (presbiopia) Age-related diminished ability to focus or accommodate.

prescription [pré-SKRÍP-shún] (prescripción) Order given by a doctor for medication dosage, route, and timing of administration.

pressure sore See decubitus ulcer.

preventative [pré-VÉN-tá-tív] Designed to stop or prevent disease.

preventive medicine Medical specialty concerned with preventing disease.

priapism [PRÍ-á-pízm] (priapismo) Persistent, painful erection of the penis.

primary teeth First set of teeth that erupt at regular intervals between six months and age four.

probe Sharp device for exploring body cavities or clearing blockages.

process [PRÔ-sís, PRÖS-sís] Bony outgrowth or projection.

proctitis [prôkt-TÍ-tis] (proctis) Inflammation of the rectum and anus.

proctoplasty [PRÔk-tô-plás-té] Repair of the rectum and anus.

proctoscopy [prôkt-TÓS-kô-pe] (proctoscopia) Examination of the rectum and anus using a proctoscope.
progesterone [pró-JÉS-ˈtêr-ôn] [progesteronä] One of the primary female hormones.

prone Lying on the stomach with the face down.

proprietary [prō-PRÉ-ˈtär-ē] name See trade name.

prostate [prōs-ˈtāt] [prōstata] gland Gland surrounding the urethra that emits a fluid to help the sperm move and contracts its muscular tissue during ejaculation to help the sperm exit the body.


prostatitis [prōs-ˈtā-TĬ-ˈtīs] [prostatitis] Inflammation of the prostate.

prosthetic [prōs-ˈTHĒT-ˈīk] device Artificial device used as a substitute for a missing or diseased body part.


prothrombin [prō-ˈTHRÔM-bīn] [prothrombina] Type of plasma protein that aids in clotting.

prothrombin time (PT) Test for ability of blood to coagulate.


proximal [prō-ˈKĬL-ˈsi-mål] At or near the point of attachment to the trunk.

pruritus [prū-ˈRĬ-ˈtīs] [prurito] Itching.

psoriasis [sō-ˈrē-ˈsē-ās] [psoriasis] Chronic skin condition accompanied by scaly lesions with extreme pruritus.

psychiatry [sī-ˈKI-ˈā-trē] Medical specialty concerned with the diagnosis and treatment of mental disorders.

psychoanalysis [sī-ˈkō-ˌā-ˌNĀL-ˈi-sēs] Therapy that attempts to help patients bring unconscious emotions to the surface to deal with them.

psychology [sī-ˈKŎL-ˈō-je] Profession that studies human behavior and treats mental disorders.

psychopharmacology [sī-ˈkō-ˈFAR-ˈmă-kōL-ˈō-je] Science that deals with medications that affect the emotions.


psychotherapy [sī-ˈkō-ˈTHĀR-ˈē-pē] Treatment of mental disorders with verbal and nonverbal communication.

puberty [pū-ˈber-tē] [pubertad] Pre-teen or early teen period when secondary sex characteristics develop and menstruation begins.

pubes [pū-ˈbēz] [pubis] Anterior inferior portion of the hip bone.

pubic symphysis [pū-ˈbīk SIM-ˈfī-sēs] Joint between the two pubic bones.

pulmonary abscess [pūl-MĬ-nōˈnăr-ē ˈāb-sēs] Large collection of pus in the lungs.

pulmonary [pūl-MĬ-nōˈnăr-ē] artery [arteria pulmonar] One of two arteries that carry blood that is low in oxygen from the heart to the lungs.

pulmonary artery stenosis Narrowing of the pulmonary artery, preventing the lungs from receiving enough blood from the heart to oxygenate.

pulmonary edema Abnormal accumulation of fluid in the lungs.

pulmonary edema [pŪL-mĬ-nōˈnăr-ē ˈē-DE-mă] Fluid in the air sacs and bronchioles usually caused by failure of the heart to pump enough blood to and from lungs.

pulmonary function tests Tests that measure the mechanics of breathing.

pulmonary valve Valve that controls the blood flow between the right ventricle and the pulmonary arteries.

pulmonary vein One of four veins that bring oxygenated blood from the lungs to the left atrium.

pulp [pŭlp] Connective tissue, blood vessels, and nerves that fill the pulp cavity.

pulp cavity Center portion of a tooth.

pulse [pŭls] [pulso] Rhythmic expansion and contraction of a blood vessel, usually an artery.

pupil [pĭ-ˈpĭl] [pupila] Black circular center of the eye; opens and closes when muscles in the iris expand and contract in response to light.

purpura [pŏr-pūr-ă] [párpura] Skin condition with extensive hemorrhages underneath the skin covering a wide area.

pustule [pŭst-ūl] [pústula] Small elevation on the skin containing pus.

pyelitis [pĭ-ˈē-lĭ-tīs] [pielitis] Inflammation of the renal pelvis.


pyelotomy [pĭ-ˈē-lŎT-ŏ-mē] Incision into the renal pelvis.

pylorus [pĭ-ˈlŏr-ŭs] [píloro] Narrowed bottom part of the stomach.

pyoderma [pĭ-ˈō-dĕr-mă] [pioderma] Any inflammation of the skin that produces pus.

pyrogenic [pĭ-ˈrō-jĭ-nĭk] [pirogénico] Meningitis caused by bacteria; can be fatal; bacterial meningitis.

pyuria [pĭ-ˈyū-rē-ă] [piuria] Pus in the urine.

R

rad [răd] (radiation absorbed dose) Unit of radioactive substance that can be absorbed in a particular period of time.

radiation [ră-ˈdā-shĭn] Bombarding of tumors with rays that damage the DNA of cells.


radiation therapy Treatment of cancer that uses ionizing radiation to destroy malignant cells.

radiculitis [ră-ˈdĭ-kŭl-ĭ-tĭs] [radiculitis] Inflammation of the spinal nerve roots.

radiocative immunoassay (RIA) Test for measuring hormone levels in plasma; taken after radioactive solution is ingested.

radioactive iodine therapy Use of radioactive iodine to eliminate thyroid tumors.

radioactive iodine uptake Test for how quickly the thyroid gland pulls in ingested iodine.

radiography [ră-ˈdē-ŏ-ră-gŏr-ĭ-fē] Production of diagnostic images.

radioimmunoassay (RIA) [rē-ˈdē-ŏ-ˈIM-ŏ-nōˈnăr-ē-ăs] In vitro test to determine the amount of drugs or medication left in the body.
radiolucent [RĂ-de-ö-LÛ-sënt] Able to be easily penetrated by x-rays.
radionuclide [RĂ-de-ö-NÛ-kläd] Radioactive substance.
radiopaque [RĂ-de-ö-PÄK] Not able to be easily penetrated by x-rays.
radiopharmaceutical [RĂ-de-ö-fär-mä-SÛ-tï-kål] Chemical substance containing radioactive material.
radiosensitive [RĂ-de-ö-re-ŽIS-tänt] Not greatly affected by radiation.
radiosensitive [RĂ-de-ö-SËN-së-tiv] Easily affected by radiation.
radius [RĂ-de-üs] Shorter bone of the forearm.
rales [rä-hlz] [rä-lëz] See crackles.
Raynaud’s phenomenon [rä-NOZ] Spasm in the arteries of the fingers causing numbness or pain.
receptor [rä-SEP-tör] (receptor) Tissue or organ that receives nerve impulses; part of a target cell with properties compatible with a particular substance (hormone).
reconstructive [rä-kön-STRÜC-tiv] Designed to restore a body part to its original state or appearance.
rectum [RÈK-tïm] (recto) Bottom portion of large intestine; connected to anal canal.
red blood cell One of the solid parts of blood formed from stem cells and having hemoglobin within; erythrocyte.
red blood cell count Measurement of red blood cells in a cubic millimeter of blood.
red blood cell morphology Observation of shape of red blood cells.
reduction [reducción] Return of a part to its normal position.
reflex [Ré-fleks] (reflejo) Involuntary muscular contraction in response to a stimulus.
reflux [Ré-flëks] (reflujo) See regurgitation.
regurgitation [rä-GÜR-tï-TÄ-shun] (regurgitación) Backward flow from the normal direction.
reiki [Ré-ki] Therapy that uses touch from a healer.
relapse [Ré-läps] Recurrence of a disease.
releasing factor Substance in a hormone that allows secretion of other hormones.
renal pelvis Collecting area for urine in the center of the kidney.
renin [Ré-nin] [renina] Enzyme produced in the kidneys to regulate the filtration rate of blood by increasing blood pressure as necessary.
renogram [RÉ-nô-gräm] (renograma) Radioactive imaging of kidney function after introduction of a substance that is filtered through the kidney while it is observed.
repolarization [rä-pô-lär-tï-ZÄ-shun] (repolarización) Recharging state; transition from contraction to resting that occurs in the conduction system of the heart.
reproductive [Ré-prô-DÜK-tiv] system Either the male or female body system that controls reproduction.
resectioning [rä-SËK-shûn-ing] Removal of a tumor and a large amount of surrounding tissue.
resectoscope [rä-SËK-tô-sköp] (resectoscopic) Type of endoscope for removal of lesions.
respiratory [rÉS-pi-rä-tör-e] (respiratory) system Body system that includes the lungs and airways and performs breathing; body’s system for breathing.
respiratory [rÉS-pi-rä-tör-e] (respiratory) tract Passageways through which air moves into and out of the lungs.
reticular [rä-TIK-ô-lär] layer Bottom sublayer of the dermis containing reticula (network of structures with connective tissue between).
reticulocyte [rä-TIK-ya-lo-së] (reticulocitosis) Disorder with an abnormal number of immature erythrocytes.
retina [Ré-Tï-na] (retina) Oval, light-sensitive membrane in the interior layer of the eye; decodes light waves and transmits information to the brain.
retinitis [rä-tï-NÎ-tïs] (retinitis) Inflammation of the retina.
retinitis pigmentosa [pig-mên-TÔ-sä] Progressive, inherited disease with a pigmented spot on the retina and poor night vision.
retractor [rä-TRÄK-tör] An instrument used to hold back edges of tissue and organs to expose other tissues or body parts; especially used in surgery.
reflexion [rä-trô-FÌÉK-shun] (reflexión) Bending backward of the uterus.
retrograde pyelogram [rÉT-ro-gräd PÌ-ël-ô-gräm] (RP) X-ray of the bladder and ureters after a contrast medium is injected into the bladder.
retrovension [rä-trô-VÉR-shun] (retroversión) Backward turn of the uterus.
retrovirus [rä-trô-VE-rïs] (retrovirus) Type of virus that spreads by using DNA in the body to help it replicate its RNA.
Rh factor Type of antigen in blood that can cause a transfusion reaction.
rheumatic heart disease Heart valve and/or muscle damage caused by an untreated streptococcal infection.
rheumatoid [RÜ-mä-toid] arthrosis Autoimmune disorder affecting connective tissue.
rheumatoid factor test Test used to detect rheumatoid arthritis.
rheumatologist [rö-mä-TÖL-ëj-st] (reumatólogo) Physician who examines, diagnoses, and treats disorders of the joints and musculoskeletal system.
Rh-negative Lacking Rh factor on surface of blood cells.
rhonchial [RÖNG-kï] (ronquidos) See wheezes.
Rh-positive Having Rh factor on surface of blood cells.
rib [costilla] One of twenty-four bones that form the chest wall.
rickets [RÍ-kës] [raquitismo] Disease of the skeletal system, usually caused by vitamin D deficiency.
right atrium Upper right chamber of the heart.
right lower quadrant Quadrant on the lower right anterior side of the patient’s body.
right upper quadrant Quadrant on the upper right anterior side of the patient’s body.
right ventricle Lower right chamber of the heart.
rigor [RIG-ðIr] [rígido] Stiffening.
ringsworm [tiña] Fungal infection; tinea.
risk factor Any of various factors considered to increase the probability that a disease will occur; for example, high blood pressure and smoking are considered risk factors for heart disease.
rods [rödz] [bastianillos] Specialized receptor cells in the retina that perceive black to white shades.
root [rööt] Portion of the tooth that lies below the jawline.
root canal Tubular structure holding blood vessels and nerves between the pulp cavity and the jawline.
rosacea [rö-ZÁ-shë-ä] [rosácea] Vascular disease that causes blotchy, red patches on the skin, particularly on the nose and cheeks.
roseola [rö-ZÉ-0-lä] Skin eruption of small, rosy patches, usually caused by a virus.
rub [roce] Frictional sound heard between heartbeats, usually indicating a pericardial murmur.
rubella [rü-BÉL-ä] [rubéola] Disease that causes a viral skin rash; German measles.
rubecola [rü-BÉ-0-lä] [rubéola] Disease that causes a viral skin rash; measles.
ruega [RÜ-ge] [rugae] Folds in stomach lining.

S
sacrum [SÄ-brüm] [sacro] Next-to-last spinal vertebra made up of five fused bones; vertebra that forms part of the pelvis.
sagittal [SÅ-j-tåll] plane Imaginary line that divides the body into right and left portions.
saliva [sä-LIV-ä] [saliva] Fluid secreted by salivary glands; contains amylase.
salivary [SÄL-0-7-vär-ë] glands Glands in the mouth that secrete fluids that aid in breaking down food.
salpingitis [säl-ping-IT-sës] [salpingitis] Inflammation of the fallopian tubes.
salpingotomy [säl-ping-GÖT-o-më] Incision into the fallopian tubes.
saphenous [säf-E-nüs] vein Any of a group of veins that transport deoxygenated blood from the legs.
sarcoidosis [sär-köy-DÖ-sës] [sarcoidosis] Inflammatory condition with lesions on the lymph nodes and other organs.
sarcoma [sär-KÖ-mä] Relatively rare tumor that originates in muscle, connective tissue, and lymph.
scale: [skałe] [escápula] Large flat bone that forms the shoulder blade.
schick [shik] test Test for diphtheria.
schizophrenia [skiz-0-FRÉ-në-ä] Condition with recurring psychosis, often with hallucinations.
scleritis [sklér-IT-sës] [escleritis] Inflammation of the sclera.
scleroderma [sklér-0-DÉR-mä] [escleroderma] Thickening of the skin caused by an increase in collagen formation.
scoliosis [skół-e-0-sës] [escoliosis] Abnormal lateral curvature of the spinal column.
sclotoma [skôt-TÖ-mä] [escotoma] Blind spot in vision.
scratch test Test for allergic sensitivity in which a small amount of antigen is scratched onto the surface of the skin.
scolotum [skrötum] [escroto] Sac outside the body containing the testicles.
sebaceous [së-bä-shës] glands Glands in the dermis that open to hair follicles and secrete sebum.
selborrea [sêb-0-RE-ä] [selborrea] Overproduction of sebum by the sebaceous glands.
sebum [SÉ-büm] [sebo] Oily substance, usually secreted into the hair follicle.
second bicuspid Fifth tooth from the median of the jawline.
second molar Second to last tooth at the back of the mouth.
secondary hypertension Hypertension having a known cause, such as kidney disease.
secondary teeth Permanent teeth.
second-degree burn Moderately severe burn that affects the epidermis and dermis; usually involves blistering.
sedative [SÉD-ä-tiv] Agent that relieves feelings of agitation.
sedimentation rate (SR) See erythrocyte sedimentation rate.
sella turcica [SÉL-ä TÜR-së-kä] [silla turcica] Bony depression in the sphenoid bone where the pituitary gland is located.
semen [SÉ-mën] [semen] Thick, whitish fluid containing spermatozoa and secretions from the seminal vesicles, Cowper’s glands, and prostate; ejaculated from the penis.
semen analysis Observation of semen for viability of sperm.
semicircular canals Structures in the inner ear important to equilibrium.
semilunar [sëm-ë-LÜ-när] valve One of the two valves that prevent the backflow of blood flowing out of the heart into the aorta and the pulmonary artery.
sensory receptors Specialized tissue containing cells that can receive stimuli.
sensory [sÉN-sô-té] system Body system that includes the eyes and ears and those parts of other systems involved in the reactions of the five senses; organs or tissue that perceive and receive stimuli from outside or within the body.
septal defect Congenital abnormality consisting of an opening in the septum between the atria or ventricles.
septoplasty [sÉP-tô-plás-té] [septoplastia] Surgical repair of the nasal septum.
septostomy [sÉp-TôS-tô-mé] [septostomía] Creation of an opening in the nasal septum.
septum [pl., septa] [sÉP-túm (sÉP-tá)] [tabícu] 1. Partition between the left and right chambers of the heart. 2. Cartilaginous division, as in the nose or mediastinum.
sequestrum [sê-KWÉS-trúm] [secuстро] Piece of dead tissue or bone separated from the surrounding area.
serum [sÉR-úm] [suero] The liquid left after blood has clotted.
serum calcium Test for calcium in the blood.
serum creatine phosphokinase [KRÉ-á-tén fós-for-KI-nás] Enzyme active in muscle contraction; usually phosphokinase is elevated after a myocardial infarction and in the presence of other degenerative muscle diseases.
serum enzyme tests Laboratory tests performed to detect enzymes present during or after a myocardial infarction; cardiac enzyme studies.
sesamoid [sÉS-ä-môyd] bone Bone formed in a tendon over a joint.
sessile [sÉS-íl] polypl Polyp that projects upward from a broad base.
shin [shîn] [espinilla] Anterior ridge of the tibia.
shingles [SHĬN-gî] [culebrilla] Viral disease affecting the peripheral nerves and caused by herpes zoster.
short bones Square-shaped bones with approximately equal dimensions on all sides.
sialoadenitis [sî-á-lô-á-dé-NÎ-tîs] Inflammation of the salivary glands.
sight [vitâ] Ability to see.
sigmoid [sĭg-môyd] colon S-shaped part of large intestine connecting at the bottom to the rectum.
sigmoidoscopy [sĭg-môyd-DÔS-kô-pé] [sigmoidoscopia] Examination of the sigmoid colon using a sigmoidoscope.
silicosis [sî-lî-KÔ-sîs] Lung condition caused by silica dust from grinding rocks or glass or other materials used in manufacturing.
simple fracture Fracture with no open skin wound.
singultus [sing-GUL-tús] [singulto] Hiccuping.
sinoatrial [sî-nô-Á-trî-ál] (SA) node Region of the right atrium containing specialized tissue that sends electrical impulses to the heart muscle, causing it to contract.
sinus [sî-nûs] [seno] 1. Hollow cavity, especially either of two cavities on the sides of the nose. 2. Space between the lacrimal ducts and the nipple.
sinusitis [sî-nû-SÎ-tîs] [sinusitis] Inflammation of the sinuses.
sinusotomy [sîn-û-SÔT-ô-mé] [sinusotomía] Incision of a sinus.
sinus rhythm Normal heart rhythm.
skeletal [skēl-ê-tôn] [esqueleto] Bony framework of the body.
skin graft Placement of fresh skin over a damaged area.
sMA (sequential multiple analyzer) Original blood chemistry machine; now a synonym for blood chemistry.
small intestine Twenty-foot long tube that continues the process of digestion started in the stomach; place where most absorption takes place.
smell [olfacccion, olér] Ability to perceive odors.
smooth muscle Fibrous muscle of internal organs that acts involuntarily.
social worker Nonmedical professional who is trained as an advocate for people (such as the elderly or children) and may also be trained in the treatment of mental disorders.
sociopathy [sō-se-ô-pâth-ê] Extreme callous disregard for others.
socket Space in the jawline out of which teeth erupt above the jawline.
soft palate [pÂL-áit] Soft posterior part of the palate in the mouth; flexible mucosal sheet that separates the nasopharynx from the rest of the pharynx.
solid tumor Carcinoma; most common type of tumor.
somatic [sô-MÂT-ík] nervous system Part of the peripheral nervous system that receives and processes sensory input from various parts of the body.
somatofom [sÔ-mâ-tô-fôrm] disorders Mental disorders including physical symptoms that have a psychological base.
somatotrophic [sÔ-mâ-tô-TRÔF-ík] hormone (STH) Hormone secreted by anterior pituitary gland; important in growth and development.
somnambulism [sôm-NÂM-byû-lîzm] [sonambulismo] Sleepwalking.
somnia [sÔM-nô-lênss] [somnolencia] Extreme sleepiness caused by a neurological disorder.
sonogram [sÔN-ô-grâm] Ultrasound image.
sonography [sô-NÔG-râ-fe] [sonografía] Production of images based on the echoes of sound waves against structures.
spasm [spázm] [espasmo] Sudden, involuntary muscle contraction.
spastic [SPÂS-tík] Tending to have spasms.
specific gravity Measurement of the concentration of wastes, minerals, and solids in urine.
SPECT (single photon emission computed tomography) Brain image produced by the use of radioactive isotopes.
sperm [spêrm] [esperma] Male sex cell that contains chromosomes.
spermatico genesis [spêr-mâ-tô-JÉN-ê-sîs] Production of sperm.
spermatozoos [pl., spermatoozoa] [spêr-mâ-tô-ZÔ-ôn] [spêr-mâ-tô-ZÔ-à] [espermatoozo] See sperm.
spermicide [spêr-mî-sîd] [espermicida] Contraceptive chemical that destroys sperm; usually in cream or jelly form.
sphenoid [ˈspɛnəd] bone Bone that forms the base of the skull.
sphenoid sinus Sinus above and behind the nose.
sphygmonanometer [ˈsfɪɡmənəˈmɔrətoʊ] [esfigmomanómetro] Device for measuring blood pressure.
spina bifida [ˈspɪnə bɪˈfɪdə] [espina bifida] Congenital defect with deformity of the spinal column.
spinal [ˈspɪnəl] cavity Body space that contains the spinal cord.
spinal column Column of vertebrae at the posterior of the body, from the neck to the coccyx.
spinal cord Ropelike tissue that sits inside the vertebral column and from which spinal nerves extend.
spinal curvature Abnormal curvature of the spine.
spinal nerves Any of 31 pairs of nerves that carry messages to and from the spinal cord and the torso and extremities.
spinous [ˈspɪnəs] process Protrusion from the center of the vertebral arch.
spirometer [ˈspɪrəˌmətər] [espirómetro] Testing machine that measures the lungs’ volume and capacity.
spleen [ˈspɛlən] [bazo] Organ of lymph system that filters, stores, and removes blood, and activates lymphocytes.
splenectomy [ˈsplɛn-ɛkˈtəmɪ] [esplenectomía] Removal of the spleen.
splenomegaly [ˈsplɛn-ə-mɛgə-ə-lɛ] Enlarged spleen.
splinting [fərəˈluˌzɪʃən] Applying a splint to immobilize a body part.
spondyloolisthesis [spɒndiˈloʊlɪsθɛsɪs] [espondiloristesis] Degenerative condition in which one vertebra misaligns with the one below it; slipped disk.
spondyloysis [spɒndiˈlɔlɪsɪs] [espodilolisis] Degenerative condition of the moving part of a vertebra.
spondylosynostosis [spɒndiˈloʊsɪnˈɒstəsɪs] [espondilosindesis] Fusion of two or more spinal vertebrae.
sponge [ˈspɒŋjə] Polyurethane contraceptive device filled with spermicide and placed in vagina near cervix.
spongy bone Bone with an open latticework filled with connective tissue or marrow.
spain [spærn] Injury to a joint without dislocation or fracture.
spur [spɜːr] Bony projection growing out of a bone; calcar.
sputum [spʊtəm] sample or culture Culture of material that is expectorated (or brought back up as mucus).
squamous epithelium [ˈskwɑːməs ɪˈpɪθəl-əm] Flattened, scaly layer of cells that makes up the epidermis.
stage Degree of tumor spread.
standard precautions Guidelines issued by the Centers for Disease Control for preventing the spread of disease.
stapedectomy [ˈstɑːpɪdɛkˈtəmɪ] Removal of the stapes to cure otosclerosis.
stapes (pl., stapes, stapedes) [ˈstæpɛz] [STÀ-péːz] [estribo] One of the three auditory ossicles; the stirrup.
staples Metal devices used to suture surgical incisions.
statins [ˈstætɪnz] A class of lipid-lowering agents that are the most frequently used today.
steatorrhea [ˈstɛtərəˈrɛə] [esteaorrrea] Fat in the blood.
stem cell Immature cell formed in bone marrow that becomes differentiated into either a red or a white blood cell.
stenosis [ˈstenəsɪs] [esfenosis] Narrowing, particularly of blood vessels or of the cardiac valves.
stenot [stɛnət] Surgically implanted device used to hold something (as a blood vessel) open.
stereotactic [stɛrəˈtæk-tɪk] [stereotático] Headgear worn by patients needing pinpoint accuracy in the treatment of brain anomalies.
stereotaxy [stɛrəˈtæk-sɪ] [stereotaxia] [stereotake-tik] [stereotαxθ] surgery Destruction of deep-seated brain structures using three-dimensional coordinates to locate the structures.
sternum [stɛrˈnʌm] [esternón] Long, flat bone that forms the midline of the anterior of the thorax.
steroid [stɛrɔɪd, stɛrɔɪd] A hormone or chemical substance released by several endocrine glands or manufactured in various medications.
stimulus (pl., stimuli) [ˈstimjʊli] [estrιmu] Anything that arouses a response.
stomach [ˈstɒmək] [estomago] Large sac between the esophagus and small intestine; place where food is broken down.
stool [ˈstʊəl] [heces] Feces.
strabismus [strɑːbɪzməs] [estrabismo] Eye misalignment.
strain [strɑɪn] [distender] Injury to a muscle as a result of improper use or overuse.
stratified squamous epithelium Layers of epithelial cells that make up the strata of epithelium of the epidermis.
stratum (pl., strata) [strɑˈtʌm] [STRAT-ʌm] Layer of tissue, especially a layer of the skin.
stratum corneum [ˈstrɑmərənʊm] [KÖR-nə-um] Top sublayer of the epidermis.
stratum germinativum [ˌstrɑtəm dʒərˈmiˌnətɪvəm] [štratum germinativum] Bottom sublayer of the epidermis.
stress test Test that measures heart rate, blood pressure, and other body functions while the patient is exercising on a treadmill.
striae [strɛɪz] [estrías] Stretch marks made in the collagen fibers of the dermis layer.
striated [strɪ-Ăt-ɛd] muscle Muscle with a ribbed appearance that is controlled at will.
stridor [strɪˈdɔr] [estidor] High-pitched crowing sound heard in certain respiratory conditions.
stroke [strɔk] [accidente cerebrovascular] See cerebrovascular accident (CVA).
sty, styte [stɪ] [orzuelo] Hordeolum.
styloid [stɪˈloʊd] process Peg-shaped protrusion from a bone.
subcutaneous [sʌb-ˈkjuː-ənəs] Injected into the fatty layer of tissue beneath the outer layer of skin.
subcutaneous [sʌb-ˈkjuː-ənəs] layer Bottom layer of the skin containing fatty tissue.
subdural [sʌb-ˈdjuːr-əl] space Area between the dura mater and the pia mater across which the arachnoid runs.
sublingually [sʌb-ˈlɪŋɡə-ə] Under the tongue.
subluxation [sʌbˈlɛkʃən] [sublaxación] Partial dislocation, as between joint surfaces.
sudden infant death syndrome (SIDS) Death of an infant, usually while sleeping, of unknown cause.
sulcus (pl., sulci) [SÜL-küS (SÜL-së)] [surco] Groove or furrow in the surface of bone; see fissure.
superficial [su-pêr-FLISH-ël] At or near the surface (of the body).
superior [su-PER-ë-ör] Above another body structure.
superior lobe Topmost lobe of each lung.
superior vena cava Large vein that transports blood collected from the upper part of the body to the heart.
supine [su-PÉN] Lying on the spine facing upward.
suppository [su-PÖZ-ë-TÖR-ë] Drug mixed with a semi-solid melting substance meant for administration by insertion into the vagina, rectum, or urethra.
suppressor [su-PRES-ër] cell T cell that suppresses B cells and other immune cells.
surgery [SÉR-jë-rë] Removal, transplant, or manipulation of tissue.
surgical scissors Scissors used for cutting and dissecting tissue during surgery.
suture [SUH-chër] [sutura] Joining of two bone parts with a fibrous membrane.
suture [SUH-chër] needles Needles used in closing surgical wounds by sewing.
sweat glands Coiled glands of the skin that secrete perspiration to regulate body temperature and excrete waste products.
sweat test Test for cystic fibrosis that measures the amount of salt in sweat.
sympathetic [SIM-pë-THÉT-ëk] nervous system Part of the autonomic nervous system that operates when the body is under stress.
symphysis [SIM-fë-sës] [sinfisis] Type of cartilaginous joint uniting two bones.
synapse [SIHN-ëps] [sinapsis] Space over which nerve impulses jump from one neuron to another.
synarthrosis [SIHN-árd-THÖR-sës] [sinartrosis] Fibrous joint with no movement.
syncope [SIHN-kö-pe] [síncope] Loss of consciousness due to a sudden lack of oxygen in the brain.
syndrome of inappropriate ADH (SIADH) Excessive secretion of antidiuretic hormone.
synovectomy [SIN-ö-VÉK-töm-e] [sinovectomía] Removal of part or all of a joint’s synovial membrane.
synovial [SIN-ov-e-ël] fluid Fluid that serves to lubricate joints.
synovial joint A joint that moves.
synovial membrane Connective tissue lining the cavity of joints and producing the synovial fluid.
syphilis [SIH-FIL-ës] [sifilis] Sexually transmitted infection.
syringe [si-RIN] [jeringa] Instrument used for injection or withdrawal of fluids.
system [SIH-stëm] Any group of organs and ancillary parts that work together to perform a major body function.
systemic lupus erythematosus (SLE) Most severe form of lupus, involving internal organs.
systole [SIST-ö-le] [systole] Contraction phase of the heartbeat.
T
tachycardia [TAHK-ë-KÁR-dë-ä] [taquicardia] Heart rate greater than 100 beats per minute.
tachypnea [TAHK-ë-PÉ-ä] [taquipnea] Abnormally fast breathing.
talipes calcanenus [TAHK-ë-pës käl-KÁN-nës] Deformity of the foot resulting from weakened calf muscles.
talipes varus [VAH-rës] Foot deformity characterized by inversion of the foot.
target cell Cell with receptors that are compatible with specific hormones.
tarsus, tarsal [TAHK-sës, TAH-sël] bones Seven bones of the instep (arch of the foot).
taste Ability to perceive the qualities of ingested matter.
taste buds Organs that sense the taste of food.
taste cells Specialized receptor cells within the taste buds.
Tay-Sachs [TAH-säks] disease Hereditary disease that causes deterioration in the central nervous system and, eventually, death.
t cells Specialized cells that develop in the thymus and are responsible for cellular immunity, and assist with humoral immunity.
tears [tërs] [lágrimas] Moisture secreted from the lacrimal glands.
telangiectasia [TEL-ë-AN-jë-ë] A permanent dilation of the small blood vessels.
temporal [TEM-pö-ral] bone Large bone forming the base and sides of the skull.
temporal lobe [TEM-pö-ral lób] One of the four parts of each hemisphere of the cerebrum.
temporomandibular [TEM-pö-ro-MAN-dib-yö-lar] joint (TMJ) dysfunction Pain in the jawline due to dislocation of the joint.
tendinitis, tenonitis [tëN-dë-në-Tës] [tendonitis] Inflammation of a tendon.
tendon [TÉN-dën] [tendón] Fibrous band that connects muscle to bone or other structures.
tenotomy [tëN-ÖT-ë-më] [tenotomía] Surgical cutting of a tendon.
teratoma [tëR-ä-TÖ-mã] Growth containing several types of tissue and various types of cells.
terminal end fibers Group of fibers at the end of an axon that passes the impulses leading the neuron to the next neuron.
testicle [TES-tëkl] [testículo] See testis.
testis (pl., testes) [TESS-tës (TESS-tës)], testicle [TES-të-kl] [testículo] Male organ that produces sperm and is contained in the scrotum; one of two male organs that secrete hormones in the endocrine system.
testosterone [té스-TŌS-tē-rōn] [testosterona] Primary male hormone.
tetany [TET-ā-nē] [tetania] Painfully long muscle contraction. Muscle paralysis, usually due to decreased levels of ionized calcium in the blood.
tetralogy of Fallot [fā-LŌ] Set of four congenital heart abnormalities appearing together that cause deoxygenated blood to enter the systemic circulation; ventricular septal defect, pulmonary stenosis, incorrect position of the aorta, and right ventricular hypertrophy.
thalamus [THĀL-ā-mōs] [tálamo] One of the four parts of the diencephalon; serves as a sensory relay station.
thalassemia [thāl-ā-SĒ-mē-ā] [talasemia] Hereditary disorder characterized by inability to produce sufficient hemoglobin.
therapeutic drug monitoring (TDM) Taking of regular blood or urine tests to track drug use and effectiveness of medication.
therapeutic massage Stimulates the skin, muscles, and tissue to promote healing.
therapeutic touch The laying on of hands to promote healing.
therapist [THÄR-ā-pist] Nonmedical professional trained in the treatment of mental disorders through talk therapy.
third molar Molar furthest from the median of the jawline.
third-degree burn Most severe type of burn; involves complete destruction of an area of skin.
thoracic [θōr-ĀS-īk] cavity Body space above the abdominal cavity that contains the heart, lungs, and major blood vessels.
thoracic [θōr-ĀS-īk] vertebrae Twelve vertebrae of the chest area.
thoracocentesis [THōR-ā-kō-sēn-TĒ-sīs] [toracocentesis] Surgical puncture of the chest cavity.
thoracotomy [θōr-Ā-KŌS-tō-mē] [toracotomía] Establishment of an opening in the chest cavity.
thoracotomy [θōr-Ā-KŌT-ō-mē] [toracotomía] Incision into the chest cavity.
thorax [THō-raks] [tōrax] Part of the trunk between the neck and the abdomen; chest; chest cavity.
throat [thrōwt] [garganta] See pharynx.
throat culture Test for streptococcal or other infections in which a swab taken on the surface of the throat is placed in a culture to see if certain bacteria grow.
thrombectomy [θrōm-BĒK-tō-mē] [trombectomía] Surgical removal of a thrombus.
thrombin [THRŌM-bīn] [trombina] Enzyme that helps in clot formation.
thrombocyte [THRŌM-bō-sīt] [trombocito] Platelet; cell fragment that produces thrombin.
thrombolytic [θrōm-bō-LĪT-īk] Agent that dissolves a thrombus; agent that dissolves blood clots.
thrombophlebitis [θRŌM-bō-flē-BĪ-tīs] [trombophlebitis] Inflammation of a vein with a thrombus.
thromboplastin [θrōm-bō-PLĀS-tīn] Protein that aids in forming a fibrin clot.
thrombosis [θrōm-BŌ-sīs] [trombosis] Presence of a thrombus in a blood vessel.
thrombotic [θrōm-BŌT-īk] stroke Stroke caused by a thrombus.
thrombotic [θrōm-BŌT-īk] occlusion Narrowing caused by a thrombus.
thrombus [THRŌM-būs] [trombo] Blood clot; stationary blood clot in the cardiovascular system, usually formed from matter found in the blood.
thymectomy [θī-MĒK-tō-mē] [timectomía] Removal of the thymus gland.
thymoma [θī-MŌ-mā] [timoma] Tumor of the thymus gland.
thymosin [THī-mō-sīn] [timosina] Hormone secreted by the thymus gland that aids in distribution of thymocytes and lymphocytes.
thymus [THī-mūs] gland Soft gland with two lobes that is involved in immune responses; located in mediastinum; gland that is part of the immune system as well as part of the endocrine system; aids in the maturation of T and B cells.
thyroid [THī-rōyd] gland Gland with two lobes located on either side of the trachea; helps control blood calcium levels and metabolic functions.
thyroid cartilage See Adam’s apple.
thyroid function test or study Test for levels of TSH, T₃, and T₄ in blood plasma to determine thyroid function.
thyroid scan Imaging test for thyroid abnormalities.
thyroidectomy [θī-rōy-DĒK-tō-mē] [tiroidectomía] Removal of the thyroid.
thyroid-stimulating hormone (TSH) Hormone secreted by anterior pituitary gland; stimulates release of thyroid hormones.
thyroxine [θī-RŌK-sīn, -sīn] (T₄) Compound found in or manufactured for thyroid gland; helps regulate metabolism.
tibia [TĪB-ē-ā] [tibiala] Larger of the two lower leg bones.
tic [tic] Twitching movement that accompanies some neurological disorders.
tine [tīn] test, TB tine Screening test for tuberculosis in which a small dose of tuberculin is injected into a series of sites within a small space with a tine (instrument that punctures the surface of the skin).
tinea [TIĬN-ē-ā] [tiñe] Fungal infection; ringworm.
Tinel’s [tī-NĒLZ] sign “Pins and needles” sensation felt when an injured nerve site is tapped.
tinnitus [tī-NĪ-tūs, TĪ-nī-tūs] [tinnitus] Constant ringing or buzzing in the ear.
tissue [TIĬSH-ā] Any group of cells that work together to perform a single function.
tissue-type plasminogen [plāz-MĪN-ō-ī-jēn] activator (tPA, TPA) Agent that prevents a thrombus from forming.
t lymphocytes See T cells.
TMN system Tumor, node, metastasis system of categorizing tumors.
tocolytic [tō-kō-LĪT-ik] agent Hormone given to stop labor.
tomography [tō-MŌG-rā-tē] Type of imaging that produces three-dimensional images.
tongue [tōng] [lengua] Fleshy part of the mouth that moves food during mastication.
tonic-clonic seizure Severe epileptic seizure accompanied by convulsions, twitching, and loss of consciousness.
tonometry [tō-nōm-ě-trē] [tonometría] Measurement of tension or pressure within the eye.
tonsilitis [tōN-sī-LĪ-tēs] [tonsilitis] Inflammation of the tonsils.
tonsillectomy [TŌN-sī-LĒ-kō-mē] [tonsilectomía] Removal of the tonsils.
tocolytic [kō-LĪ-tē] Hormone given to stop labor.
touch [tōch] [tacto] Ability to perceive sensation on the skin.
tourette [tō-RĒT] syndrome Neurological disorder that causes uncontrollable speech sounds and tics.
toxicology [tōk-sī-KŌL-ō-je] [toxicología] Study of harmful effects of drugs.
tracheectomy [trā-BĒK-yū-LĒ-kō-mē] Removal of part of the tracheum to allow aqueous humor to flow freely around the eye.
tracer study Image that traces the passage of a radiopharmaceutical through an organ or tissue.
trachea [TRĀ-kē-ā] [tráquea] Airway from the larynx into the bronchii; windpipe.
tracheitis [trā-kē-ī-tēs] Inflammation of the trachea.
tracheoplasty [TRĀ-kē-ō-PŁAS-tē] [tráqueoplastia] Repair of the trachea.
tracheostomy [TRĀ-kē-ŌS-tō-mē] [tráqueostomía] Creation of an artificial opening in the trachea.
tracheotomy [trā-kē-ŌT-ō-mē] [tráqueotomía] Incision into the trachea.
traction [TRĀ-k-shūn] [tracción] Dragging or pulling or straightening of something, as a limb, by attachment of elastic or other devices.
trade name Name copyrighted by the manufacturer for a particular version of a drug.
traditional Chinese medicine Various practices that promote balance between yin and yang to promote and maintain health.
transdermal [trän-sēd-ĕr-māl] Medication absorbed through the skin, often used for slow-release delivery systems.
transducing [trän-dyūsing] Converting one form of energy or information into another.
transfusión [träns-FYū-zhūn] [transfusion] Injection of donor blood into a person needing blood.
transient ischemic [ěs-KĒ-mik] attack Short neurological incident usually not resulting in permanent injury, but usually signaling that a larger stroke may occur.
transverse plane Imaginary line that intersects the body horizontally.
transverse process Protrusion on either side of the vertebral arch.
tremor [TRĒM-ōr] [tremblor] Abnormal, repetitive muscle contractions.
trichiasis [trī-KĪ-á-sēs] Abnormal growth of eyelashes in a direction that causes them to rub on the eye.
tricuspid [trī-KŪS-pēd] valve Atroventricular valve on the right side of the heart.
tricuspid stenosis Abnormal narrowing of the opening of the tricuspid valve.
triglyceride [trī-GLIS-ěr-īd] [triglicérido] Fatty substance; lipid.
trigone [TRĪ-gōn] [trí-gono] Triangular area at the base of the bladder through which the ureters enter and the urethra exits the bladder.
triodothyronine [trī-Ī-o-tē-THĪ-rō-nēn] (T3) Thyroid hormone that stimulates growth.
trochanter [trob-KĀN-tēr] [trocánter] Bony protrusion at the upper end of the femur.
true ribs Seven upper ribs of the chest that attach to the sternum.
tubercle [TŪ-bēr-kēl] [tubérculo] Slight bony elevation to which a ligament or muscle may be attached.
tuberous bone [TĀ-bēr-ōs] [tuberoso] In the bone.
tuberous sclerosis [Tū-bēr-ō-SŌ-ē-te] [tuberosidad] Large elevation in the surface of a bone.
tumor [TŪ-mōr] [tumor] Any mass of tissue; swelling; growth made up of cells that reproduce abnormally.
tylectomy Surgical removal of a localized tumor.
tympanic [tim-PĀN-ik] [tímpani] Ear drum.
tympanitis [tim-pā-NĪ-tēs] Inflammation of the eardrum.
Type I diabetes Endocrine disorder with abnormally low levels of insulin; also known as insulin-dependent diabetes mellitus (IDDM).
Type II diabetes Disease caused by failure of the body to recognize insulin that is present or by an abnormally low level of insulin; also known as noninsulin-dependent diabetes mellitus (NIDDM); usually adult onset.
ulcer [UL-sēr] [ulcera] Open lesion, usually with superficial loss of tissue.
ulcerating [UL-sēr-ā-tēng] Having open wounds.
ulcerative colitis [kō-LĪ-tīs] Inflammation of the colon with ulcers.
ulna [UL-nā] [ulna] Larger bone of the forearm.
ultrasonography [UL-trā-sōn-o-NŌG-rā-tē] Use of sound waves to produce images of the interior of a body.
ultrasound [UL-trā-sō-wānd] Image resulting from ultrasonography; produced by sound waves.
ultraviolet [uhl-trā-VĪ-ō-lēt] light Artificial sunlight used to treat some skin lesions.
umbilical [um-BIL-ī-kāl] cord Cord that connects the placenta in the mother’s uterus to the navel of the fetus during gestation for nourishment of the fetus.
Appendix C  Glossary of Key Terms 723

umbilical [úm-bíl-í-kāl] region Area of the body surrounding the umbilicus.
undifferentiated [úN-dif-ért-ÉN-shē-ā-tēd] Lacking a defined cell structure.
upper respiratory infection Infection of all or part of upper portion of respiratory tract.
uptake [úp-TĀK] Speed of absorption of a radio-pharmaceutical by a particular organ or body part.
uremia [yü-RÉ-mě-ä] [uremia] Excess of urea and other wastes in the blood.
ureter [yü-RÉ-tēr] [ureter] One of two tubes that conducts urine from the kidney to the bladder.
ureterectomy [yü-RÉ-tēr-ə-kō-mē] Surgical removal of all or some of a ureter.
urethra [yü-RÉ-thrā] [urethra] Tube through which urine is transported from the bladder to the exterior of the body.
urethropexy [yü-RÉ-thrō-fē] Suturing of the urethra.
urethrotomy [yü-RÉ-thrō-tō-mē] Surgical incision of a narrowing in the urethra.
uric [yü-Rİ-ik] acid Nitrogenous waste excreted in the urine.
uric [ yü-Rİ-ik] acid test Test for acid content in urine; elevated levels may indicate gout.
urinalysis [yü-Rİ-nā-lī-sēs] [análisis de orina] Examination of the properties of urine.
urinary [ yü-Rİ-në-rē] system Body system that includes the kidneys, ureters, bladder, and urethra and helps maintain homeostasis by removing fluid and dissolved waste; body system that forms and excretes urine and helps in the reabsorption of essential substances.
urinary tract infection (UTI) Infection of the urinary tract.
urine [yü-RÎ-nē] [orina] Fluid excreted by the urinary system.
urine sugar Test for diabetes; determined by presence of ketones or sugar in urine.
urology [yü-RÔL-ō-jē] [urología] Medical specialty that diagnoses and treats the urinary system and the male reproductive system.
urostomy [yü-RÔS-tō-mē] Establishment of an opening in the abdomen to the exterior of the body for the release of urine.
urticaria [úr-tē-KĀR-ē-ə] [urticaria] Group of reddish wheals, usually accompanied by pruritus and often caused by an allergy.
uterine [yü-Tēr-īn] tube One of two tubes through which ova travel from an ovary to the uterus.
uterus [yü-Tēr-ūs] [útero] Female reproductive organ; site of implantation after fertilization or release of the lining during menstruation.
uvea [yü-ve-ä] [uvea] Region of the eye containing the iris, choroid membrane, and ciliary bodies.
uvula [yü-Yū-là] [uvula] Cone-shaped projection hanging down from soft palate.

V

vaccination [vāk-sēn-ā-shūn] [vacunación] Injection of an antigen from a different organism to cause active immunity.
vaccine [vāk-sēn] [vacuna] Antigen developed from a different organism that causes active immunity in the recipient.
vagina [vā-Jī-nā] [vagina] Genital canal leading from the uterus to the vulva.
vaginitis [vāj-ī-nī-tīs] [vaginitis] Inflammation of the vagina.
vagotomy [vā-GÖT-ō-mē] Surgical cutting off of the vagus nerve.
valve [vālv] [válvula] Any of various structures that slow or prevent fluid from flowing backward or forward.
valve replacement Surgical replacement of a coronary valve.
valvotomy [vāl-VŌT-ō-mē] Incision into a cardiac valve to remove an obstruction.
valvulitis [vāl-vē-lī-tīs] [valvulitis] Inflammation of a heart valve.
valvuloplasty [vāl-vē-plōs-tē] [valvuoplastia] Surgical reconstruction of a cardiac valve.
varicella [vār-ē-SĒL-ā] [varicela] Contagious skin disease, usually occurring during childhood, and often accompanied by the formation of pusules; chicken pox.
varicocele [vār-kō-sē] [varicocele] Enlargement of veins of the spermatic cord.
varicose [vār-kōs] vein Dilated, enlarged, or twisted vein, usually on the leg.
vas deferens [vās déf-ěr-ēn스] Narrow tube through which sperm leave the epididymis and travel to the seminal vesicles and into the urethra.
vascular [vās-kēl-ēr] lesion Lesion in a blood vessel that shows through the skin.
vasectomy [vās-ěk-tō-mē] [vasectomía] Removal of part of the vas deferens to prevent conception.
vasoconstrictor [vā-so-kōn-STRĪ-kō-tōr] Agent that narrows the blood vessels.
vasodilator [vā-so-dī-lāt-ōr] Agent that dilates or widens the blood vessels.
vasopressin [vā-so-prēs-ēn] Hormone secreted by the pituitary gland; raises blood pressure.
vasovasostomy [vā-so-vās-ōs-tō-mē] [vasovasostomía] Reversal of a vasectomy.
vegetation [vé-tē-tē-shēn] [vegetación] Clot on a heart valve or opening, usually caused by infection.
vein [vēn] [vena] Any of various blood vessels carrying deoxygenated blood toward the heart, except the pulmonary vein.
vena cava (pl., venae cavae) [vē-nā KĀ-vā (vē-nā KĀ-vē)] See superior vena cava and inferior vena cava.
venipuncture [VÉN-i-pünk-chûr, VÉ-ni-pünk-chûr]  
[venipunctura] Small puncture into a vein, usually to draw blood or inject a solution; insertion of a needle into a vein, usually for the purpose of extracting a blood sample.


ventral [VÉN-trâl] At or toward the front (of the body).

ventral thalamus One of the four parts of the diencephalon; serves as a sensory relay station.

ventricle [VÉN-trï-kîl] [ventriculo] 1. Either of the two lower chambers of the heart. 2. Cavity in the brain for cerebrospinal fluid.


venule [VÉN-yûl, VÉ-nûl] [vé-nûla] A tiny vein connecting to a capillary.

verruca (pl., verrucae) [vë-RÜ-kâ] (vë-RÜ-kê) Flesh-colored growth, sometimes caused by a virus; wart.

verrucose [vë-RÜ-kös] [vërruga] Wartlike in appearance.

vertebra (pl., vertebrae) [VÉR-të-brâ (VÉR-të-brê)] [vertebra, pl., vertebra] One of the bony segments of the spinal column.

vertebral body Main portion of the vertebra, separate from the arches of the vertebra.

vertebral column Spinal column.

vertigo [VÉR-ti-gô, vër-TI-gô] [vértigo] Dizziness.

vesicle [VÉS-i-kîl] [vesicular] Small, raised sac on the skin containing fluid.

vestibule [VÉS-i-bûl] [vestibulo] Bony chamber between the semicircular canal and the cochlea.

vial [VI-âl] [vial] A small receptacle for holding liquid or pill medications.

villus (pl., villi) [VI-Lâs (VI-Lû) [vellosidad] Tiny, fingerlike projection on the lining of the small intestine with capillaries through which digested nutrients are absorbed into the bloodstream and lymphatic system.

viral meningitis Meningitis caused by a virus and not as severe as pyogenic meningitis.

virilism [VïR-IL-zîm] [virilismo] Condition with excessive androgen production, often resulting in the appearance of mature male characteristics in young.


visceral pleura [VÎS-ër-âl PLÎR-à] Inner layer of the pleura.

vitamin [VÎT-â-mîn] [vitamina] Organic substance found in food.

vitamin D Vitamin important to the formation of bone.

vitiligo [vï-tî-LÍ-gô] [vitiligo] Condition in which white patches appear on otherwise normally pigmented skin.

vocal cords Strips of epithelial tissue that vibrate and play a major role in the production of sound.

voice box See larynx.

voiding (urinating) cystourethrogram [vïz-tô-yà-RÈ-thrô-grâm] (VCU, VCUG) X-ray image made after introduction of a contrast medium and while urination is taking place.

voluntary muscle Striated muscle.

volvulus [VÔL-vyû-lûs] [volvulo] Intestinal blockage caused by the intestine twisting on itself.

vomer [VÖ-mêr] [vômer] Flat bone forming the nasal septum.

von Willebrand's disease Hemorrhagic disorder with tendency to bleed from mucous membranes.

vulva [VÜL-vâ] [vulva] External female genitalia.

W

wart [wôrt] [vâruca] See verruca.

Western blot Test primarily used to check for antibodies to HIV in serum.

wheat [hwêl] [roncha] Itchy patch of raised skin.

wheezes [hwèz-éz] [sibilancias] Whistling sounds heard on inspiration in certain breathing disorders, especially asthma.

white blood cell One of the solid parts of blood from stem cells that plays a role in defense against disease; leukocyte.

whitehead [WHÎT-hêd] [punto blanco] Closed comedo that does not contain the dark bacteria present in blackheads.

whooping cough [WHÎP-îng kôf] See pertussis.

Wilms' tumor Malignant kidney tumor found primarily in young children; nephroblastoma.

windpipe See trachea.

X

xenograft [ZÈN-ô-grât] [xenoinjerto] See heterograft.

x-ray [eks-râ] High-energy particles of radiation from the interior of a substance.

Z

zygomatic [ZÎ-gô-MÂT-îk] bone Bone that forms the cheek.
Normal Laboratory Values

The table below lists a number of common laboratory tests taken either in normal CBCs (complete blood counts) or a urinalysis or as separate diagnostic tools. Page number references to the text are given so that you may look up the discussion of a particular test in the text.

Abbreviations used in table:

- W: women
- M: men
- d: deci
- g: gram
- k: kilo
- kat: katal (unit of catalytic activity)
- mol: mole
- l: liter
- m: milli
- µ: micro
- n: nano
- p: pico

Note that "normal" values can vary depending on a variety of factors, including the patient's age or gender, time of day test was taken, and so on. In addition, as new medical advances are made, the understanding of what is the best range for some readings has changed. For example, optimal blood pressure readings are now lower than they were ten years ago.

<table>
<thead>
<tr>
<th>Laboratory Test (page number in text)</th>
<th>Normal Range in US Units</th>
<th>Normal Range in SI Units</th>
<th>To Convert US to SI Units</th>
</tr>
</thead>
</table>
| ALT (Alanine aminotransferase) (475) | W 7-30 units/liter
M 10-55 units/liter | W 0.12-0.50 µkat/liter
M 0.17-0.92 µkat/liter | x 0.01667 |
| Albumin (314)                        | 3.1–4.3 g/dl             | 31–43 g/liter            | x 10                     |
| Alkaline Phosphatase (475)           | W 30-100 units/liter
M 45-115 units/liter | W 0.5-1.67 µkat/liter
M 0.75-1.92 µkat/liter | x 0.01667 |
| Aspartate aminotransferase (475)     | W 9-25 units/liter
M 10-40 units/liter | W 0.15-0.42 µkat/liter
M 0.17-0.67 µkat/liter | x 0.01667 |
<p>| Basophils (400)                      | 0-3% of lymphocytes      | 0-0.3 fraction of white blood cells | x 0.01 |
| Bilirubin – Direct (314)             | 0.0-0.4 mg/dl            | 0-7 µmol/liter           | x 17.1                   |
| Bilirubin – Total (314)              | 0.0-1.0 mg/dl            | 0-17 µmol/liter          | x 17.1                   |</p>
<table>
<thead>
<tr>
<th>Laboratory Test (page number in text)</th>
<th>Normal Range in US Units</th>
<th>Normal Range in SI Units</th>
<th>To Convert US to SI Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure (170)</td>
<td>120/80 millimeters of mercury (mmHg). Top number is systolic pressure, when heart is pumping. Bottom number is diastolic pressure when heart is at rest. Blood pressure can be too low (hypotension) or too high (hypertension).</td>
<td>No conversion</td>
<td></td>
</tr>
<tr>
<td>Cholesterol, total</td>
<td>&lt;200 mg/dL 200–239 mg/dL &gt;239 mg/dL</td>
<td>&lt;5.17 mmol/liter 5.17–6.18 mmol/liter &gt;6.18 mmol/liter</td>
<td>x 0.02586</td>
</tr>
<tr>
<td>Desirable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marginal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High (182)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol, LDL</td>
<td>&lt;100 mg/dL 100–159 mg/dL &gt;159 mg/dL</td>
<td>&lt;2.59 mmol/liter 2.59–4.14 mmol/liter &gt;4.14–4.89 mmol/liter</td>
<td>x 0.02586</td>
</tr>
<tr>
<td>Desirable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marginal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High (182)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol, HDL</td>
<td>&gt;60 mg/dL 40–60 mg/dL &lt;40 mg/dL</td>
<td>&gt;1.55 mmol/liter 1.03–1.55 mmol/liter &lt;1.03 mmol/liter</td>
<td>x 0.02586</td>
</tr>
<tr>
<td>Desirable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low (heart risk) (182)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eosinophils (400)</td>
<td>0–8% of white blood cells</td>
<td>0.0–0.8 fraction of white blood cells</td>
<td>x 0.01</td>
</tr>
<tr>
<td>Erythrocytes RBC (412)</td>
<td>4.0–6.0 ml (females slightly lower than males)</td>
<td>4.0–6.0 $10^{12}$/liter</td>
<td></td>
</tr>
<tr>
<td>Glucose, urine (314)</td>
<td>&lt;0.05 g/dl</td>
<td>&lt;0.003 mmol/liter</td>
<td>x 0.05551</td>
</tr>
<tr>
<td>Glucose, plasma fasting reading—often in self-test (512)</td>
<td>70–110 mg/dl (nonfasting not to exceed 140 mg/dl)</td>
<td>3.9–6.1 mmol/liter</td>
<td>x 0.05551</td>
</tr>
<tr>
<td>Hematocrit (412)</td>
<td>W 36.0%–46.0% of red blood cells M 37.0%–49.0% of red blood cells</td>
<td>W 0.36–0.46 fraction of red blood cells M 0.37–0.49 fraction of red blood cells</td>
<td>x 0.01</td>
</tr>
<tr>
<td>Hemoglobin (412)</td>
<td>W 12.0–16.0 g/dl M 13.0–18.0 g/dl</td>
<td>W 7.4–9.9 mmol/liter M 8.1–11.2 mmol/liter</td>
<td>x 0.6206</td>
</tr>
<tr>
<td>Leukocytes (WBC) (412)</td>
<td>$4.5–11.0\times10^3$/mm$^3$</td>
<td>$4.5–11.0\times10^6$/liter</td>
<td>x $10^6$</td>
</tr>
<tr>
<td>Lymphocytes (401)</td>
<td>16%–46% of white blood cells</td>
<td>0.16–0.46 fraction of white blood cells</td>
<td>x 0.01</td>
</tr>
<tr>
<td>Mean corpuscular hemoglobin (MCH) (412)</td>
<td>25.0–35.0 pg/cell</td>
<td>25.0–35.0 pg/cell</td>
<td>No conversion</td>
</tr>
<tr>
<td>Mean corpuscular hemoglobin concentration (MCHC) (412)</td>
<td>31.0–37.0 g/dl</td>
<td>310–370 g/liter</td>
<td>x 10</td>
</tr>
<tr>
<td>Laboratory Test (page number in text)</td>
<td>Normal Range in US Units</td>
<td>Normal Range in SI Units</td>
<td>To Convert US to SI Units</td>
</tr>
<tr>
<td>--------------------------------------</td>
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</tr>
<tr>
<td>Mean corpuscular volume (MCV) (412)</td>
<td>W 78–102 μm³ M 78–100 μm³ M 78–100 fl</td>
<td>W 78–102 fl</td>
<td>No conversion</td>
</tr>
<tr>
<td>Monocytes (401)</td>
<td>4–11% of white blood cells</td>
<td>0.04–0.11 fraction of white blood cells</td>
<td>x 0.01</td>
</tr>
<tr>
<td>Neutrophils (400)</td>
<td>45%–75% of white blood cells</td>
<td>0.45–0.75 fraction of white blood cells</td>
<td>x 0.01</td>
</tr>
<tr>
<td>Potassium</td>
<td>3.4–5.0 mmol/liter</td>
<td>3.4–5.0 mmol/liter</td>
<td>No conversion</td>
</tr>
<tr>
<td>Prostate specific antigen (PSA) (381)</td>
<td>0–2.5 ng/ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum calcium (131)</td>
<td>8.5–10.5 mg/dl</td>
<td>2.1–2.6 mmol/liter</td>
<td>x 0.25</td>
</tr>
<tr>
<td>Sodium</td>
<td>135–145 mmol/liter</td>
<td>135–145 mmol/liter</td>
<td>No conversion</td>
</tr>
<tr>
<td>Testosterone, total (morning sample)</td>
<td>W 6–86 ng/dl M 270–1070 ng/dl</td>
<td>W 0.21–2.98 nmol/liter M 9.36–37.10 nmol/liter</td>
<td>x 0.03467</td>
</tr>
<tr>
<td>Testosterone, unbound</td>
<td>W 0.6–3.1, M 15.0–40.0 pg/ml</td>
<td>W 20.8–107.5, M 520–1387 pmol/liter W 13.9–86.7, M 451–1213 pmol/liter W 6.9–69.3, M 416–971 pmol/liter</td>
<td>x 34.67</td>
</tr>
<tr>
<td>Age 20–40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 41–60</td>
<td>W 0.4–2.5, M 13.0–35.0 pg/ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 61–80</td>
<td>W 0.2–2.0, M 12.0–28.0 pg/ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triglycerides, fasting</td>
<td>40–150 mg/dl 150–200 mg/dl 200–500 mg/dl &gt;500 mg/dl</td>
<td>0.45–1.69 mmol/liter 1.69–2.26 mmol/liter 2.26–5.65 mmol/liter &gt;5.65 mmol/liter</td>
<td>x 0.01129</td>
</tr>
<tr>
<td>Normal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very high (182)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urea, plasma (BUN) (314)</td>
<td>8–25 mg/dl</td>
<td>2.9–8.9 mmol/liter</td>
<td>x 0.357</td>
</tr>
<tr>
<td>Urinalysis: pH</td>
<td>5.0–9.0</td>
<td>5.0–9.0</td>
<td>No conversion</td>
</tr>
<tr>
<td>Specific gravity (312)</td>
<td>1.001–1.035</td>
<td>1.001–1.035</td>
<td></td>
</tr>
<tr>
<td>WBC (White blood cells, leukocytes) (412)</td>
<td>4.5–11.0x10³/mm³</td>
<td>4.5–11.0x10⁹ liter</td>
<td>x 10⁶</td>
</tr>
</tbody>
</table>

Table adapted from www.aidsinfonet.org
Government agencies, national organizations, and educational institutions vary the rules set up for style of medical terminology. One area with great variation is the spelling of eponyms, terms derived from proper names. For example, Alzheimer's disease was named after Alois Alzheimer, a German neurologist. Several major organizations (especially the AMA—American Medical Association and AHDI—American Association for Healthcare Documentation Integrity) have decided to simplify eponyms by dropping the apostrophe S, so that Alzheimer’s disease is known by some as Alzheimer disease. The national charitable organizations and the governmental health organizations currently retain the use of the possessive.

The list below shows examples of medical eponyms in the two different styles.

<table>
<thead>
<tr>
<th>U. S. Government</th>
<th>AMA and AHDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s disease</td>
<td>Alzheimer disease</td>
</tr>
<tr>
<td>Babinski’s reflex</td>
<td>Babinski reflex</td>
</tr>
<tr>
<td>Bartholin’s glands</td>
<td>Bartholin glands</td>
</tr>
<tr>
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<td>Wilm’s tumor</td>
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For the name of the disease, structure, condition, and so on, the initial capital remains style. However, for words derived from eponyms, some organizations recommend the use of lowercase; for example, parkinsonian symptom.
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