# Chapter 14
## Special Topics

## Chapter Contents

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## Media Library

### Student DVD-ROM
- Twelve different interactive learning games
- Flash card generator
- Audio Glossary
- Professional Profile videos:
  - Pharmacy
  - Mental Health
  - Diagnostic Imaging
  - Physical Therapy
  - Occupational Therapy
  - Surgical Technology
  - Cytotechnology
  - Terminology Translator

### Companion Website
- Multiple Choice, True/False, and Fill-in-the-Blank practice questions
- Labeling exercises
- Case study
- Additional Professional Profile information
- New York Times link for research into specific pathologies
- Web Destination activities
- Audio Glossary
- Link to VangoNotes
- Link to drug updates
OBJECTIVE 1

Identify and define the combining forms and suffixes introduced in this chapter.

Text pages: 464; 472; 483; 489; 494; PowerPoint slides: 5–6; 51–52; 78–79; 105–106; 127; 150–151

LECTURE NOTES

Pharmacology Combining Forms
- aer/o: air
- bucc/o: cheek
- chem/o: drug
- cutane/o: skin
- derm/o: skin
- lingu/o: tongue
- muscul/o: muscle
- or/o: mouth
- pharmac/o: drug
- rect/o: rectum
- toxic/o: poison
- vagin/o: vagina
- ven/o: vein

Mental Health Combining Forms
- anxi/o: anxiety
- ment/o: mind
- phren/o: mind
- psych/o: mind
- schiz/o: divided
- somat/o: body
- somn/o: sleep

Mental Health Suffixes
- -iatrist: physician
- -mania: excessive preoccupation
- -philia: affinity for, craving for
- -phobia: irrational fear

Diagnostic Imaging Combining Forms
- fluor/o: fluorescence, luminous
- radi/o: X-ray
- roentgen/o: X-ray
- son/o: sound
- tom/o: to cut

TEACHING STRATEGIES

• Encourage/remind students to add new word parts to their flash cards.

Medical Terminology Bee
• Create PowerPoint flash cards of new combining forms and suffixes presented in this chapter; have all students stand and then define word part; if student is correct, he or she remains standing; if student is wrong, he or she sits down; continue until only one student is standing.

LEARNING ACTIVITIES

Worksheet 14A
• May be used as a worksheet

Quiz 14A
• May be used as a worksheet

Text
• Practice Exercises

Student DVD-ROM
• Learning games
• Make flash cards

CW
• Practice questions

ASSESSMENTS

Quiz 14A—New Word Parts Quiz
Test Bank—Fill-in-the-Blank questions
Diagnostic Imaging Suffixes
-lucent to shine through
-opaque nontransparent

Rehabilitation Combining Forms
cry/o cold
electr/o electric current
erg/o work
hydr/o water
my/o muscle
orth/o straight, correct
phon/o sound
prosth/o addition
therm/o heat

Rehabilitation Suffixes
-phoresis carrying
-therapy treatment

Surgery Combining Forms
cis/o to cut
cry/o cold
electr/o electricity
esthesi/o sensation, feeling
sect/o cut

Oncology Combining Forms
blast/o primitive cell
carcin/o cancerous
chem/o chemical
mut/a genetic change, mutation
onc/o tumor
tox/o poison

Oncology Suffixes
-plasia growth, formation
-plasm growth, formation

OBJECTIVE 2
Correctly spell and pronounce medical terms relating to the medical fields introduced in this chapter.

LECTURE NOTES
Pronunciation for medical terms in this chapter can be found:
• In parentheses following key terms
• In the Audio Glossary on Student DVD-ROM
• In the Audio Glossary at Companion Website

TEACHING STRATEGIES
Emphasize to students:
• Importance of correctly spelling terms.
• How sounding out terms can assist in learning how to spell the terms.
Say each new term in class and have students repeat it.

Pop Questions
• Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension of spelling strategies.
LEARNING ACTIVITIES

Terminology Checklist
- Can be used to practice pronunciation using the Audio Glossary as reference

Text
- Practice Exercises

Flash cards
- Look at the definition and write out/pronounce terms

Student DVD-ROM
- Audio Glossary
- Spelling Challenge game
- Crossword and Word Search puzzles

ASSESSMENTS

Quiz 14B—Spelling Quiz
Suggested terms:
1. proprietary
2. iatrogenic
3. prophylaxis
4. idiosyncrasy
5. psychopharmacology
6. kleptomania
7. hypochondria
8. posteroanterior
9. fluoroscopy
10. tomography
11. ergonomics
12. debridement
13. electromyogram
14. phonophoresis
15. anesthesiologist
16. curette
17. cauterization
18. metastasis
19. protocol
20. palliative

Test Bank—questions

OBJECTIVE 3
Describe pertinent information relating to Pharmacology.
Text pages: 465–469; PowerPoint slides: 7–35

LECTURE NOTES
Pharmacology
- Study of origin, characteristics, and effects of drugs
- Drugs are obtained from many different sources:
  - Vitamins found naturally in foods we eat
  - Hormones obtained from animals
  - Penicillin and some other antibiotics are developed from fungi
  - Plants have been source of many of today’s drugs

TEACHING STRATEGIES

Visual Aids
- Use examples of real prescriptions and have students interpret physician’s instructions.

Pop Questions
- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.
• Drugs, such as those used in chemotherapy, are synthetic, meaning they are developed by artificial means in laboratory.

**Drug Names**

• Drugs are chemicals
• **Chemical name** describes chemical formula or molecular structure of drug; for example, chemical name for ibuprofen is 2-<i>p</i>-isobutylphenyl propionic acid
• Chemical names usually very long, so shorter name given to drug; this is **generic or nonproprietary name**, recognized and accepted as official name for drug; each drug has only one generic name, such as ibuprofen, and is not subject to copyright protection, so any *pharmaceutical* manufacturer may use it
• Pharmaceutical company that originally developed drug has exclusive rights to produce it for seventeen years; after that time, any manufacturer may produce and sell drug
• When company manufactures drug for sale, it chooses **brand** or proprietary name for product; company's trademark for drug; for example, ibuprofen is known by several brand names, including Motrin<sup>TM</sup>, Advil<sup>TM</sup>, and Nuprin<sup>TM</sup>; all three contain same ibuprofen; they are just marketed by different pharmaceutical companies
• Generic drugs are usually priced lower than brand name drugs; physician can indicate on prescription if pharmacist may substitute generic drug for brand name; physician may prefer that particular brand name drug be used if believes it to be more effective than generic drug
• See Table 14.1 for examples of different drug names

**Legal Classification of Drugs**

• Prescription drug can only be ordered by licensed healthcare practitioners such as physicians, dentists, or physician assistants
• Drugs must include words "Caution: Federal law prohibits dispensing without prescription" on label; antibiotics, such as penicillin, and heart medications, such as digoxin, are available only by prescription
• **Prescription**—written explanation to pharmacist regarding name of medication, dosage, and times of administration; licensed practitioner can also give prescription order orally to pharmacist
• Over-the-counter drug (OTC)—drug that does not require prescription; many medications can be purchased without prescription; for example, aspirin, antacids, and antidiarrheal medications
• However, taking aspirin along with anticoagulant, such as coumadin, can cause internal bleeding in some people; OTC

**TABLE 14.1 Examples of Different Drug Names**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Generic Name</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-&lt;i&gt;p&lt;/i&gt;-isobutylphenyl propionic</td>
<td>ibuprofen</td>
<td>Motrin&lt;sup&gt;TM&lt;/sup&gt;, Advil&lt;sup&gt;TM&lt;/sup&gt;, Nuprin&lt;sup&gt;TM&lt;/sup&gt;</td>
</tr>
<tr>
<td>acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetylsalicylic acid</td>
<td>aspirin</td>
<td>Anacin&lt;sup&gt;TM&lt;/sup&gt;, Bufferin&lt;sup&gt;TM&lt;/sup&gt;, Excedrin&lt;sup&gt;TM&lt;/sup&gt;</td>
</tr>
<tr>
<td>S-2-[1-(methylamino)ethyl] benzenemethanol hydrochloride</td>
<td>pseudoephedrine hydrochloride</td>
<td>Sudafed&lt;sup&gt;TM&lt;/sup&gt;, Actifed&lt;sup&gt;TM&lt;/sup&gt;, Nucofed&lt;sup&gt;TM&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

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antacids interfere with absorption of prescription drug tetracycline; better for physician or pharmacist to advise patient on proper OTC drugs to use with prescription drugs

- **Controlled substances**—drugs that have potential for being addictive (habit forming) or can be abused; Drug Enforcement Agency (DEA) enforces control of these drugs
- Some of the more commonly prescribed controlled substances are:
  - butabarbital
  - chloral hydrate
  - codeine
  - diazepam
  - oxycodone
  - morphine
  - phenobarbital
  - secobarbital
- Controlled drugs classified as Schedule I through Schedule V, indicating potential for abuse; differences between each schedule are listed in Table 14.2

### How to Read a Prescription

- Difficult to read until understand symbols used; symbols and abbreviations based on Latin and Greek words; used to save time for physician
- Example, abbreviation po, meaning to take by mouth, comes from Latin term *per os*, which means by mouth
- See Figure 14.1 for example of prescription; example,
  - Prescribed medication (Rx) is Tagamet (medication to reduce stomach acid)
  - 800 milligram (mg) size
  - Instructions on label are to say (Sig) to take 1 (1) by mouth (po) every (q) bedtime (hs)
  - Pharmacist is to dispense (disp) 30 tablets (#30)
  - Informs pharmacist to refill prescription two times and may substitute with another medication

### Table 14.2 Schedule for Controlled Substances

<table>
<thead>
<tr>
<th>Classification</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule I</td>
<td>highest potential for addiction and abuse; not accepted for medical use; examples are heroin and LSD</td>
</tr>
<tr>
<td>Schedule II</td>
<td>high potential for addiction and abuse; accepted for medical use; examples are codeine, cocaine, morphine, opium, and secobarbital</td>
</tr>
<tr>
<td>Schedule III</td>
<td>moderate to low potential for addiction and abuse; examples are butabarbital, anabolic steroids, and acetaminophen with codeine</td>
</tr>
<tr>
<td>Schedule IV</td>
<td>lower potential for addiction and abuse than Schedule III drugs; examples are chloral hydrate, phenobarbital, and diazepam</td>
</tr>
<tr>
<td>Schedule V</td>
<td>low potential for addiction and abuse; example is low-strength codeine combined with other drugs to suppress coughing</td>
</tr>
</tbody>
</table>
• Prescription must contain date, physician's name, address, and Drug Enforcement Agency number as well as patient's name and date of birth
• Physician must sign bottom of prescription
• Blank prescription cannot be handed to patient
• Physician's instruction to patient placed on label
• Pharmacist includes instructions about medication and alerts patient to side effects that may need to be reported to physician
• Special instructions regarding medication (i.e., take with meals, do not take along with dairy products) also supplied by pharmacist

Routes and Methods of Drug Administration

• Route of administration—method by which drug is introduced into body; to be effective, drugs must be administered by particular route; in some cases, may be variety of routes; for instance, female hormone estrogen can be administered orally in pill form or by patch applied to skin
• Routes of administration are as follows:
  • Oral: drugs given by mouth; advantages are ease of administration and slow rate of absorption via stomach and intestinal wall; disadvantages include slowness of absorption and destruction of some chemical compounds by gastric juices; some medications, such as aspirin, can have a corrosive action on stomach lining
  • Sublingual: drugs held under tongue and not swallowed; absorbed by blood vessels on underside of tongue as saliva dissolves it; rate of absorption is quicker than oral; nitroglycerin to treat angina pectoris (chest pain) is administered by this route; see Figure 14.2
  • Inhalation: drugs inhaled directly into nose and mouth; aerosol sprays administered by this route; see Figure 14.3
  • Parenteral: invasive method of administering drugs; requires skin to be punctured by needle; needle with syringe attached is introduced either under skin or into muscle, vein, or body cavity; see Table 14.3 for description of methods for parenteral administration
  • Transdermal: medications coat underside of patch, which is applied to skin where it is then absorbed; examples include birth control patches, nicotine patches, and sea sickness patches
  • Rectal: medications introduced directly into rectal cavity in form of suppositories or solution; drugs may be administered by this route if patient is unable to take by mouth due to nausea, vomiting, or surgery
  • Topical: medications applied directly to skin or mucous membranes; in ointment, cream, or lotion form; used to treat skin infections and eruptions
  • Vaginal: tablets and suppositories inserted vaginally to treat vaginal yeast infections and other irritations
  • Eyedrops: drops used during eye examinations to dilate pupil of eye for better examination of interior of eye; also placed into eye to control eye pressure in glaucoma and treat infections
  • Eardrops: drops placed directly into ear canal for purpose of relieving pain or treating infection
  • Buccal: drugs placed under lip or between cheek and gum
TABLE 14.3 Methods for Parenteral Administration of Drugs

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>intracavitary</td>
<td>directly into body cavity such as peritoneal and chest cavity</td>
</tr>
<tr>
<td>intradermal (ID)</td>
<td>very shallow injection just under top layer of skin; commonly used in skin testing for allergies and tuberculosis testing (see Figure 14.4)</td>
</tr>
<tr>
<td>intramuscular (IM)</td>
<td>directly into muscle of buttocks, thigh, or upper arm; used when there is large amount of medication or it is irritating (see Figure 14.4)</td>
</tr>
<tr>
<td>intrathecal</td>
<td>into meningeal space surrounding brain and spinal cord</td>
</tr>
<tr>
<td>intravenous (IV)</td>
<td>into veins; may be set up to deliver medication very quickly or to deliver a continuous drip of medication (see Figure 14.4)</td>
</tr>
<tr>
<td>subcutaneous (SC)</td>
<td>into subcutaneous layer of skin, usually upper, outer arm or abdomen (see Figure 14.4); for example, insulin injection</td>
</tr>
</tbody>
</table>

OBJECTIVE 4
Describe pertinent information relating to Mental Health.

Text page: 473; PowerPoint slides: 53–55

LECTURE NOTES

Psychology
- Study of human behavior and thought processes
- Behavioral science primarily concerned with understanding how human beings interact with their physical environment and with each other
- Behavior can be divided into two categories, normal and abnormal
  - **Normal psychology** includes how personality develops, how people handle stress, and stages of mental development
  - **Abnormal psychology** studies and treats behaviors that are outside of normal and detrimental to person or society; maladaptive behaviors range from occasional difficulty coping with stress, to bizarre actions and beliefs, to total withdrawal
  - **Clinical psychologist**, though not physician, is specialist in evaluating and treating persons with mental and emotional disorders

Psychiatry
- Branch of medicine that deals with diagnosis, treatment, and prevention of mental disorders

TEACHING STRATEGIES

Visual Aid
- Show sample questions from Minnesota Multiphasic Personality Index test; have students work in groups to write examples of how persons with different mental disorders might answer the questions.

Pop Questions
- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

Guest speaker
- Invite a psychologist to speak to the class on different approaches to evaluating and treating mental illness.
Psychiatrist is a medical physician specializing in care of patients with mental, emotional, and behavioral disorders. Other health professions also have specialty areas in caring for clients with mental illness; examples are psychiatric nurses and psychiatric social workers.

• **LEARNING ACTIVITIES**
  - Worksheet 14B
    - Chapter Review
  - Text
    - Practice Exercises
  - Student DVD-ROM
    - Learning games
  - CW
    - Practice questions
    - Web Destination activity on Mental Health

• **ASSESSMENTS**
  - Quiz 14D—Chapter Review
  - Test Bank—questions

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**OBJECTIVE 5**

Describe pertinent information relating to Diagnostic Imaging.

Text page: 478; PowerPoint slide: 80

**LECTURE NOTES**

**Diagnostic Imaging**

- Medical specialty that uses variety of methods to produce images of internal structures of body
- Images are used to diagnose disease
- Began as **roentgenology**, named after German physicist Wilhelm Roentgen who discovered roentgen rays in 1895; discovery, now commonly known as **X-rays**, revolutionized diagnosis of disease

**TEACHING STRATEGIES**

**Visual Aids**

- Use examples of real diagnostic images to emphasize how different procedures produce different views of body.

**IRDVD**

- See PowerPoint presentation on the Instructor's Resource DVD for an animation on PET scans.
- See PowerPoint presentation on the Instructor's Resource DVD for videos on:
  - MRI
  - Ultrasound

**Guest speaker**

- Invite a radiologic technologist to speak to the class on different types of diagnostic images.

**Pop Questions**

- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

**LEARNING ACTIVITIES**

**Worksheet 14B**

- Chapter Review

**Text**

- Practice Exercises
**OBJECTIVE 6**

Describe pertinent information relating to Rehabilitation Services.

Text page: 484; PowerPoint slides: 107–110

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**LECTURE NOTES**

**Rehabilitation Services**
- Goal of rehabilitation is to prevent disability and restore as much function as possible following disease, illness, or injury
- Include healthcare specialties of **physical therapy** (PT) and **occupational therapy** (OT)

**Physical Therapy (PT)**
- Treating disorders using physical means and methods
- Assess joint motion, muscle strength and endurance, function of heart and lungs, and performance of activities required in daily living, and carry out other responsibilities
- Treatment includes gait training, therapeutic exercise, massage, joint and soft tissue mobilization, thermotherapy, cryotherapy, electrical stimulation, ultrasound, and hydrotherapy
- Strengthen muscles, improve motion and circulation, reduce pain, and increase function

**Occupational Therapy (OT)**
- Regain, develop, and improve skills that are important for independent functioning (activities of daily living)
- Work with people who, because of illness, injury, or developmental or psychological impairments, require specialized training in skills that will enable them to lead independent, productive, and satisfying lives in regard to personal care, work, and leisure
- Instruct patients in use of adaptive equipment and techniques, body mechanics, and energy conservation
- Employ modalities such as heat, cold, and therapeutic exercise

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**TEACHING STRATEGIES**

**Guest speaker**
- Invite a PT or OT to speak to the class on differences between the two types of therapies.

**Pop Questions**
- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

**LEARNING ACTIVITIES**

**Worksheet 14B**
- Chapter Review

**Text**
- Practice Exercises

**Student DVD-ROM**
- Learning games

**CW**
- Practice questions

**ASSESSMENTS**

Quiz 14D—Chapter Review
Test Bank—questions
OBJECTIVE 7
Describe pertinent information relating to surgery.
Text pages: 490–492; PowerPoint slides: 128–140

LECTURE NOTES

Surgery
- Branch of medicine dealing with operative procedures to correct deformities and defects, repair injuries, and diagnose and cure diseases
- Surgeon—physician who has completed additional training of 5 years or more in surgical specialty area; specialty areas include orthopedics; neurosurgery; gynecology; ophthalmology; urology; and thoracic, vascular, cardiac, plastic, and general surgery
- Operative report—completed for every procedure performed; includes information pertaining to patient such as name, address, age, patient number, and date of procedure; includes the following:
  - Preoperative diagnosis
  - Indication for procedure
  - Name of procedure
  - Surgical techniques employed
  - Findings during surgery
  - Postoperative diagnosis
  - Name of the surgeon
- Surgical terminology includes terms related to anesthesiology, surgical instruments, surgical procedures, incisions, and suture materials
- Specific surgical procedures are frequently named by using combining form for body part being operated on and adding suffix that describes procedure; example, incision into chest is thoracotomy; removal of stomach is gastrectomy; surgical repair of skin is dermatoplasty.
- List of most frequently used surgical suffixes is in Chapter 1 and common surgical procedures are defined in each system chapter

Anesthesia
- Anesthesiologist—physician specializes in practice of administering anesthetics
- Nurse anesthetist—registered nurse who has received additional training and education in administration of anesthetic medications
- Anesthesia results in loss of feeling or sensation
- Most common types of anesthesia are general, regional, local, and topical anesthesia
- General anesthesia (GA)—produces loss of consciousness including absence of pain sensation; administered to patient by either intravenous (IV) or inhalation method; patient’s vital signs (VS), heart rate, breathing rate, pulse, and blood pressure, are carefully monitored when using general anesthetic
- Regional anesthesia—also referred to as nerve block; anesthetic interrupts patient’s pain sensation in particular region of body, such as arm; anesthetic is injected near nerve blocked from sensation; patient usually remains conscious
- Local anesthesia—produces loss of sensation in one localized part of body; patient remains conscious; administered either topically or via subcutaneous route; example, deadening skin prior to suturing laceration

TEACHING STRATEGIES

Visual Aids
- Obtain examples of various surgical instruments.

IRDVD
- See PowerPoint presentation on the Instructor’s Resource DVD for videos on:
  - Circulating nurse
  - Scrub nurse

Guest Speaker
- Invite surgical nurses to speak to the class on operating room procedures.

Pop Questions
- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

LEARNING ACTIVITIES

Worksheet 14B
- Chapter Review

Text
- Practice Exercises

Student DVD-ROM
- Learning games

CW
- Practice questions

ASSESSMENTS

Quiz 14D—Chapter Review

Test Bank—questions
Topical anesthesia—anesthetic liquid or gel placed directly into specific area; patient remains conscious; used on skin, cornea, and mucous membranes in dental work

Surgical Instruments

- Physicians have developed surgical instruments since time of early Egyptians
- Include surgical knives, saws, clamps, drills, and needles
- Commonly used surgical instruments are listed in Table 14.5 and shown in Figure 14.15

Surgical Positions

- Patients placed in specific positions so surgeon is able to reach area to be operated on
- See Table 14.6 for description of common surgical positions

### TABLE 14.5 Common Surgical Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>aspirator</td>
<td>suctions fluid</td>
</tr>
<tr>
<td>clamp</td>
<td>grasps tissue; controls bleeding</td>
</tr>
<tr>
<td>curette</td>
<td>scrapes and removes tissue</td>
</tr>
<tr>
<td>dilator</td>
<td>enlarges an opening by stretching</td>
</tr>
<tr>
<td>forceps</td>
<td>grasps tissue</td>
</tr>
<tr>
<td>hemostat</td>
<td>forceps to grasp blood vessel to control bleeding</td>
</tr>
<tr>
<td>probe</td>
<td>explores tissue</td>
</tr>
<tr>
<td>scalpel</td>
<td>cuts and separates tissue</td>
</tr>
<tr>
<td>speculum</td>
<td>spreads apart walls of a cavity</td>
</tr>
<tr>
<td>tenaculum</td>
<td>long-handled clamp</td>
</tr>
<tr>
<td>trephine</td>
<td>saw that removes disk-shaped piece of tissue or bone</td>
</tr>
</tbody>
</table>

### TABLE 14.6 Common Surgical Positions

<table>
<thead>
<tr>
<th>Surgical Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fowler</td>
<td>sitting with back positioned at a 45-degree angle</td>
</tr>
<tr>
<td>Lateral recumbent</td>
<td>lying on either the left or right side</td>
</tr>
<tr>
<td>Lithotomy</td>
<td>lying face up with hips and knees bent at 90-degree angles</td>
</tr>
<tr>
<td>Prone</td>
<td>lying horizontal with face down</td>
</tr>
<tr>
<td>Supine</td>
<td>lying horizontal and face up; also called dorsal recumbent</td>
</tr>
<tr>
<td>Trendelenburg</td>
<td>lying face up and on an incline with head lower than legs</td>
</tr>
</tbody>
</table>
OBJECTIVE 8
Describe pertinent information relating to Oncology.
Text pages: 495–496; PowerPoint slides: 152–158

LECTURE NOTES

Oncology
- Branch of medicine dealing with tumors
- Tumor can be benign or malignant
- Benign tumor generally not progressive or recurring; generally, benign tumor will have suffix -oma at end of term
- Malignant tumor indicates cancerous growth present (see Figure 14.17); terms will usually have word carcinoma added
- Medical specialty of oncology primarily treats patients who have cancer
- Treatment for cancer can consist of variety or combination of treatments
- Protocol (prot) for particular patient consists of actual plan of care, including medications, surgeries, and treatments such as chemotherapy and radiation therapy; entire healthcare team, including physician, oncologist, radiologist, nurse, patient, and family, will assist in designing treatment plan

Staging Tumors
- Staging—process of classifying tumors based on degree of tissue invasion and potential response to therapy
- TNM staging system—T refers to the tumor’s size and invasion; N refers to lymph node involvement; M refers to presence of metastases (mets) of tumor cells (see Figure 14.18)
- Tumor can be graded from grade I through grade IV; grade is based on microscopic appearance of tumor cells: pathologist rates or grades cells based on whether tumor resembles normal tissue
- Classification system is illustrated in Table 14.7; grade I tumor is well differentiated and is easier to treat than more advanced grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>GX</td>
<td>The grade cannot be determined.</td>
</tr>
<tr>
<td>GI</td>
<td>The cells are well differentiated.</td>
</tr>
<tr>
<td>GII</td>
<td>The cells are moderately differentiated.</td>
</tr>
<tr>
<td>GIII</td>
<td>The cells are poorly differentiated.</td>
</tr>
<tr>
<td>GIV</td>
<td>The cells are undifferentiated.</td>
</tr>
</tbody>
</table>

TABLE 14.7 Tumor Grade Classification

TEACHING STRATEGIES

IRDVD
- See PowerPoint presentation on the Instructor’s Resource DVD for video on the topic of the causes of cancer.

Pop Questions
- Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

LEARNING ACTIVITIES

Worksheet 14B
- Chapter Review

Text
- Practice Exercises

Student DVD-ROM
- Learning games

CW
- Practice questions
- Web Destination activity on Oncology

ASSESSMENTS

Quiz 14D—Chapter Review
Test Bank—questions
OBJECTIVE 9
Identify and define vocabulary terms relating to the topics.


LEARNING ACTIVITIES
Worksheet 14B
• Chapter Review

Text
• Practice Exercises
• Terminology Checklist

Student DVD-ROM
• Learning games
• Flash cards

CW
• Practice questions

ASSESSMENTS
Quiz 14D—Chapter Review
Test Bank—questions

LECTURE NOTES
Pharmacology Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>addiction</td>
<td>acquired dependence on a drug</td>
</tr>
<tr>
<td>additive</td>
<td>sum of action of two (or more) drugs given; total strength of medications is equal to sum of strength of each individual drug</td>
</tr>
<tr>
<td>antidote</td>
<td>substance that neutralizes poisons or their side effects</td>
</tr>
<tr>
<td>broad spectrum</td>
<td>ability of drug to be effective against wide range of microorganisms</td>
</tr>
<tr>
<td>contraindication</td>
<td>condition in which particular drug should not be used</td>
</tr>
<tr>
<td>cumulative action</td>
<td>action that occurs in body when drug is allowed to accumulate or stay in body</td>
</tr>
<tr>
<td>drug interaction</td>
<td>occurs when effect of one drug is altered because it was taken at same time as another drug</td>
</tr>
<tr>
<td>drug tolerance</td>
<td>decrease in susceptibility to drug after continued use of drug</td>
</tr>
<tr>
<td>habituation</td>
<td>development of emotional dependence on drug due to repeated use</td>
</tr>
<tr>
<td>iatrogenic</td>
<td>usually unfavorable response resulting from taking medication</td>
</tr>
<tr>
<td>idiosyncrasy</td>
<td>unusual or abnormal response to drug or food</td>
</tr>
<tr>
<td>placebo</td>
<td>inactive, harmless substance used to satisfy patient’s desire for medication; also used in research, when given to control group of patients in study in which another group receives drug; effect of placebo versus drug is then observed</td>
</tr>
<tr>
<td>potentiation</td>
<td>giving patient second drug to boost (potentiate) effect of another drug; total strength of drugs is greater than sum of strength of individual drugs</td>
</tr>
<tr>
<td>prophylaxis</td>
<td>prevention of disease; for example, antibiotic can be used to prevent occurrence of disease</td>
</tr>
<tr>
<td>side effect</td>
<td>response to drug other than effect desired; also called adverse reaction</td>
</tr>
<tr>
<td>tolerance</td>
<td>development of capacity for withstanding large amount of substance, such as foods, drugs, or poison, without any adverse effect; decreased sensitivity to further doses will develop</td>
</tr>
<tr>
<td>toxicity</td>
<td>extent or degree to which substance is poisonous</td>
</tr>
<tr>
<td>unit dose</td>
<td>drug dosage system that provides prepackaged, prelabeled, individual medications that are ready for immediate use by patient</td>
</tr>
</tbody>
</table>

TEACHING STRATEGIES
• Write sentences on the board using common words; have students substitute correct medical terms.

Jeopardy Game
• Have students create questions for terms in this section for a Jeopardy game to be played in class—may be combined with Pathology, Diagnostic, and Therapeutic terms.

Pop Questions
• Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.
## Diagnostic Imaging Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>anteroposterior view (AP view)</td>
<td>positioning patient so that X-rays pass through body from anterior to posterior side</td>
</tr>
<tr>
<td>barium (Ba)</td>
<td>soft metallic element from earth used as radiopaque X-ray dye</td>
</tr>
<tr>
<td>film</td>
<td>thin sheet of cellulose material coated with a light-sensitive substance; used in taking photographs; special photographic film is sensitive to X-rays</td>
</tr>
<tr>
<td>film badge</td>
<td>badge containing film that is sensitive to X-rays; worn by all personnel in radiology to measure amount of X-rays to which they are exposed</td>
</tr>
<tr>
<td>lateral view</td>
<td>positioning of patient so that side of body faces X-ray machine</td>
</tr>
<tr>
<td>oblique view</td>
<td>positioning of patient so that X-rays pass through body on angle</td>
</tr>
<tr>
<td>posteroanterior view (PA view)</td>
<td>positioning of patient so that X-rays pass through body from posterior side to anterior side</td>
</tr>
<tr>
<td>radiography</td>
<td>making of X-ray pictures</td>
</tr>
<tr>
<td>radioisotope</td>
<td>radioactive form of an element</td>
</tr>
<tr>
<td>radiologist</td>
<td>physician using images to diagnose abnormalities and radiant energy to treat various conditions such as cancer</td>
</tr>
<tr>
<td>radiolucent</td>
<td>structures that allow X-rays to pass through; exposes photographic plate and appears as black area on X-ray</td>
</tr>
<tr>
<td>radiopaque</td>
<td>structures that are impenetrable to X-rays, appearing as light area on X-ray</td>
</tr>
<tr>
<td>roentgen</td>
<td>unit for describing exposure dose of radiation</td>
</tr>
<tr>
<td>scan</td>
<td>recording on photographic plate emission of radioactive waves after substance has been injected into body</td>
</tr>
<tr>
<td>shield</td>
<td>protective device used to protect against radiation</td>
</tr>
<tr>
<td>tagging</td>
<td>attaching a radioactive material to chemical and tracing it as it moves through body</td>
</tr>
<tr>
<td>uptake</td>
<td>absorption of radioactive material and medicines into an organ or tissue</td>
</tr>
<tr>
<td>X-ray</td>
<td>high-energy wave that penetrates most solid matter and presents image on photographic film</td>
</tr>
</tbody>
</table>

## Rehabilitation Services Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>activities of daily living (ADL)</td>
<td>activities usually performed in course of normal day, such as eating, dressing, and washing</td>
</tr>
<tr>
<td>adaptive equipment</td>
<td>modification of equipment or devices to improve function and independence of person with disability</td>
</tr>
<tr>
<td>body mechanics</td>
<td>use of good posture and position while performing activities of daily living to prevent injury and stress on body parts</td>
</tr>
</tbody>
</table>
ergonomics  study of human work; includes how requirements for performing work and work environment affect musculoskeletal and nervous systems
fine motor skills  use of precise and coordinated movements in activities such as writing, buttoning, and cutting
gait  manner of walking
gross motor skills  use of large muscle groups that coordinate body movements such as walking, running, jumping, and balance
lower extremity (LE)  refers to one of legs
mobility  having normal movement of all body parts
orthotics  use of equipment, such as splints and braces, to support paralyzed muscle, promote specific motion, or correct musculoskeletal deformities
physical medicine  branch of medicine focused on restoring function; primarily cares for patients with musculoskeletal and nervous system disorders; physician is a physiatrist
prosthetics  artificial devices, such as limbs and joints, that replace missing body part
range of motion (ROM)  range of movement of joint, from maximum flexion through maximum extension; measured as degrees of circle
rehabilitation  process of treatment and exercise; helps person with disability attain maximum function and well-being
upper extremity (UE)  refers to one of the arms

**Surgery Vocabulary**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>analgesic</td>
<td>medication to relieve pain</td>
</tr>
<tr>
<td>anesthetic</td>
<td>medication to produce partial to complete loss of sensation</td>
</tr>
<tr>
<td>cauterization</td>
<td>use of heat, cold, electricity, or chemicals to scar, burn, or cut tissues</td>
</tr>
<tr>
<td>circulating nurse</td>
<td>nurse assists surgeon and scrub nurse by providing needed materials during procedure and by handling surgical specimen; person does not wear sterile clothing and may enter and leave operating room during procedure</td>
</tr>
<tr>
<td>cryosurgery</td>
<td>exposing tissues to extreme cold to produce cell injury and destruction; used in treatment of malignant tumors or to control pain and bleeding</td>
</tr>
<tr>
<td>day surgery</td>
<td>outpatient surgery in which patient is discharged on same day as admitted; also called ambulatory surgery</td>
</tr>
<tr>
<td>dissection</td>
<td>surgical cutting of parts for separation and study</td>
</tr>
<tr>
<td>draping</td>
<td>process of covering patient with sterile cloths; allows only operative site to be exposed to surgeon</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>carcinogen</td>
<td>agent that produces or increases risk of developing cancer; for example, cigarette smoke and insecticides are considered to be carcinogens</td>
</tr>
<tr>
<td>carcinoma in situ (CIS)</td>
<td>malignant tumor that has not extended beyond original site</td>
</tr>
<tr>
<td>encapsulated</td>
<td>growth enclosed in sheath of tissue that prevents tumor cells from invading surrounding tissue</td>
</tr>
<tr>
<td>hyperplasia</td>
<td>excessive development of normal cells within organ</td>
</tr>
<tr>
<td>invasive disease</td>
<td>tendency of malignant tumor to spread to immediately surrounding tissue and organs</td>
</tr>
<tr>
<td>metastasis (mets)</td>
<td>spread of cancer cells from one part of body to another; metastases is plural</td>
</tr>
<tr>
<td>morbidity</td>
<td>number representing sick persons in particular population</td>
</tr>
<tr>
<td>mortality</td>
<td>number representing deaths in particular population</td>
</tr>
<tr>
<td>mutation</td>
<td>transformation from original</td>
</tr>
<tr>
<td>neoplasm</td>
<td>abnormal growth or tumor; can be benign or malignant</td>
</tr>
<tr>
<td>oncogenic</td>
<td>cancer causing</td>
</tr>
<tr>
<td>primary site</td>
<td>where malignant tumor first appeared</td>
</tr>
<tr>
<td>relapse</td>
<td>return of disease symptoms after period of improvement</td>
</tr>
<tr>
<td>remission</td>
<td>period during which symptoms of disease or disorder leave; can be temporary</td>
</tr>
</tbody>
</table>
OBJECTIVE 10
Identify and define selected pathology terms relating to the topics.
Text pages: 473–475; PowerPoint slides: 56–57

LECTURE NOTES

Mental Health Pathology

• Legal definition of mental disorder is “impaired judgment and lack of self-control”
• Guide for terminology and classifications relating to psychiatric disorders is Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (Text Revision) (DSM-IV-TR\textsuperscript{TM}, 2004), published by American Psychiatric Association
• DSM organizes mental disorders into fourteen major diagnostic categories of mental disorders:

1. Anxiety disorders: persistent worry and apprehension; include:
   • panic attacks—feeling apprehension, terror, or impending danger
   • anxiety—feeling dread in absence of clearly identifiable stress trigger
   • phobias—irrational fear, such as photophobia, or fear of light
   • obsessive-compulsive disorder (OCD)—performing repetitive rituals to reduce anxiety

2. Cognitive disorders: deterioration of mental functions due to temporary brain or permanent brain dysfunction; also called organic mental disease; include:
   • dementia—progressive confusion and disorientation
   • degenerative disorders such as Alzheimer's disease

3. Disorders diagnosed in infancy and childhood: disorders associated with childhood; include:
   • mental retardation—subaverage intellectual functioning
   • attention deficit-hyperactivity disorder (ADD)—inattention and impulsive behavior
   • autism—extreme withdrawal

4. Dissociative disorders: disorders in which severe emotional conflict is so repressed that split in personality occurs; include:
   • amnesia—loss of memory
   • multiple personality disorder—having two or more distinct personalities

5. Eating disorders: abnormal behaviors related to eating; include:
   • anorexia nervosa—refusal to eat
   • bulimia (boo-LIM-ee-ah)—binge eating and intentional vomiting

6. Fictitious disorders: intentionally feigning illness symptoms in order to gain attention; include:
   • malingering—pretending to be ill or injured

7. Impulse control disorders: inability to resist impulse to perform some act that is harmful to individual or others; include:
   • kleptomania—stealing
   • pyromania—setting fires
   • explosive disorder—violent rages
   • pathological gambling—ability to stop gambling

8. Mood disorders: instability in mood; include:
   • major depression with suicide potential
   • mania—extreme elation

TEACHING STRATEGIES

• Select two students to do 5-minute presentations of their Internet research in class.
• Write sentences on the board using common words; have students substitute correct medical terms.

Jeopardy Game

• Have students create questions for terms in this section for a Jeopardy game to be played in class—may be combined with Vocabulary, Diagnostic, and Therapeutic terms.

Pop Questions

• Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

LEARNING ACTIVITIES

Internet Research

• Have students select a specific pathology and use Internet resources to research its symptoms, diagnosis, and treatments.

Worksheet 14B

• Chapter Review

Text

• Practice Exercises
• Terminology Checklist

Student DVD-ROM

• Learning games
• flash cards

CW

• Practice questions
• New York Times link for research into specific pathologies

ASSESSMENTS

Quiz 14D—Chapter Review

Test Bank—questions
• bipolar disorder (BPD)—alternation between periods of deep depression and mania

9. Personality disorders: inflexible or maladaptive behavior patterns that affect person's ability to function in society; include:
   • paranoid personality disorder—exaggerated feelings of persecution
   • narcissistic personality disorder—abnormal sense of self-importance
   • antisocial personality disorder—behaviors that are against legal or social norms
   • passive aggressive personality—indirect expression of hostility or anger

10. Schizophrenia: disorders characterized by distortions of reality such as:
    • delusions—a false belief held even in the face of contrary evidence
    • hallucinations—perceiving something that is not there

11. Sexual disorders: disorders include aberrant sexual activity and sexual dysfunction; include:
    • pedophilia—sexual interest in children
    • masochism—gratification derived from being hurt or abused
    • voyeurism—gratification derived from observing others engaged in sexual acts

12. Sleeping disorders: disorders relating to sleeping; include:
    • insomnia—inability to sleep
    • sleepwalking—getting up and walking around unaware while sleeping

13. Somatoform disorders: physical symptoms for which no physical disease can be determined; include:
    • hypochondria—a preoccupation with health concerns
    • conversion reaction—anxiety is transformed into physical symptoms such as heart palpitations, paralysis, or blindness

14. Substance-related disorders: overindulgence or dependence on chemical substances including alcohol, illegal drugs, and prescription drugs

**OBJECTIVE 11**

Identify and define selected diagnostic procedures relating to the topics.

Text pages: 479–481; 497; PowerPoint slides: 86–98; 164

**LECTURE NOTES**

**Diagnostic Imaging Diagnostic Procedures**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>computed tomography scan (CT scan)</td>
<td>technique to produce cross-sectional view of body; X-rays taken at multiple angles through body; computer uses all images to construct composite cross-section</td>
</tr>
<tr>
<td>contrast studies</td>
<td>radiopaque substance injected or swallowed; X-rays taken that outline the body structure containing radiopaque substance; for example, angiograms and myelograms</td>
</tr>
</tbody>
</table>
Doppler ultrasonography  ultrasound to record velocity of blood flowing through blood vessels; used to detect blood clots and blood vessel obstructions

fluoroscopy  X-rays strike fluorescent screen rather than photographic plate, causing it to glow; glowing screen changes from minute to minute, therefore movement, such as heart beating or digestive tract moving, can be seen

magnetic resonance imaging (MRI)  use of electromagnetic energy to produce image of soft tissues in any plane of body; atoms behave differently when placed in strong magnetic field; body is exposed to magnetic field nuclei of the body's atoms emit radio-frequency signals that can be used to create image

nuclear medicine  radioactive substances to diagnose diseases; radioactive substance known to accumulate in certain body tissues is injected or inhaled; after waiting for substance to travel to body area of interest, radioactivity level is recorded; commonly called scan

positron emission tomography (PET)  image produced following injection of radioactive glucose; glucose accumulates in areas of high metabolic activity; process will highlight areas consuming large quantity of glucose; may show active area of brain or tumor

radiology  use of high-energy radiation, X-rays, to expose photographic plate; image is black-and-white picture with radiopaque structures such as bone appearing white and radiolucent tissue such as muscles appearing dark

ultrasound (US)  use of high-frequency sound waves to produce image; sound waves directed into body from transducer will bounce off internal structures and echo back to transducer; speed of echo is dependent on density of tissue; computer is able to correlate speed of echo with density and produce an image; used to visualize internal organs, heart valves, and fetuses

LEARNING ACTIVITIES

Worksheet 14B
• Chapter Review

Text
• Practice Exercises
• Terminology Checklist

Student DVD-ROM
• Learning games
• Flash cards

CW
• Practice questions
• New York Times link for research into specific diagnostic procedures

ASSESSMENTS

Quiz 14D—Chapter Review
Test Bank—questions
TABLE 14.4 Substances Used to Visualize Various Body Organs in Nuclear Medicine

<table>
<thead>
<tr>
<th>Organ</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>bone</td>
<td>technetium (99mTc) labeled phosphate</td>
</tr>
<tr>
<td>tumors</td>
<td>gallium (67Ga)</td>
</tr>
<tr>
<td>lungs</td>
<td>xenon (133Xe)</td>
</tr>
<tr>
<td>liver</td>
<td>technetium (99mTc) labeled sulfur</td>
</tr>
<tr>
<td>heart</td>
<td>thallium (201Tl)</td>
</tr>
<tr>
<td>thyroid</td>
<td>iodine (131I)</td>
</tr>
</tbody>
</table>

Oncology Diagnostic Procedures

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>biopsy (bx)</td>
<td>excision of small piece of tissue for microscopic examination to assist in diagnosis</td>
</tr>
<tr>
<td>cytologic testing</td>
<td>examination of cells to determine their structure and origin; Pap smears are form of cytologic testing</td>
</tr>
<tr>
<td>exploratory surgery</td>
<td>surgery performed to determine if cancer is present or if cancer has spread; biopsies are generally performed</td>
</tr>
<tr>
<td>staging laparotomy</td>
<td>surgical procedure in which abdomen is entered to determine extent and staging of tumor</td>
</tr>
</tbody>
</table>

OBJECTIVE 12
Identify and define selected therapeutic procedures relating to the topics.

Text pages: 475–476; 486–487; 497–498; PowerPoint slides: 72–74; 118–123; 165–166

LECTURE NOTES
Mental Health Therapeutic Procedures

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electroconvulsive therapy (ECT)</td>
<td>used for cases of prolonged major depression; treatment involves placement of electrode on one or both sides of patient’s head and current is turned on briefly causing convulsive seizure; low level of voltage is used in modern electroconvulsive therapy; and patient administered muscle relaxant and anesthesia; advocates state that it is more effective way to treat severe depression than using drugs; not effective with disorders other than depression, such as schizophrenia and alcoholism</td>
</tr>
</tbody>
</table>
Psychopharmacology is the study of effects of drugs on the mind and particularly the use of drugs in treating mental disorders. The main classes of drugs for the treatment of mental disorders are:

- **Antipsychotic drugs** includes chlorpromazine (Thorazine™), haloperidol (Haldol™), clozapine (Clozaril™), and risperidone. These drugs have transformed the treatment of patients with psychoses and schizophrenia by reducing agitation, panic, and shortening schizophrenic episodes. Side effects include involuntary muscle movements, which approximately one-fourth of all adults who take the drugs develop.

- **Antidepressant drugs** are stimulants that alter patient mood by affecting levels of neurotransmitters in the brain. Monoamine oxidase (MAO) inhibitors are nonaddictive but can produce unpleasant side effects such as dry mouth, weight gain, blurred vision, and nausea.

- **Minor tranquilizers** include Valium™ and Xanax™; these are central nervous system depressants and are prescribed for anxiety.

- **Lithium** is a special drug used successfully to calm patients who suffer from bipolar disorder (depression alternating with manic excitement).

Psychotherapy is a method of treating mental disorders by mental rather than chemical or physical means. It includes:

- **Psychoanalysis**—obtaining a detailed account of past and present emotional and mental experiences from the patient to determine the source of the problem and eliminate effects. It is a system developed by Sigmund Freud that encourages the patient to discuss repressed, painful, or hidden experiences with the hope of eliminating or minimizing the problem.

- **Humanistic psychotherapy**—does not delve into patients’ past when using these methods. It is believed that patients can learn how to use their own internal resources to deal with problems. The therapist creates a therapeutic atmosphere, which builds patient self-esteem and encourages discussion of problems, thereby gaining insight into how to handle them. It is also called client-centered or nondirective psychotherapy.

- **Family and group psychotherapy**—described as solution focused, the therapist places minimal emphasis on the patient past history and strong emphasis on having the patient state and discuss goals and find ways to achieve them.

**LEARNING ACTIVITIES**

- Worksheet 14B
  - Chapter Review
- Text
  - Practice Exercises
  - Terminology Checklist
- Student DVD-ROM
  - Learning games
  - Flash cards
- CW
  - Practice questions
  - *New York Times* link for research into specific treatment procedures

**ASSESSMENTS**

- Quiz 14D—Chapter Review
- Test Bank—questions
## Rehabilitation Services Therapeutic Procedures

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>active exercises</td>
<td>exercises patient performs without assistance</td>
</tr>
<tr>
<td>active range of motion</td>
<td>range of motion for joints patient is able to perform without assistance from someone else</td>
</tr>
<tr>
<td>(AROM)</td>
<td></td>
</tr>
<tr>
<td>active-resistive exercises</td>
<td>exercises in which patient works against resistance applied to muscle, such as weight; used to increase strength</td>
</tr>
<tr>
<td>cryotherapy</td>
<td>using cold for therapeutic purposes</td>
</tr>
<tr>
<td>debridement</td>
<td>removal of dead or damaged tissue from wound; commonly performed for burn therapy</td>
</tr>
<tr>
<td>electromyogram (EMG)</td>
<td>graphic recording of contraction of muscle; result of applying electrical stimulation to muscle</td>
</tr>
<tr>
<td>gait training</td>
<td>assisting patient to learn to walk again or how to use assistive device to walk</td>
</tr>
<tr>
<td>hydrotherapy</td>
<td>application of warm water as therapeutic treatment; can be done in baths, swimming pools, and whirlpools</td>
</tr>
<tr>
<td>massage</td>
<td>kneading or applying pressure by hands to part of patient's body; promotes muscle relaxation and reduces tension</td>
</tr>
<tr>
<td>mobilization</td>
<td>treatments such as exercise and massage to restore movement to joints and soft tissue</td>
</tr>
<tr>
<td>moist hot packs</td>
<td>applying moist warmth to body part; produces slight dilation of blood vessels in skin; causes muscle relaxation in deeper regions of body and increases circulation, which aids healing</td>
</tr>
<tr>
<td>nerve conduction velocity</td>
<td>determines if nerves have been damaged by recording rate at which electrical impulse travels along nerve; if nerve is damaged, velocity will be decreased</td>
</tr>
<tr>
<td>pain control</td>
<td>managing pain through variety of means, including medications, biofeedback, and mechanical devices</td>
</tr>
<tr>
<td>passive range of motion</td>
<td>therapist putting patient's joints through available range of motion without assistance from patient</td>
</tr>
<tr>
<td>(PROM)</td>
<td></td>
</tr>
<tr>
<td>phonophoresis</td>
<td>use of ultrasound waves to introduce medication across skin and into subcutaneous tissues</td>
</tr>
</tbody>
</table>
postural drainage with clapping

- draining secretions from bronchi or lung cavity by having patient lie so that gravity allows drainage to occur; clapping is using hand in cupped position to perform percussion on chest; assists in loosening secretions and mucus

therapeutic exercise

- exercise to achieve specific physical benefit, such as improved range of motion, muscle strength, or cardiovascular function

thermotherapy

- applying heat to body for therapeutic purposes

traction

- process of pulling or drawing, usually with mechanical device; used in treating orthopedic (bone and joint) problems and injuries

transcutaneous electrical nerve stimulation (TENS)

- application of electric current to peripheral nerve to relieve pain

ultrasound (US)

- use of high-frequency sound waves to create heat in soft tissues under skin; particularly useful for treating injuries to muscles, tendons, and ligaments, as well as muscle spasms.

whirlpool

- bath with continuous jets of hot water reaching body surfaces

### Oncology Therapeutic Procedures

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>chemotherapy</td>
<td>treating disease using chemicals that have toxic effect on body, especially cancerous tissue</td>
</tr>
<tr>
<td>(chemo)</td>
<td></td>
</tr>
<tr>
<td>hormone therapy</td>
<td>treatment of cancer with natural hormones or with chemicals that produce hormone-like effects</td>
</tr>
<tr>
<td>immunotherapy</td>
<td>strengthening immune system to attack cancerous cells</td>
</tr>
<tr>
<td>palliative therapy</td>
<td>treatment designed to reduce intensity of painful symptoms, but does not produce cure</td>
</tr>
<tr>
<td>radiation therapy</td>
<td>exposing tumors and surrounding tissues to X-rays or gamma rays to interfere with ability to multiply</td>
</tr>
<tr>
<td>radical surgery</td>
<td>extensive surgery to remove as much tissue associated with tumor as possible</td>
</tr>
<tr>
<td>radioactive implant</td>
<td>embedding radioactive source directly into tissue to provide highly localized radiation dosage to damage nearby cancerous cells; also called brachytherapy</td>
</tr>
</tbody>
</table>
OBJECTIVE 13
Define selected abbreviations associated with the topics.

LECTURE NOTES
Pharmacology Abbreviations

@ at
ac before meals
ad lib as desired
ante before
APAP acetaminophen (Tylenol™)
aq aqueous (water)
ASA aspirin
bid twice a day
τ with
capsule(s)
cubic centimeter
d day
d/c, DISC discontinue
DC, disc discontinue
DEA Drug Enforcement Agency
dil dilute
disp dispense
dtd give of such a dose
Dx diagnosis
et and
FDA Federal Drug Administration
gm gram
grain
gr drop
gtt drops
hs at bedtime
† one
ID intradermal
‖ two
+++ three
IM intramuscular
inj injection
IU international unit
IV intravenous
kg kilogram
L liter
mcg microgram
mEq milliequivalent
mg milligram
mL milliliter
noc night
no sub no substitute
non rep do not repeat
NPO nothing by mouth
NS normal saline
od overdose
ointment

TEACHING STRATEGIES
• Emphasize the importance of learning abbreviations and their full meanings; point out how some abbreviations, such as ad lib, STAT, bid, and NPO are typically used rather than full terms.
• Encourage students to add abbreviations to their flash cards.
• Write sentences on the board using common words; have students substitute correct abbreviations.

Memory Game
• Have students assist in creating a memory game to be played in class.

Pop Questions
• Use Clicker questions as either a pretest or posttest quiz to gauge student comprehension during lecture.

LEARNING ACTIVITIES
Worksheet 14B
• Chapter Review

Quiz 14C
• May be used as a worksheet

Text
• Practice Exercises

Student DVD-ROM
• Learning games
• Flash cards

CW
• Practice questions

ASSESSMENTS
Quiz 14C—Abbreviations Quiz
Quiz 14D—Chapter Review
Test Bank—questions
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTC</td>
<td>over the counter</td>
</tr>
<tr>
<td>oz</td>
<td>ounce</td>
</tr>
<tr>
<td>p</td>
<td>after</td>
</tr>
<tr>
<td>pc</td>
<td>after meals</td>
</tr>
<tr>
<td>PCA</td>
<td>patient-controlled administration</td>
</tr>
<tr>
<td>PDR</td>
<td>Physician's Desk Reference</td>
</tr>
<tr>
<td>per</td>
<td>with</td>
</tr>
<tr>
<td>po</td>
<td>by mouth</td>
</tr>
<tr>
<td>prn</td>
<td>as needed</td>
</tr>
<tr>
<td>pt</td>
<td>patient</td>
</tr>
<tr>
<td>q</td>
<td>every</td>
</tr>
<tr>
<td>qam</td>
<td>every morning</td>
</tr>
<tr>
<td>qd</td>
<td>once a day/every day</td>
</tr>
<tr>
<td>qh</td>
<td>every hour</td>
</tr>
<tr>
<td>qhs</td>
<td>at bedtime</td>
</tr>
<tr>
<td>qid</td>
<td>four times a day</td>
</tr>
<tr>
<td>qod</td>
<td>every other day</td>
</tr>
<tr>
<td>qs</td>
<td>quantity sufficient</td>
</tr>
<tr>
<td>Rx</td>
<td>take</td>
</tr>
<tr>
<td>s</td>
<td>without</td>
</tr>
<tr>
<td>SC</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>Sig</td>
<td>label as follows/directions</td>
</tr>
<tr>
<td>sl</td>
<td>under the tongue</td>
</tr>
<tr>
<td>sol</td>
<td>solution</td>
</tr>
<tr>
<td>ss</td>
<td>one-half</td>
</tr>
<tr>
<td>stat</td>
<td>at once/immediately</td>
</tr>
<tr>
<td>Subc, SubQ</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>suppos, supp.</td>
<td>suppository</td>
</tr>
<tr>
<td>susp</td>
<td>suspension</td>
</tr>
<tr>
<td>syr</td>
<td>syrup</td>
</tr>
<tr>
<td>T, tbsp</td>
<td>tablespoon</td>
</tr>
<tr>
<td>t, tsp</td>
<td>teaspoon</td>
</tr>
<tr>
<td>tab</td>
<td>tablet</td>
</tr>
<tr>
<td>tid</td>
<td>three times a day</td>
</tr>
<tr>
<td>TO</td>
<td>telephone order</td>
</tr>
<tr>
<td>top</td>
<td>apply topically</td>
</tr>
<tr>
<td>u</td>
<td>unit</td>
</tr>
<tr>
<td>VO</td>
<td>verbal order</td>
</tr>
<tr>
<td>wt</td>
<td>weight</td>
</tr>
<tr>
<td>x</td>
<td>times</td>
</tr>
</tbody>
</table>

**Mental Health Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>Alzheimer's disease</td>
</tr>
<tr>
<td>ADD</td>
<td>attention-deficit disorder</td>
</tr>
<tr>
<td>ADHD</td>
<td>attention-deficit/hyperactivity disorder</td>
</tr>
<tr>
<td>BPD</td>
<td>bipolar disorder</td>
</tr>
<tr>
<td>CA</td>
<td>chronological age</td>
</tr>
<tr>
<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
</tr>
<tr>
<td>ECT</td>
<td>electroconvulsive therapy</td>
</tr>
<tr>
<td>MA</td>
<td>mental age</td>
</tr>
<tr>
<td>MAO</td>
<td>monoamine oxidase</td>
</tr>
<tr>
<td>MMPI</td>
<td>Minnesota Multiphasic Personality Inventory</td>
</tr>
<tr>
<td>OCD</td>
<td>obsessive-compulsive disorder</td>
</tr>
<tr>
<td>SAD</td>
<td>seasonal affective disorder</td>
</tr>
</tbody>
</table>
### Diagnostic Imaging Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$^{67}$Ga</td>
<td>radioactive gallium</td>
</tr>
<tr>
<td>$^{99m}$Tc</td>
<td>radioactive technetium</td>
</tr>
<tr>
<td>$^{131}$I</td>
<td>radioactive iodine</td>
</tr>
<tr>
<td>$^{201}$TI</td>
<td>radioactive thallium</td>
</tr>
<tr>
<td>$^{133}$Xe</td>
<td>radioactive xenon</td>
</tr>
<tr>
<td>Angio</td>
<td>angiography</td>
</tr>
<tr>
<td>AP</td>
<td>anteroposterior</td>
</tr>
<tr>
<td>Ba</td>
<td>barium</td>
</tr>
<tr>
<td>BaE</td>
<td>barium enema</td>
</tr>
<tr>
<td>CAT</td>
<td>computerized axial tomography</td>
</tr>
<tr>
<td>CT</td>
<td>computed tomography</td>
</tr>
<tr>
<td>CXR</td>
<td>chest X-ray</td>
</tr>
<tr>
<td>decub</td>
<td>lying down</td>
</tr>
<tr>
<td>DI</td>
<td>diagnostic imaging</td>
</tr>
<tr>
<td>DSA</td>
<td>digital subtraction angiography</td>
</tr>
<tr>
<td>ERCP</td>
<td>endoscopic retrograde cholangiopancreatography</td>
</tr>
<tr>
<td>Fx</td>
<td>fracture</td>
</tr>
<tr>
<td>GB</td>
<td>gallbladder X-ray</td>
</tr>
<tr>
<td>IVC</td>
<td>intravenous cholangiogram</td>
</tr>
<tr>
<td>IVP</td>
<td>intravenous pyelogram</td>
</tr>
<tr>
<td>KUB</td>
<td>kidneys, ureters, bladder</td>
</tr>
<tr>
<td>LAT</td>
<td>lateral</td>
</tr>
<tr>
<td>LGI</td>
<td>lower gastrointestinal series</td>
</tr>
<tr>
<td>LL</td>
<td>left lateral</td>
</tr>
<tr>
<td>MRA</td>
<td>magnetic resonance angiography</td>
</tr>
<tr>
<td>MRI</td>
<td>magnetic resonance imaging</td>
</tr>
<tr>
<td>NMR</td>
<td>nuclear magnetic resonance</td>
</tr>
<tr>
<td>PA</td>
<td>posteroanterior</td>
</tr>
<tr>
<td>PET</td>
<td>positron emission tomography</td>
</tr>
<tr>
<td>PTC</td>
<td>percutaneous transhepatic cholangiography</td>
</tr>
<tr>
<td>R</td>
<td>roentgen</td>
</tr>
<tr>
<td>Ra</td>
<td>radium</td>
</tr>
<tr>
<td>rad</td>
<td>radiation absorbed dose</td>
</tr>
<tr>
<td>RL</td>
<td>right lateral</td>
</tr>
<tr>
<td>RRT</td>
<td>registered radiologic technologist</td>
</tr>
<tr>
<td>UGI</td>
<td>upper gastrointestinal series</td>
</tr>
<tr>
<td>US</td>
<td>ultrasound</td>
</tr>
</tbody>
</table>

### Rehabilitation Services Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADL</td>
<td>activities of daily living</td>
</tr>
<tr>
<td>AAROM</td>
<td>active assistive range of motion</td>
</tr>
<tr>
<td>AROM</td>
<td>active range of motion</td>
</tr>
<tr>
<td>EMG</td>
<td>electromyogram</td>
</tr>
<tr>
<td>e-stim</td>
<td>electrical stimulation</td>
</tr>
<tr>
<td>LE</td>
<td>lower extremity</td>
</tr>
<tr>
<td>OT</td>
<td>occupational therapy</td>
</tr>
<tr>
<td>PROM</td>
<td>passive range of motion</td>
</tr>
<tr>
<td>PT</td>
<td>physical therapy</td>
</tr>
<tr>
<td>ROM</td>
<td>range of motion</td>
</tr>
<tr>
<td>TENS</td>
<td>transcutaneous electrical stimulation</td>
</tr>
<tr>
<td>UE</td>
<td>upper extremity</td>
</tr>
<tr>
<td>US</td>
<td>ultrasound</td>
</tr>
</tbody>
</table>
Surgical Abbreviations

D & C  dilation and curettage
Endo  endoscopy
EUA  exam under anesthesia
GA  general anesthesia
I & D  incision and drainage
MUA  manipulation under anesthesia
OR  operating room
PARR  postanesthetic recovery room
preop, pre-op  preoperative
prep  preparation, prepared
T & A  tonsillectomy and adenoidectomy
TAH  total abdominal hysterectomy
TURP  transurethral resection of prostate

Oncology Abbreviations

bx  biopsy
Ca  cancer
chemo  chemotherapy
CIS  carcinoma in situ
5-FU  5-fluorouracil
GA  gallium
mets  metastases
MTX  methotrexate
prot  protocol
st  stage
TNM  tumor, nodes, metastases
### Worksheet 14A

**New Combining Form and Suffix Handout**

Directions: For each combining form below, write out its meaning and then locate a new term from the chapter that uses the combining form or suffix.

<table>
<thead>
<tr>
<th>Combining Forms</th>
<th>Meaning</th>
<th>Chapter Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. aer/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>2. bucc/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>3. chem/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>4. cutane/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>5. derm/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>6. lingu/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>7. muscul/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>8. or/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>9. pharmac/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>10. rect/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>11. toxic/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>12. vagin/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>13. ven/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>14. anxi/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>15. ment/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>16. phren/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>17. psych/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>18. schiz/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>19. somat/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>20. somn/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>21. fluor/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>22. radi/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>23. roentgen/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
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</tbody>
</table>

*(Continued)*
<table>
<thead>
<tr>
<th>Combining Forms</th>
<th>Meaning</th>
<th>Chapter Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. son/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>25. tom/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>26. cry/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>27. electr/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>28. erg/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>29. hydr/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>30. my/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>31. orth/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>32. phon/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>33. prosth/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>34. therm/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>35. cis/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>36. cry/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>37. esthesi/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>38. sect/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>39. blast/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>40. carcin/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>41. mut/a</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>42. onc/o</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>43. tox/o</td>
<td>_______</td>
<td>_______</td>
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</table>

**Suffixes**

<table>
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<th>Meaning</th>
<th>Chapter Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. -iatrist</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>45. -mania</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>46. -philia</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>47. -phobia</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>48. -lucent</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
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</table>

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<table>
<thead>
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<th>Meaning</th>
<th>Chapter Term</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>49. -opaque</td>
<td>_________</td>
<td>_________</td>
<td>_________</td>
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<tr>
<td>50. -phoresis</td>
<td>_________</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>51. -therapy</td>
<td>_________</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>52. -plasia</td>
<td>_________</td>
<td>_________</td>
<td>_________</td>
</tr>
<tr>
<td>53. -plasm</td>
<td>_________</td>
<td>_________</td>
<td>_________</td>
</tr>
</tbody>
</table>
Worksheet 14B
Chapter Review

Fill-in-the-Blank

1. A medicine's _______________ name describes the molecular structure of the drug.

2. Intramuscular and intravenous are examples of _______________ route of drug administration.

3. A _________________, though not a physician, is a specialist in evaluating and treating persons with mental and emotional disorders.

4. _________________ is a special category of drugs used to treat persons with bipolar disorder.

5. A _________________ is the radioactive form of an element.

6. _________________ records the velocity of blood flowing through blood vessels to detect blood clots.

7. Phonophoresis uses _________________ to introduce medication across the skin and into subcutaneous tissues.

8. Gross motor skills is the use of _________________ muscle groups to coordinate body movements.

9. _________________ anesthesia is also referred to as a nerve block.

10. The _________________ position is sitting with back positioned at a 45-degree angle.

11. A _________________ tumor is not progressive or recurring.

12. A _________________ is the actual plan of care for a patient.

(Continued)
Matching

____  1. topical  a. at bedtime
____  2. proprietary name  b. medication to produce loss of sensation
____  3. habituation  c. somatoform disorder
____  4. hs  d. stopping the flow of blood
____  5. panic attack  e. progressive confusion and disorientation
____  6. hypochondria  f. twice a day
____  7. mania  g. manner of walking
____  8. dementia  h. trademark
____  9. barium  i. method of staging tumors
____ 10. PET  j. produces cross-section view of body
____ 11. radiolucent  k. artificial device to replace missing body part
____ 12. CT scan  l. number of sick persons in a population
____ 13. ergonomics  m. extreme elation
____ 14. gait  n. suctions fluid
____ 15. prosthetics  o. applied directly to the skin
____ 16. thermotherapy  p. return of disease symptoms
____ 17. hemostasis  q. excessive development
____ 18. resection  r. allows X-rays to pass through
____ 19. anesthetic  s. an emotional dependence on a drug
____ 20. aspirator  t. use of heat
____ 21. TNM  u. study of human work
____ 22. hyperplasia  v. an anxiety disorder
____ 23. morbidity  w. uses radioactive glucose
____ 24. relapse  x. to surgically cut out
____ 25. bid  y. used as an X-ray dye
Quiz 14A

New Word Parts Quiz

Directions: Define the combining form or suffix in the spaces provided.

1. aer/o
2. chem/o
3. toxic/o
4. pharmac/o
5. phren/o
6. schiz/o
7. somn/o
8. fluor/o
9. roentgen/o
10. son/o
11. cry/o
12. therm/o
13. erg/o
14. cis/o
15. electr/o
16. esthesi/o
17. derm/o
18. blast/o
19. carcin/o
20. onc/o
21. mut/a
22. -mania
23. -lucent
24. -phoresis
25. -plasia
Quiz 14B
Spelling Quiz

Directions: Write each term as your instructor pronounces it.

1. ____________________________________________________________________
2. ____________________________________________________________________
3. ____________________________________________________________________
4. ____________________________________________________________________
5. ____________________________________________________________________
6. ____________________________________________________________________
7. ____________________________________________________________________
8. ____________________________________________________________________
9. ____________________________________________________________________
10. ____________________________________________________________________
11. ____________________________________________________________________
12. ____________________________________________________________________
13. ____________________________________________________________________
14. ____________________________________________________________________
15. ____________________________________________________________________
16. ____________________________________________________________________
17. ____________________________________________________________________
18. ____________________________________________________________________
19. ____________________________________________________________________
20. ____________________________________________________________________
Quiz 14C

Abbreviations Quiz

Directions: Write the medical term for which each abbreviation stands.

1. ac

2. Dx

3. IM

4. prn

5. VO

6. ADD

7. BPD

8. ECT

9. OCD

10. BaE

11. Fx

12. CXR

13. MRI

14. ADL

15. PROM

16. UE

17. US

18. GA

19. OR

20. IV

21. q

22. bx

23. mets

24. TNM

25. Ca
Quiz 14D
Chapter Review

PART I: Multiple Choice

Directions: Circle the correct answer.

1. The drug name that means the same thing as generic name is
   a. brand name.
   b. chemical name.
   c. nonproprietary name.
   d. trade name.

2. Prescribing a drug to prevent a disease or condition from occurring is called
   a. a unit dose.
   b. prophylaxis.
   c. placebo.
   d. chemotherapeutic.

3. Amnesia and multiple personality disorder are examples of
   a. anxiety disorders.
   b. impulse disorders.
   c. mood disorders.
   d. dissociative disorders.

4. Which is NOT a method of treating mental disorders?
   a. psychopharmacology
   b. electroconvulsive therapy
   c. psychotherapy
   d. phrenology

5. Absorption of radioactive material and medicines into an organ or tissue is called
   a. radium therapy.
   b. roentgen ray.
   c. tagging.
   d. uptake.

6. The process that uses radioactive glucose to measure metabolic activity in the brain is known as
   a. CT scanning.
   b. MRI.
   c. PET scanning.
   d. sonography.

7. The use of ultrasound waves to introduce medication through the skin and into subcutaneous tissue is
   a. thermotherapy.
   b. phonophoresis.
   c. TENS.
   d. cryotherapy.

8. A test to determine if nerves have been damaged is
   a. electromyogram.
   b. transcutaneous electrical stimulation.
   c. phonophoresis.
   d. nerve conduction velocity.

9. Using heat, cold, electricity, or chemicals to scar, burn, or cut tissues is called
   a. cryogenics.
   b. dessication.
   c. curettage.
   d. cauterization.

10. A surgical instrument used to grasp tissue is a(n)
    a. curette.
    b. forceps.
    c. aspirator.
    d. scalpel.

(Continued)
11. Treatment designed to reduce the intensity of painful symptoms but doesn't produce a cure is
   a. cryosurgery.
   b. palliative.
   c. protocol.
   d. immunotherapy.

12. Movement and spread of cancer cells from one part of the body to another is known as
   a. metastasis.
   b. dysplasia.
   c. oncogenic.
   d. neoplasm.

PART II: Matching

Directions: Match the term with its definition.

____  1. side effect  a. process of making X-rays
____  2. buccal  b. pretending to be ill
____  3. malingering  c. to cut out
____  4. explosive disorder  d. uses radiopaque dye
____  5. radiography  e. uses continuous jets of warm water
____  6. contrast studies  f. uses extreme cold
____  7. orthotics  g. adverse reaction
____  8. whirlpool  h. where tumor first appears
____  9. cryosurgery  i. in the cheek
____ 10. resection  j. cancer causing
____ 11. primary site  k. violent rages
____ 12. oncogenic  l. splints and braces

PART III: Abbreviations

Directions: Write the full meaning of the following abbreviations.

1. NPO ________________________________________________________________________________
2. SAD _______________________________________________________________________________
3. AP __________________________________________________________________________________
4. ROM ________________________________________________________________________________
5. pre-op _______________________________________________________________________________
6. bx ___________________________________________________________________________________
Chapter 14 Answer Keys

Worksheet 14A Answer Key

Word Roots

1. air  
2. check  
3. drug  
4. skin  
5. skin  
6. tongue  
7. muscle  
8. mouth  
9. drug  
10. rectum  
11. poison  
12. vagina  
13. vein  
14. anxiety  
15. mind  
16. mind  
17. mind  
18. divided  
19. body  
20. sleep  
21. fluorescence, luminous  
22. X-ray  
23. X-ray  
24. sound  
25. to cut  
26. cold  
27. electric current  
28. work  
29. water  
30. muscle  
31. straight, correct  
32. sound  
33. addition  
34. heat  
35. to cut  
36. cold  
37. sensation, feeling  
38. cut  
39. primitive cell  
40. cancerous  
41. genetic change, mutation  
42. tumor  
43. poison  
44. physician  
45. excessive preoccupation  
46. affinity for, craving for  
47. irrational fear  
48. to shine through  
49. nontransparent  
50. carrying  
51. treatment  
52. growth, formation  
53. growth, formation  

Suffixes

Worksheet 14B Answer Key

Fill-in-the-Blank

1. chemical  
2. parenteral  
3. clinical psychologist  
4. lithium  
5. radioisotope  
6. Doppler ultrasonography  
7. ultrasound  
8. large  
9. regional  
10. Fowler  
11. benign  
12. protocol
Matching

1. o 14. g
2. h 15. k
3. s 16. t
4. a 17. d
5. v 18. x
6. c 19. b
7. m 20. n
8. e 21. i
9. y 22. q
10. w 23. l
11. r 24. p
12. j 25. f
13. u

Quiz 14A Answer Key

1. air 14. to cut
2. drug 15. electricity
3. poison 16. sensation, feeling
4. drug 17. skin
5. mind 18. primitive cell
6. divided 19. cancerous
7. sleep 20. tumor
8. fluorescence, luminous 21. genetic change, mutation
9. X-ray 22. excessive preoccupation
10. sound 23. to shine through
11. cold 24. carrying
12. heat 25. growth, formation
13. work

Quiz 14B Answer Key

1. proprietary 11. ergonomics
2. iatrogenic 12. debridement
3. prophylaxis 13. electromyogram
4. idiosyncrasy 14. phonophoresis
5. psychopharmacology 15. anesthesiologist
6. kleptomania 16. curette
7. hypochondria 17. cauterization
8. posteroanterior 18. metastasis
9. fluoroscopy 19. protocol
10. tomography 20. palliative

Quiz 14C Answer Key

1. before meals 5. verbal order
2. diagnosis 6. attention-deficit disorder
3. intramuscular 7. bipolar disorder
4. as needed 8. electroconvulsive therapy
<table>
<thead>
<tr>
<th>Quiz 14D Answer Key</th>
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<tbody>
<tr>
<td><strong>Multiple Choice</strong></td>
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<td>1. C</td>
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<tr>
<td>2. B</td>
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<tr>
<td>3. D</td>
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<tr>
<td>5. D</td>
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<td>6. C</td>
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</tbody>
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<th><strong>Matching</strong></th>
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<td>1. g</td>
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<th><strong>Abbreviations</strong></th>
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<tr>
<td>1. nothing by mouth</td>
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<td>2. seasonal affective disorder</td>
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<td>3. anteroposterior</td>
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