LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

SCOPE OF UNIT:

This unit includes body systems, drug classifications, and problems of observation.

INFORMATION TOPIC: III-8 OR DEMONSTRATION:

BODY SYSTEMS, DISEASE PROCESS, AND TREATMENTS
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Identify the four main parts of the basic body structure.
2. Compare normal versus abnormal changes of aging.
3. Identify special healthcare risks for ill older adults.
4. Identify the eleven body systems.
5. Identify the organs and functions of each body system.
6. List commonly seen diseases and conditions and the medications used to treat them.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Skeletorso.
2. Anatomical wall charts.
3. HO 19: Stages of Pressure Ulcers.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 8 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

A basic knowledge of the structures and functions of the body systems will assist you in recognizing deviations from the normal. This is especially critical as a foundation for observing the individual's response to medications prescribed. In this lesson, we will examine each system, its structures, functions, and related health problems common in long-term care.

LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

OUTLINE:

I. Body Plan

A. Cells – cells are the basic unit of all living things. The human body is made up of trillions of cells. There are many different types of cells; each has a special function.

B. Tissues – groups of similar cells combine to form tissues.

C. Organs – a group of tissues that perform a single function make up organs.

D. Systems – a group of organs working together with a specific function make up a body system.

Cells → Tissues → Organs → Body Systems.

II. Changes in "Normal" Older Adults That Affect Drug Effectiveness

A. Changes affecting absorption of drugs – drugs are not absorbed from the GI tract as easily.

1. Poor musculature results in decreased peristalsis.

2. Blood supply to GI tract decreases.

3. Number of absorbing cells in the stomach decreases.

4. Slower emptying of the stomach.

B. Changes affecting the distribution of drugs.

1. Decrease in total body water.

2. Decrease in lean body mass; increased fat.

3. Lowered cardiac output.

C. Changes affecting metabolism of drugs – usually slower or impaired metabolism of drugs.

1. Decrease in liver function which normally detoxifies the body.

2. Decrease in effectiveness of kidney function.

3. Increased risk of drug toxicity.

D. Changes affecting the elimination of drugs – causes drugs to be eliminated more slowly.

1. Reduced filtration by kidneys – 30% reduction by age 65.

2. Increased renal dehydration.

3. Decreased number of kidney cells – 40% less by age 75.

III. Special Risks of Ill Older Adults

A. Existence of one or more chronic medical conditions.

B. Greater likelihood of serious drug side effects.

C. Drug interactions.

IV. Musculoskeletal System

A. Structures.

1. Skeletal muscles – muscle connected to bone (see Figure 8.1).

2. Bones – dense solid connective tissue (see Figure 8.2).

Figure 8.1
Skeletal Muscles

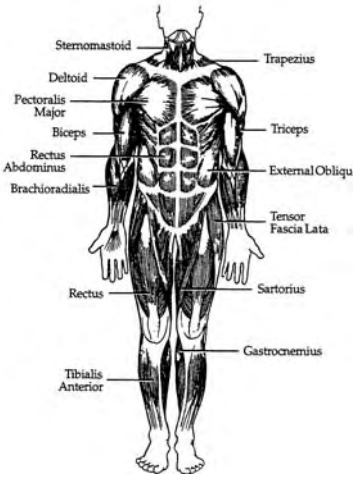
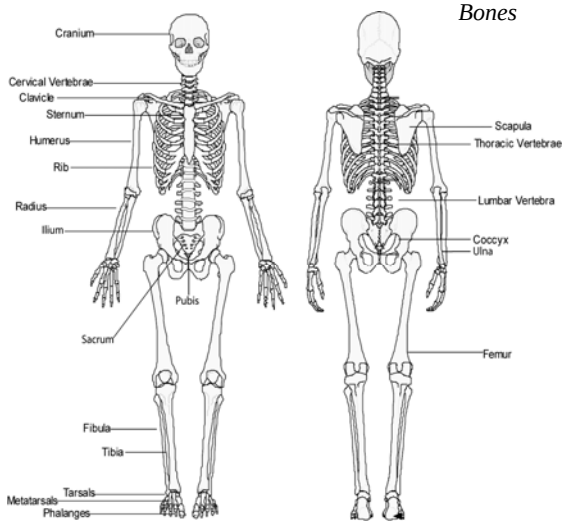


Figure 8.2
Bones



3. Joints – point of juncture between two bones.

a. Movable (see next page Figure 8.3).

1) Pivot (e.g., wrist).

2). Ball and socket (e.g., shoulder or hip).

3) Gliding (e.g., vertebrae).

4) Hinge (e.g., elbow or knee).

i. Immovable – suture lines in the skull (see Figure 8.4).

ii. Partially movable – ribs at the spine (see Figure 8.5).

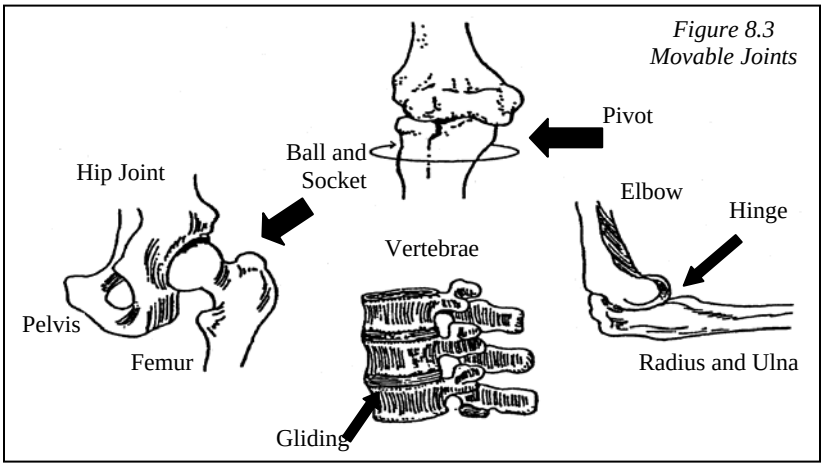


Figure 8.3
Movable Joints

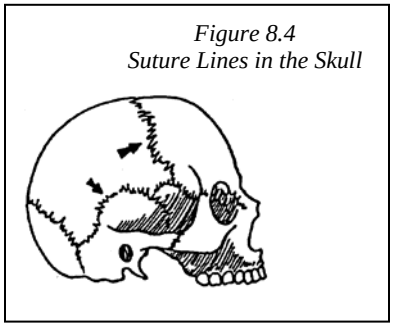


Figure 8.4
Suture Lines in the Skull

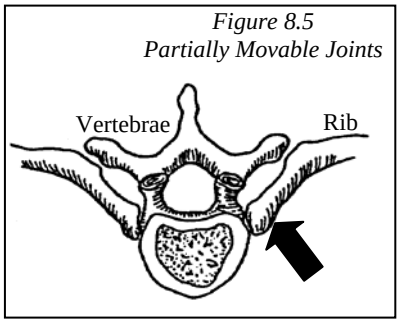


Figure 8.5
Partially Movable Joints

4. Additional structures include:

a. Tendons – bands of fibrous connective tissue that attach a muscle to a bone.

b. Ligaments – connect bone to bone.

c. Cartilage – connective tissue found in the joints.

B. Functions.

1. Skeleton – the skeleton contains 206 bones and provides:

a. Support.

b. Protection.

c. Leverage.

d. Production of blood cells.

e. Calcium storage.

2. Muscles.

a. Movement.

b. Heat production.

c. Posture.

d. Protection.

C. Age related changes affecting the musculoskeletal system.

1. Muscular weakness and atrophy.

2. Loss of height due to thinning of vertebrae and intervertebral disks.

3. Stiffening and degeneration of the joints.

4. Decrease in bone density due to reabsorption of calcium.

5. Slumped posture due to spine deterioration.

6. Loss of cartilage.

D. Diseases and conditions affecting the Musculoskeletal System.

1. Fractures are a break in the bone due to trauma/injury or spontaneously from diseases like osteoporosis (pathological fractures). Hip fractures, which are common in the elderly, normally require surgical treatment. Compression fractures, fractures of vertebra from pressure, require stabilization of the spinal column and rest to allow healing.

a. Medications used to treat fractures include narcotic analgesics such as Vicodin, OxyContin.

2. Arthritis.

a. Osteoarthritis – the most common form of arthritis is also called degenerative joint disease (DJD). Osteoarthritis is a chronic and progressive condition causing deterioration of the joint cartilage and formation of reactive new bone. Heberden's nodes, abnormal cartilaginous enlargement of the knuckles is commonly seen when

the hands are involved. The hips and knees are the most commonly affected joints.

1) Medications used to treat osteoarthritis include non-steroidal anti-inflammatory drugs (NSAIDS) such as Motrin, non narcotic analgesics such as aspirin or Tylenol, and COX-2 inhibitors such as Celebrex. Corticosteroids such as Hydrocortisone and hyaluronic acid derivatives such as Hyalgan may be injected directly into the affected joints.

b. Rheumatoid arthritis – a chronic destructive inflammation of the joints and related structures that may result in deformities. Rheumatoid arthritis usually first appears in middle age and is more common in women. It is considered to have an autoimmune component. Rheumatoid arthritis can be treated with many of the same drugs used to treat osteoarthritis as well as gold compounds and drugs such as Remicade and Enbrel which reduce joint and tissue inflammation, pain and swelling, but whose mechanism of action is not known.

c. Gout – a metabolic disease that results in an increased production or decreased excretion of uric acid. The excess uric acid is converted into crystals that become deposited in joints and other tissues. It is more commonly seen in men than in women. The big toe and foot are most commonly affected. Anti-gout drugs include Benemid and Zyploprim which decrease uric acid levels.

3. Osteoporosis – a disorder characterized by loss of bone mass in which bone becomes “spongy” or “honeycomb” in appearance. It is more common in sedentary or immobilized individuals, patients on long term steroid therapy and post-menopausal females due to decreased estrogen production. Osteoporosis increases the risk of fractures and can cause compression of the chest cavity, low back pain, loss of stature and other deformities.

a. Medications include calcium supplements such as Oscal or Tums, Vitamin D, drugs that inhibit bone resorption such as Miacalcin and Fosamax and estrogen replacements/receptor modulators such as Premarin and Evista.

4. Sprains, strains and "pulled muscles" are acute conditions treated with rest and physical therapy. Medications used include analgesics, anti-inflammatory drugs, and skeletal muscle relaxants such as Paraflex or Robaxin.

V. Nervous System

A. Structures (see next page Figure 8.6).

1. Brain – large mass of nerve tissue that regulates and coordinates all body activity. The brain is divided into lobes which control special functions such as speech, hearing, sight, movement, memory, etc.

2. Spinal cord – cord of nerve tissue; extends from lower brain to lower back.

3. Nerves – carry electrical messages to and from different parts of the body.

NOTE: The brain and the spinal cord make up the *Central Nervous System* (CNS) and the cranial and spinal nerves make up the *Peripheral Nervous System* (PNS).

B. Functions.

1. Controls and coordinates body activities.

C. Age related changes affecting the nervous system.

1. Nerve transmission time slows resulting in a slower reaction time.

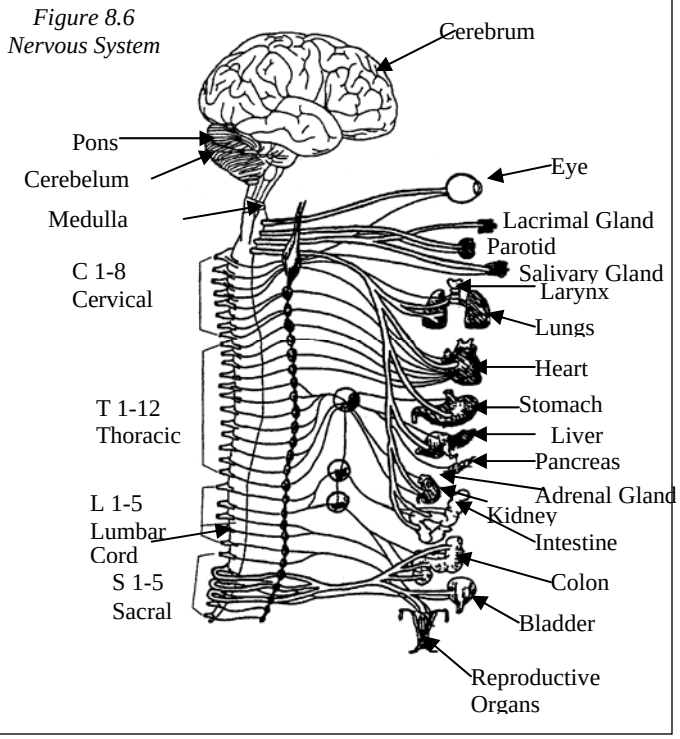
2. Minimal shrinking of the brain that does not affect ADLs.

3. Temperature control center of the brain (hypothalamus) becomes less effective at regulating body temperature.

4. Pain threshold increases.

5. Change in sleep patterns that result in frequent awakening.

Figure 8.6
Nervous System



D. Diseases and conditions affecting the nervous system.

1. Alzheimer's disease – a chronic disorder involving alterations in the number, structure and function of neurons in certain areas of the cerebral cortex. It is characterized by confusion, memory loss, restlessness, and speech disorders. It affects more females than males with usual onset after age 65.

a. Treatment is aimed at slowing the progression of the disease. Current treatments do not "cure" the disease. Medications include Memantine, Aricept, Exelon, and Reminyl.

2. A cerebral vascular accident (CVA) – also known as "stroke," is caused by hemorrhage, thrombus (clot), or other occlusion (blockages) in the blood vessels of the brain. Symptoms include headache, vomiting, disorientation, slurred speech, mouth drooping, unequal pupils. A CVA may result in unconsciousness, loss of cognitive functioning, and/or paralysis. Medications include anti-coagulants such as Coumadin or aspirin, and anti-hypertensives such as hydrochlorothiazide.

3. Amyotrophic lateral sclerosis (ALS) – also known as "Lou Gehrig's disease." ALS is a muscular weakness and atrophy due to degeneration of motor neurons of spinal cord, medulla, and cortex. No current medications reverse the disease.

4. Spinal cord injuries – usually result in paralysis below the level of injury. No current medication reverses the condition. Medications are used to treat spinal cord injury problems related to immobility, such as pressure ulcers, pneumonia, bowel and bladder problems and depression.

5. Parkinson's Disease – a chronic disease of the brain cells that control movement characterized by, fine, slowly spreading tremors, muscular weakness and rigidity. Symptoms include a shuffling gait, frequent falls, and a stooped posture with the head bent forward or down. Medications include anti-Parkinson's drugs such as Sinemet, Lodosyn, and Cogentin. Tremors may be treated with a drug such as Corgard or Inderal.

6. Multiple sclerosis (MS) – an inflammatory disease, possibly related to a virus that causes degeneration of the brain, spinal cord and nerves resulting in weakness/numbness of limbs, visual disturbances, and dizziness. MS is characterized by exacerbations and remissions. Medications include steroidal anti-inflammatory drugs such as prednisone.

7. Epilepsy and other seizure disorders – alterations of cerebral function characterized by sudden, brief episodes of altered consciousness, motor activity, or sensory phenomena. Symptoms range from a barely noticeable staring or lack of attention to a full tonic/clonic seizure with loss of consciousness, incontinence, muscle jerking, and tongue biting. Drugs called anticonvulsants such as Dilantin, Tegretol, phenobarbital, Mysoline, Zarontin, and Klonopin are commonly prescribed. No one drug is effective for all types of seizures.

8. Shingles (herpes zoster) – caused by the same virus as chickenpox; lays dormant and emerges as painful vesicular eruptions along peripheral nerves. Lesions may last for several weeks in the elderly with pain

lasting for months after the lesions disappear. Medications include analgesics and topical or systemic antiviral medications such as Zovirax and tricyclic antidepressants such as Elavil to treat neuralgia.

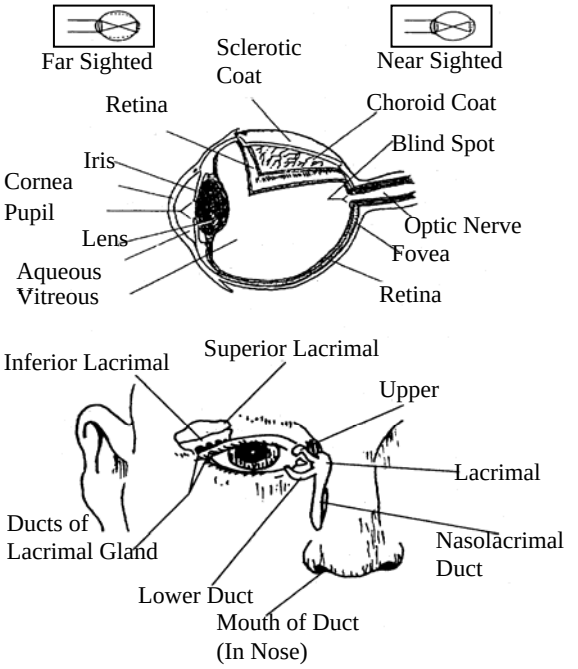
9. Transient ischemic attack (TIA) – results from a temporary lack of blood flow to the brain due to a partial occlusion. Symptoms of a TIA vary with the site and degree of blockage. Visual disturbances, dizziness, weakness, numbness, and unconsciousness may occur. The attack is usually brief, lasting only a few minutes. A TIA may be referred to as a "mini-stroke." Medications include anti-coagulants such as Coumadin or aspirin; anti-hypertensives such as hydrochlorothiazide; and antiplatelet agents such as Plavix and Aggrenox.

10. Anxiety and Neurosis – symptoms include intense anxiousness, tension and a feeling of apprehension or fear that is at a level not normally seen in that situation. Antianxiety drugs/tranquilizers such as Xanax, Ativan and BuSpar are commonly used.

11. Depression – caused by a decreased level of chemicals in the brain. Symptoms include appetite changes, lack of ability to concentrate, feelings of guilt or hopelessness, insomnia, crying, and lack of pleasure in any activity. Antidepressants called mood elevators are used to treat depressions. Medications commonly prescribed for depression include: Celexa, Effexor, Lexapro, Paxil, Prozac, Zoloft and Wellbutrin.

12. Psychosis – a serious disorder characterized by agitation, hallucinations, severe depression, and impaired thinking so severe that the person loses touch with reality. Schizophrenia is the most common form of psychosis. Antipsychotic drugs are commonly used to treat this condition. Examples of antipsychotic medications include: Risperdal, Zyprexa, Seroquel, and Thorazine.

Figure 8.7
Sensory System Structures



VI. Sensory System

A. Structures (see Figure 8.7)

1. Eyes.

2. Ears.

3. Nose.

4. Mouth and throat.

5. Skin

B. Functions (see Figure 8.8).

1. Vision.
2. Hearing.
3. Balance.
4. Smell.
5. Taste.
6. Touch.

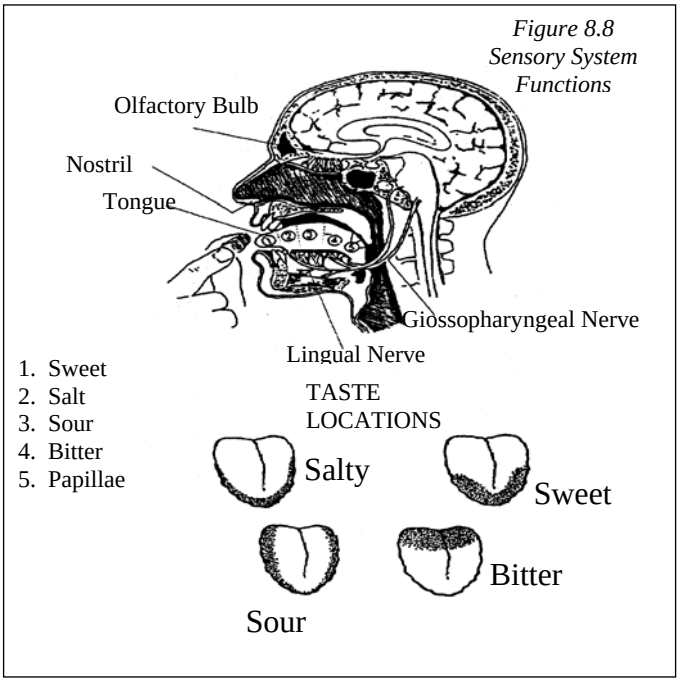


Figure 8.8
Sensory System Functions

C. Age-related changes affecting the sensory system.

1. Difficulty distinguishing colors, especially pastels and the blue and green color ranges.
2. Decreased ability to see in dim lighting situations.
3. Diminished night vision and depth perception.
4. Dryness of the eyes due to decreased tear production.
5. Decreased peripheral vision.
6. Increased sensitivity to glare.
7. Eyes adjust more slowly to changes in lighting conditions.
8. Decreased ability to hear high-pitched and very low pitched sounds.
9. Decreased number of olfactory bulbs resulting in a diminished sense of smell.
10. Decreased number of taste buds resulting in a diminished sense of taste and enjoyment of meals.
11. Decreased perception of pain, pressure, touch, heat and cold.
12. Increased production and thickening of ear wax (cerumen) resulting in decreased hearing.
13. Slower reaction time.
14. Decreased finger dexterity.

15. Diminished sense of balance. Difficulty maintaining balance while standing on one foot; leading to problems when stepping into a bathtub and walking up/down stairs.

D. Diseases and conditions affecting the sensory system.

1. Eye.

a. Cataracts – clouding of the lens of the eye.

b. Glaucoma – increased intraocular pressure that may lead to blindness. Treated with ophthalmic drops such as Betoptic or Timoptic.

c. Blindness.

d. Conjunctivitis – inflammation of the mucous membranes lining the eye. Treated with antibiotic drops such as Sodium Sulamyd or ointments such as ophthalmic Neosporin Ophthalmic.

e. Macular degeneration – a progressive deterioration of the retina resulting in loss of central vision.

f. Retinopathy – a non-inflammatory eye disorder resulting in changes to the blood vessels of the eye; frequently associated with diabetes.

g. "Dry eyes" – diminished secretion of tears. Frequently treated with an over the counter (OTC) drop such as Artificial Tears and/or antihistamine drops such as Visine.

2. Ear.

a. Hearing loss.

b. Cerumen impactions – “wax” accumulation in ear canal; frequently treated with products designed to loosen cerumen such as Cerumenex or Debrox.

c. Otitis media – inflammation of the middle ear; usually treated with an antibiotic/anti-inflammatory drop such as Cortisporin.

d. Deafness.

3. Nose.

    a. Rhinitis – inflammation of the mucous membranes in the nose due to irritants or allergies. Medications used to treat allergic rhinitis include antihistamines such as Zyrtec or Claritin; decongestants such as Sudafed that act as vasoconstrictors and decrease blood flow to the swollen mucous membranes. Intranasal corticosteroids that may be prescribed to treat rhinitis include Rhinocort and Flonase.

    b. Sinusitis – inflammation of sinuses.

4. Mouth, tongue and throat.

    a. Tumors.

    b. Excessive dryness of mouth.

    c. Tooth and gum disorders.

5. Skin (HO 19).

    a. Paresthesia – sensation of numbness or tingling.

VII. Cardiovascular System

A. Structures.

1. Blood vessels-veins, arteries and capillaries (see Figures 8.9; 8.10).

Figure 8.9
Arteries

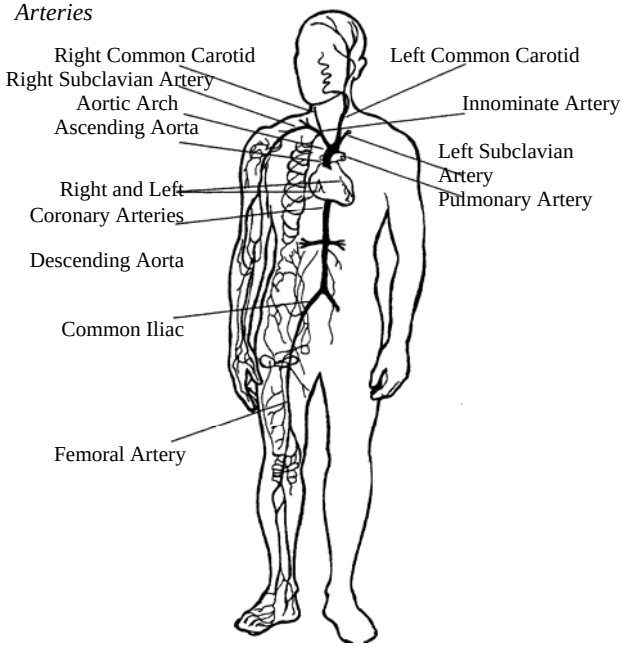
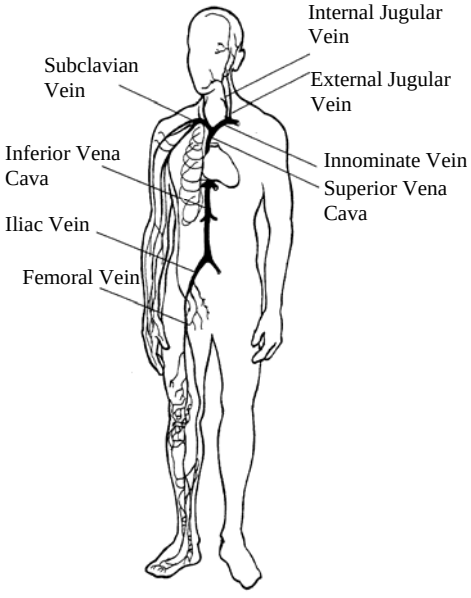


Figure 8.10
Veins



2. Heart (see Figure 8.11).

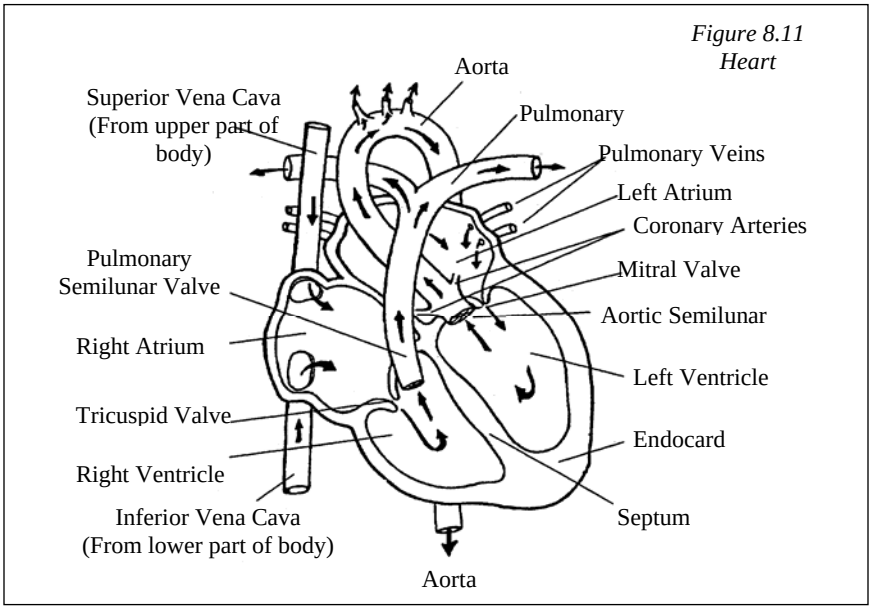


Figure 8.11
Heart

3. Blood.

B. Functions.

1. Carries nutrients and oxygen to all cells of the body by way of blood vessels.

2. Removes waste products and carbon dioxide from cells.

C. Age related changes affecting the cardiovascular system.

1. Decreased ability of the heart to pump the blood throughout the body decreased cardiac output.

2. Narrowing of the blood vessels and loss of elasticity of vessel walls resulting in poor circulation and increased blood pressure.

3. Slowing of the pulse rate.

4. Decreased ability of the cardiovascular system to respond to position changes resulting in orthostatic hypotension.

5. Decreased ability of the cardiovascular system to respond to an increased demand for blood supply such as with exercise or exertion.

6. Thickening of the heart valves resulting in heart murmurs.

7. Heart rate takes longer to return to normal range after exercise.

D. Diseases and conditions affecting the cardiovascular system.

1. Angina pectoris – chest pain, usually radiating to the left shoulder and down the arm. It is usually caused by atherosclerosis of the coronary arteries and lack of oxygen to the heart muscle. Angina is frequently related to exertion, emotional stress, or exposure to extreme cold.

    a. Medications include nitrates to dilate the blood vessels such as Nitro-Bid, drugs to decrease the heart rate such as Tenormin and drugs such as Cardizem to relax the smooth muscles of the blood vessels.

.

2. Arrhythmia – an abnormal rhythm or pattern of the heart beat. Atrial fibrillation, atrial flutter, heart block, and premature beats are examples of arrhythmias. Arrhythmias may be treated with a pacemaker; a device implanted in the chest to stimulate and regulate the heart rate. Antiarrythmics medications include Catapres, Norpace, Tambocor, Tenormin, and Cardizem.

3. Congestive heart failure (CHF) – a condition resulting from failure of the heart to maintain adequate circulation of the blood. Right sided heart failure results in a backup of blood from the right ventricle into the venous circulation. This results in liver enlargement and edema in the extremities. Left sided heart failure results in a backup of blood from the left ventricle into pulmonary circulation resulting in pulmonary edema and difficulty breathing.

    a. Medications used to treat CHF include diuretics such as Lasix to decrease fluid buildup and cardiac glycosides such as Lanoxin which make the heart beat more slowly and more efficiently.

4. Myocardial infarction (MI) – also called a “heart attack”. MI is caused by occlusion of one or more of the coronary arteries. Symptoms include nausea, sweating, fatigue, weakness, dizziness, irregular heart rate, hypotension, tachypnea, shortness of breath, and squeezing pain in the center of the chest that may spread to the shoulder, neck, arm, jaw, and fingers.

    a. Medications include platelet aggregation inhibitors such as Plavix and injectable thrombolytic drugs such as Streptase and Activase.

5. Hypertension – a condition in which BP is higher than normal, generally readings above 150/90 are considered hypertension. Medications used to treat hypertension include diuretics such as Lasix and anti-hypertensives such as Inderal, Calan, and Lopressor

.

6. Ischemic heart disease – occurs when there is a lack of oxygen (O_2) supply to the heart. It is usually caused by atherosclerosis. It may be called coronary heart disease or arteriosclerotic heart disease. Treatment

is aimed at improving oxygen supply to the heart, or decreasing the need for O_2.

a. Medications include calcium channel blockers such as Procardia or Cardizem.

7. Anemia is a disorder characterized by a decrease in hemoglobin in the blood to a level below normal range. Medications include iron replacement drugs such as Feosol.

VIII. Respiratory System (see Figure 8.12).

A. Structures.

1. Nose.

2. Mouth.

3. Pharynx – passageway from nasal cavity to larynx and from mouth to esophagus.

4. Larynx – upper end of trachea; organ of voice.

5. Trachea – tube from larynx to bronchi.

6. Lungs – organs of respiration.

7. Bronchi – two main branches from trachea to lungs.

8. Bronchioles – smaller branches from bronchi.

9. Alveoli – the many terminal sacs where gases are exchanged in respiration.

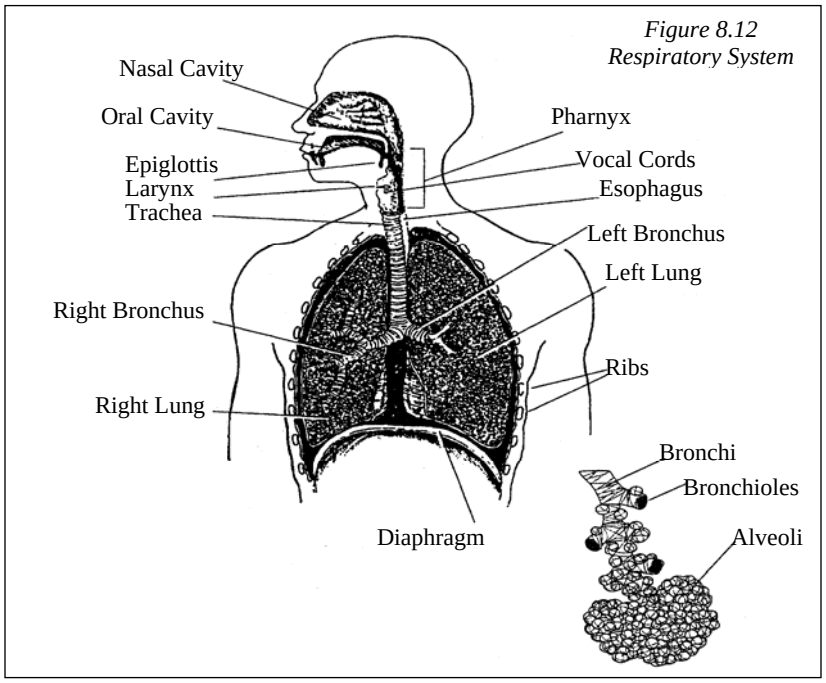


Figure 8.12
Respiratory System

B. Functions.

1. Provides oxygen to cells.

2. Removes wastes in form of CO_2.

C. Age-related changes affecting the respiratory system.

1. Loss of elasticity of lungs, lungs do not expand or contract as well.

2. Chest muscle weakness results in shallow breathing and less effective cough.

D. Diseases and conditions affecting the respiratory system.

1. Chronic Obstructive Pulmonary Disease (COPD), also known as Chronic Obstructive Lung Disease (COLD), or Emphysema. This disease results in a decreased ability of the lungs to perform the function of ventilation. COPD may be related to exposures to chemicals inhaled in the workplace. COPD is treated with bronchodilators such as Theodur and mucolytics that help to liquefy and loosen thick mucous secretions such as Mucomyst.

2. Pneumonia – an inflammation/infection of the lungs caused by bacteria, viruses, aspiration, and chemical irritants. Treatment is based on the cause, usually with antibiotics such as amoxicillin and corticosteroids such as Pulmicort to decrease inflammation.

3. Lung Cancer – a malignancy in the respiratory system usually caused by cigarette smoking. Symptoms of lung cancer include persistent cough, dyspnea, and chest pain. Surgery is the most effective treatment.

4. Tuberculosis (TB) – caused by a bacteria. Treatment with a combination of anti-tuberculosis drugs such as INH and Rifadin is usually necessary.

IX. Digestive System (see next page Figure 8.13)

A. Structures.

1. Mouth – Includes the teeth, tongue and salivary glands. Takes food in, chews it and mixes food with saliva; one liter of saliva is produced daily.

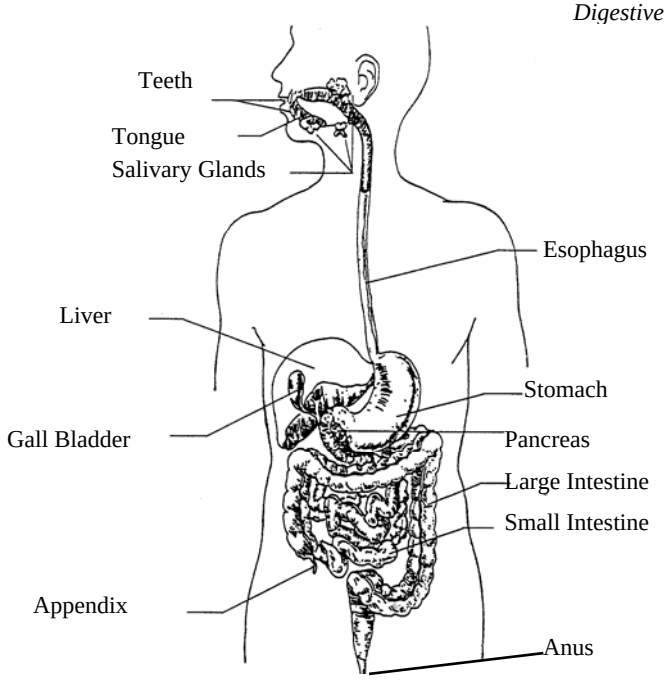
2. Esophagus – tube from mouth to stomach.

3. Stomach – mixes food and fluids with digestive juices.

4. Liver – largest internal organ in the body and the primary organ of drug metabolism. The liver secretes substances that aid in digestion and

produces approximately 1 pint of bile per day. The liver stores iron, vitamins A, D, and excess glucose. It also metabolizes fats, proteins and carbohydrates, and detoxifies medications and other substances.

Figure 8.13
Digestive System



5. Gallbladder – stores bile.

6. Pancreas – also part of the endocrine system. Secretes insulin used to break complex carbohydrates into simple useable energy.

7. Small intestine – is twenty feet long and made up of 3 sections; the duodenum, the jejunum and the ileum. Food is absorbed into the bloodstream in the small intestine.

8. Large intestine – is five to six feet long and made up of 3 sections; the ascending, the transverse and the descending colon. The large intestine reabsorbs water and moves waste products through the system to the rectum.

9. Rectum – connects the large intestine to the anus.

NOTE: Bacteria live all along the 30-foot Digestive tract.

B. Functions.

1. Ingests food and fluids.

2. Prepares food for use by the body – breaks food into 3 main nutrients: carbohydrates, fats, and proteins.

3. Excretes wastes.

C. Age related changes affecting the digestive system.

1. Loss of teeth results in decreased dietary intake and weight loss.

2. Nutritional needs remain the same, but the need for calories decreases as activity and metabolic rate decreases.

3. Slower peristalsis results in constipation and increased intestinal gas (flatus).

4. Saliva production diminishes which can make swallowing difficult and leads to a drier mouth.

5. Decreased blood flow to the liver and decrease liver enzymes results in less efficient drug metabolism and detoxification.

6. Decreased gastrointestinal secretions affect digestion and absorption of food and drugs.

D. Diseases and conditions affecting the digestive system.

1. Cancer of the mouth, stomach, liver and intestines.

2. Cirrhosis of the liver – due to fibrous tissue formed as a result of infection or obstruction of bile ducts.

3. Constipation – the passage of unusually hard dry stools. It may be caused by inadequate fluid and/or fiber intake, and lack of exercise. If left untreated constipation can lead to fecal impaction; the buildup of hard stool that cannot pass through the rectum normally. Laxatives such as Milk of Magnesia, Colace, and castor oil, or enemas such as Fleet Enema may be used to treat constipation. Bulk producing laxatives such as Metamucil may be ordered on a daily basis to prevent constipation.

4. Diarrhea – the frequent passage of unformed watery stool is treated with Anti-diarrheals such as Lomotil or Imodium. Bacterial diarrhea, also called “traveler’s diarrhea,” is also treated with an antibiotic such as Cipro.

5. Gallstones – when a stone is formed by bile pigments and calcium salts that may cause pain and jaundice. Patients who are unable to undergo surgery to remove gallstones may be given drugs such as Actigall to help dissolve the stones.

6. Gastritis – an inflammation of the stomach. It is frequently treated with antacids such as Mylanta and drugs such as Zantac to decrease stomach acid.

7. Gastro Esophageal Reflux Disease (GERD) – occurs when the stomach acid flows back into the esophagus causing pain and irritation. Drugs such as Prevacid that decrease the production of acid and GI stimulants that increase the rate of gastric emptying such as Reglan may be used.

8. Hemorrhoids – enlarged veins in the lower rectum or anus. They are usually treated with anti-inflammatory suppositories, ointments, or creams such as Anusol.

9. Hepatitis.

    a. Type A – transmitted by the fecal/oral route.

    b. Type B – transmitted by blood and/or body fluids.

    c. Type C – transmitted by blood and/or body fluids.

    d. Type D – transmitted by blood and/or body fluids.

    e. Others.

10. Hiatal hernia – protrusion of part of the stomach upwards through the diaphragm.

11. Ulcers – open lesions on gastric mucosa. Antacids such Maalox, and drugs that block the release of stomach acids such as Tagamet and Prevacid are commonly prescribed.

X. Urinary System (see Figure 8.14)

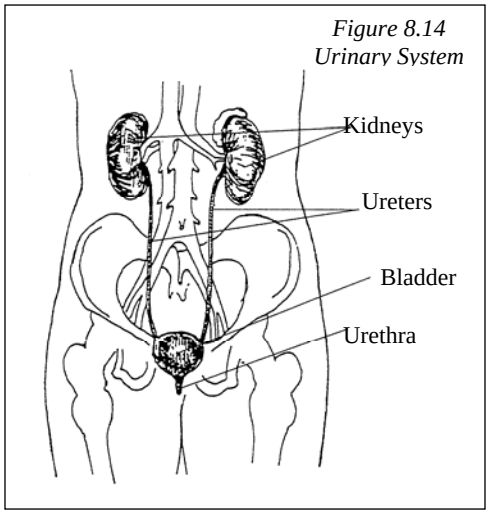


Figure 8.14
Urinary System

A. Structures.

1. Kidneys – filter the blood.

2. Ureters – transports urine from the kidneys to bladder.

3. Bladder – muscular sac that stores urine.

4. Urethra – connect the bladder to the urinary meatus, the external opening through which urine passes.

B. Functions.

1. Normally produces 1000cc-1500cc of clear yellow urine each day.

2. Removes waste products from the blood stream.

3. Maintains a stable balance of water and body chemicals (homeostasis).

C. Age related changes affecting the urinary system.

1. Bladder opening weakens and may result in incontinence and dribbling of urine.

2. Decrease in bladder muscle tone results in incomplete emptying of the bladder which leads to chronic retention and urinary tract infections.

3. Decreased ability of the kidneys to filter wastes and concentrate urine.

D. Diseases and conditions affecting the urinary system.

1. Urinary tract infections (UTI) can occur at any point in the urinary system. The most frequent cause of infection is *E. Coli* – a pathogen from the intestinal tract. Urinary tract infections are treated with antibiotics such as Cipro; sulfonamides such as Gantrisin; and combination drugs such as Septra. Pyridium, a urinary analgesic, may be used to relieve the pain associated with a UTI.

2. Renal failure – the inability of the kidneys to excrete wastes, concentrate urine and conserve electrolytes. Antibiotics and diuretics may be used.

3. Benign prostatic hypertrophy (BPH) – common in men over the age of 50. Symptoms include difficulty urinating and decreased urinary stream. Medications include Proscar and Hytrin.

4. Urinary retention – the inability to empty the bladder. Antispasmodic drugs such as Urispas maybe used to relax the smooth muscle in the urethra and bladder and promote normal bladder function.

5. Urinary incontinence – the inability to control the release of urine from the bladder. Antispasmodic drugs such as Ditropan may be used to relax the smooth muscle in the urethra and bladder and promote normal bladder function.

XI. Reproductive System

A. Structures.

1. Male (see next page Figure 8.15).

a. Testes (gonads).

b. Prostate.

c. Penis.

d. Urethra.

e. Ducts.

2. Female
(see Figure 8.16).

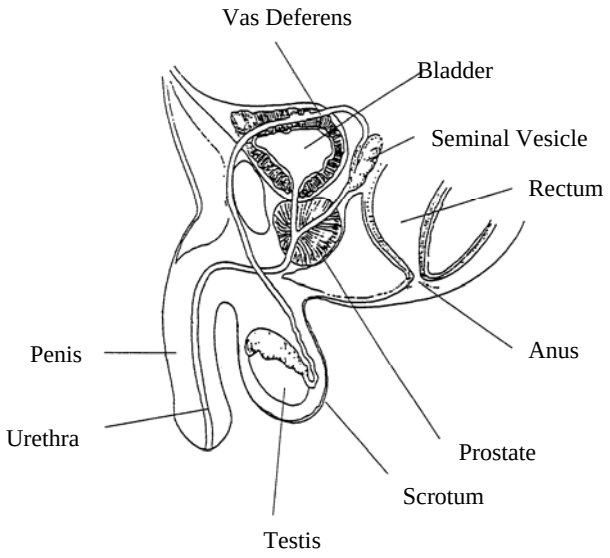
a. Ovaries.

b. Fallopian tubes.

c. Uterus.

d. Vagina.

Figure 8.15
Male Reproductive System



B. Function.

1. Produce reproductive cells.

a. Male – sperm.

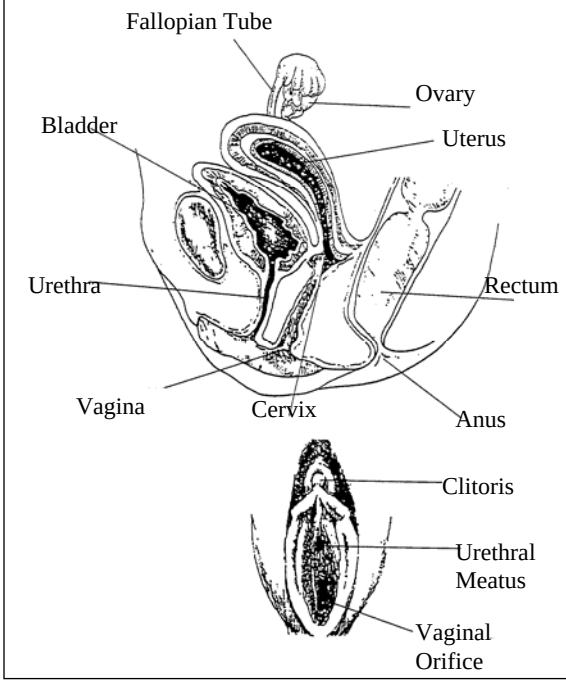
b. Female – ovum or egg.

2. Produce hormones responsible for secondary sex characteristics.

a. Male – testosterone.

b. Female – estrogen and progesterone.

Figure 8.16
Female Reproductive System



C. Age related changes affecting the reproductive system.

1. Slight decrease in testosterone and sperm production in men.

2. Enlargement of the prostate gland.

3. Significant decrease in estrogen production after menopause in women.

4. Vaginal dryness resulting in increased risk of infection.

D. Diseases and conditions affecting the reproductive system.

1. Male.

a. Prostate Cancer.

b. Sexually transmitted diseases (STD) – cause widespread inflammation and scarring. Treatment is based on the bacteria, protozoa, or virus causing the infection. Anti-protozoal/antibiotics such as Flagyl and Vibramycin are sometimes prescribed.

2. Female.

a. Uterine cancer.

b. Ovarian cancer.

c. Dysmenorrhea – painful menstruation. Treatment may include analgesics such as Tylenol or a non-steroidal anti-inflammatory such as Advil or Aleve.

d. Pregnancy.

e. Vaginitis – an inflammation of the vagina sometimes caused by a lack of hormones in post-menopausal women. Treatment may include estrogen replacement therapy such as Premarin.

f. Vaginal yeast infections – caused by *Candida albicans*. Topical drugs use to treat this infection include Monistat and Mycelex.

g. Sexually transmitted diseases (STD) – cause widespread inflammation and scarring. Treatment is based on the bacteria, protozoa, or virus causing the infection. Anti-protozoal/antibiotics such as Flagyl and Vibramycin are sometimes prescribed.

XII. Endocrine System (see next page Figure 8.17)

A. Structures.

1. Pituitary.

2. Thyroid.

3. Parathyroid.

4. Adrenal.

5. Pancreas.

6. Gonads.

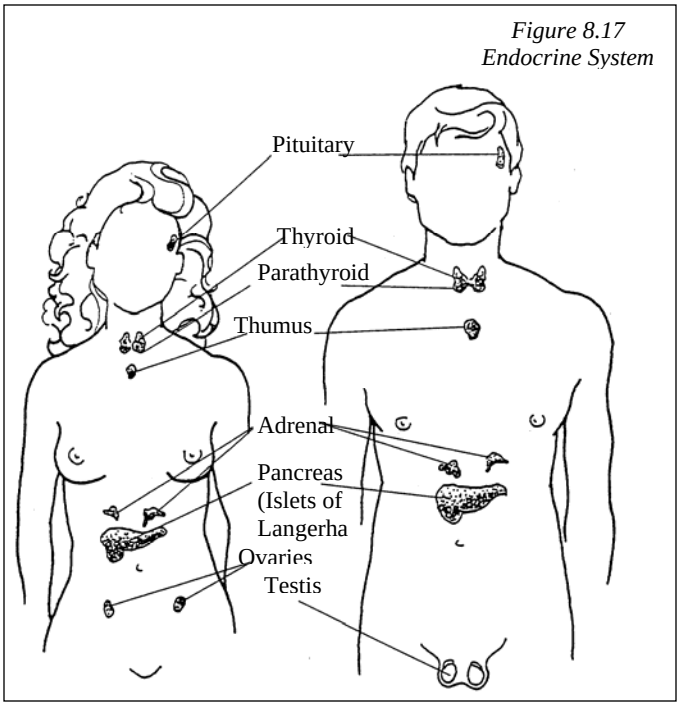


Figure 8.17
Endocrine System

B. Functions.

1. Secretes hormones to regulate body processes.

2. Controls growth and development.

3. Metabolism.

4. Reproduction.

C. Age related changes affecting the endocrine system.

1. Decreased hormone production.

2. Decreased ability to tolerate stress.

D. Diseases and conditions affecting the endocrine system.

1. Hypothyroidism – condition resulting from decreased activity of the thyroid gland. Symptoms include weight gain, mental and physical lethargy, dry skin, and constipation. Medications include Armour Thyroid and Synthyroid.

2. Hyperthyroidism – results from hyperactivity of the thyroid gland. Symptoms include nervousness, tremor, constant hunger, weight loss, fatigue, palpitations, and diarrhea. Anti-thyroid medications include Tapazole and Iodotope.

3. Diabetes mellitus – occurs when the pancreas fails to produce any insulin (type I); when the pancreas either produces an insufficient amount of insulin or the body cells are not receptive to the insulin being produced (type II). Diabetes is the leading cause of blindness, amputation, and kidney failure. The incidence of diabetes increases with age. Medications include insulins such as Humulin or oral antidiabetic drugs such as Glucotrol and Actos.

XIII. Integumentary System

A. Structures. (see Figure 8.18)

1. Skin – largest organ of the body.

2. Nails.

3. Hair.

4. Sebaceous glands – oil secreting glands.

5. Sweat glands.

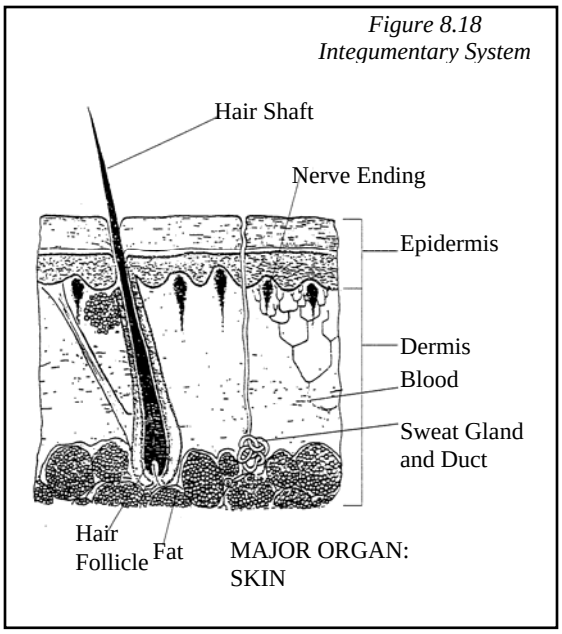


Figure 8.18
Integumentary System

B. Functions.

1. Provides protection.

2. Regulates body temperature.

3. Excretes wastes.

4. Manufactures vitamin D.

C. Age related changes affecting the integumentary system.

1. Decreased subcutaneous fat and thinning of the skin results in wrinkles.

2. Cell replacement takes longer and results in slower wound healing and increased chance of infection.

3. Skin becomes dry and less elastic.

4. Loss of sweat glands and subcutaneous fat makes temperature regulation more difficult.

5. Hair pigment decreases and hair becomes white or gray.

6. Hair thins and becomes fine.

7. Nails may become thick and brittle.

D. Diseases and conditions affecting the integumentary system.

1. Skin cancer.

2. Burns and skin ulcers – may contain a large amount of necrotic (dead) tissue. Topical enzymes such as Santyl ointment dissolve necrotic tissue and allow new tissue to form. The topical drug Regranex stimulates the formation of healthy granulation tissue. Topical antibiotics such as Silvadene may also be applied to prevent infection (HO 19).

3. Scabies/lice – a skin condition caused by tiny parasites called mites. It is transmitted by skin to skin contact and causes persistent itching. Topical medications include Nix and RID.

4. Skin infections – boils, yeast infections, fungal infections and infections around the nails. Treatment is based on the cause of the infection. Bacterial infections may be treated with a topical antibiotic such as Garamycin or Polysporin. Fungal infections such as ringworm or athlete's foot can be treated with a topical antifungal such a Lotrimin or Lamisil. Yeast is commonly treated with an anti-yeast drug such as Mycostatin.

5. Dry skin – it is very important to keep skin moist. Dry skin is caused by a lack of water; not a lack of oil. Dry skin is more prone to cracking and becoming infected.

6. Dermatitis – inflammation and itching of the skin; can be caused by many factors including poison ivy, insect bites, psoriasis and eczema. Topical corticosteroids such as Cortaid or Topicort are commonly prescribed. Topical antihistamines such as Benadryl inhibit redness and itching due to an allergic skin reaction. For more severe reactions, systemic corticosteroids such as Medrol may be prescribed.

XIV. Lymphatic/Immune System

A. Structures (see next page Figure 8.19).

1. Lymph – fluid in lymphatic system.

2. Lymph nodes – rounded bodies of lymphatic tissue.

3. Tonsils – masses of lymphatic tissue in the pharynx.

4. Thymus – lymphatic organ.

5. Spleen – organ of lymphatic tissue; stores and filters blood.

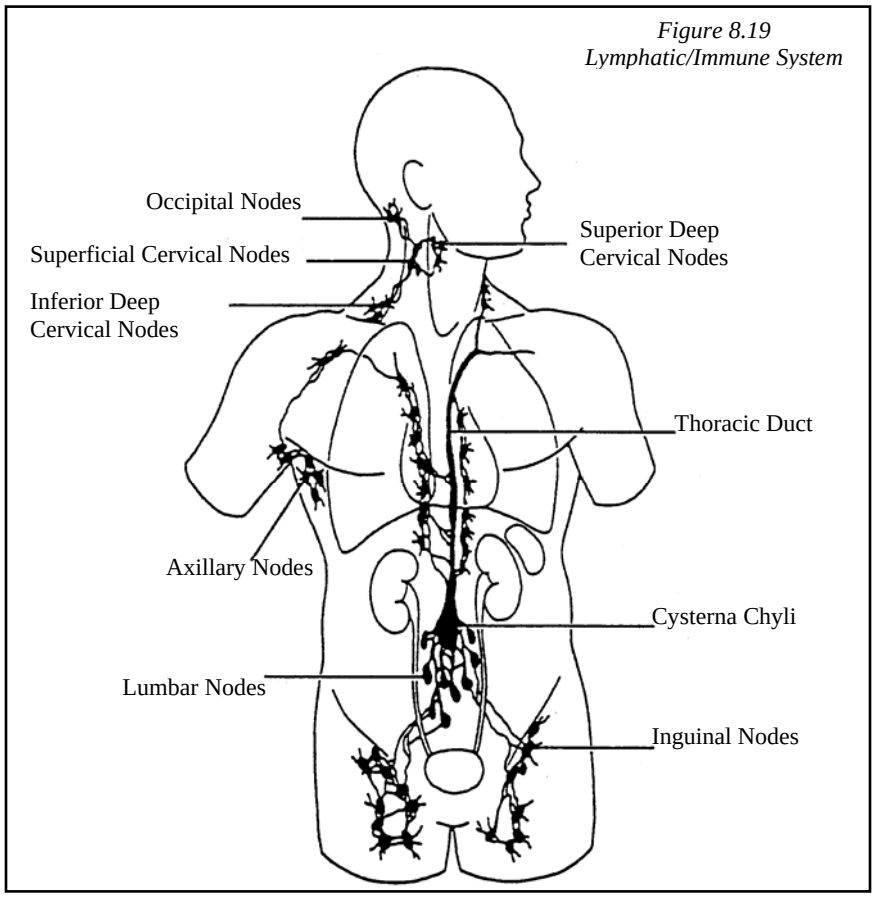


Figure 8.19
Lymphatic/Immune System

B. Functions.

1. Produces antibodies.
2. Protects the body from bacterial invasion.
3. Manufactures white blood cells (lymphocytes).
4. Filters impurities such as dead cells.

C. Age related changes affecting the lymphatic/immune system.

1. Less resistance to disease and infections.
2. Slower wound healing.
3. Loss of ability to differentiate between normal and abnormal cell results in increase in autoimmune diseases and cancer.

D. Diseases and conditions affecting the lymphatic/immune system.

1. Lymphatic cancer.

2. Infections – can occur in any body system. The best method of treating an infection is to prevent it from occurring. Influenza and Pneumonia vaccines are commonly given to those at high risk of developing the disease. Anti-infective, antibiotic, antifungal, and antiviral medications are used to treat the causes of infection.

3. Acquired Immune Deficiency Syndrome (AIDS) – caused by the human immunodeficiency virus (HIV). HIV is transmitted through contact with an infected individual, contaminated blood, or used needles. An infected mother can transmit the virus to her fetus before birth or after delivery by breast feeding. Current medications are designed to suppress the virus and treat secondary infections. Medications include Retrovir, Epivir, Rescriptor, Agenerase, and combination drugs.

XV. Summary and Conclusion

A. Body plan.

B. Changes in "Normal," older adults that affect drug effectiveness.

C. Special risks of ill older adults.

D. Musculoskeletal system.

E. Nervous system.

F. Sensory system.

G. Cardiovascular system.

H. Respiratory system.

I. Digestive system.

J. Urinary system.

K. Reproductive system.

L. Endocrine system.

M. Integumentary system.

N. Lymphatic system.

In this lesson we have examined the body systems, their structures, and functions and related diseases. The next lesson is introduction to pharmacology.

STAGES OF PRESSURE ULCERS

The staging system is one method of summarizing certain characteristics of pressure ulcers, including the extent of tissue damage. This is the system used within the RAI.

Stage I pressure ulcers may be difficult to identify because they are not readily visible and they present with greater variability. Advanced technology (not commonly available in nursing homes) has shown that a Stage I pressure ulcer may have minimal to substantial tissue damage in layers beneath the skin's surface, even when there is no visible surface penetration. The Stage I indicators identified below will generally persist or be evident after the pressure on the area has been removed for 30-45 minutes.

The definitions for the stages of pressure ulcers identified below, are from the NPUAP and used with permission.

A. Stage I – an observable, pressure-related alteration of intact skin, whose indicators as compared to an adjacent or opposite area on the body may include changes in one or more of the following parameters:

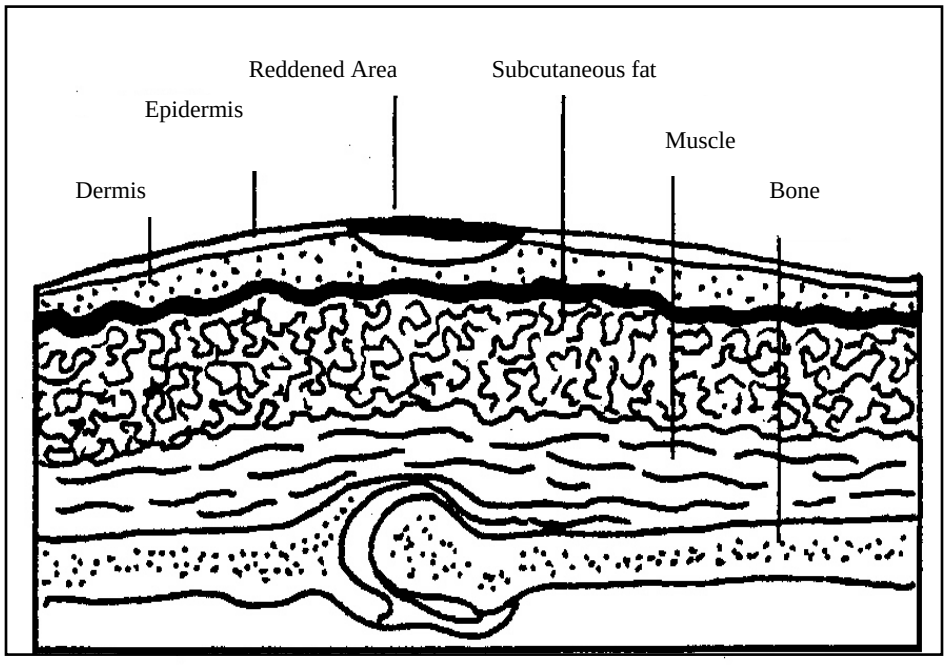
1. Skin temperature (warmth or coolness);

2. Tissue consistency (firm or boggy);

3. Sensation (pain, itching); and/or

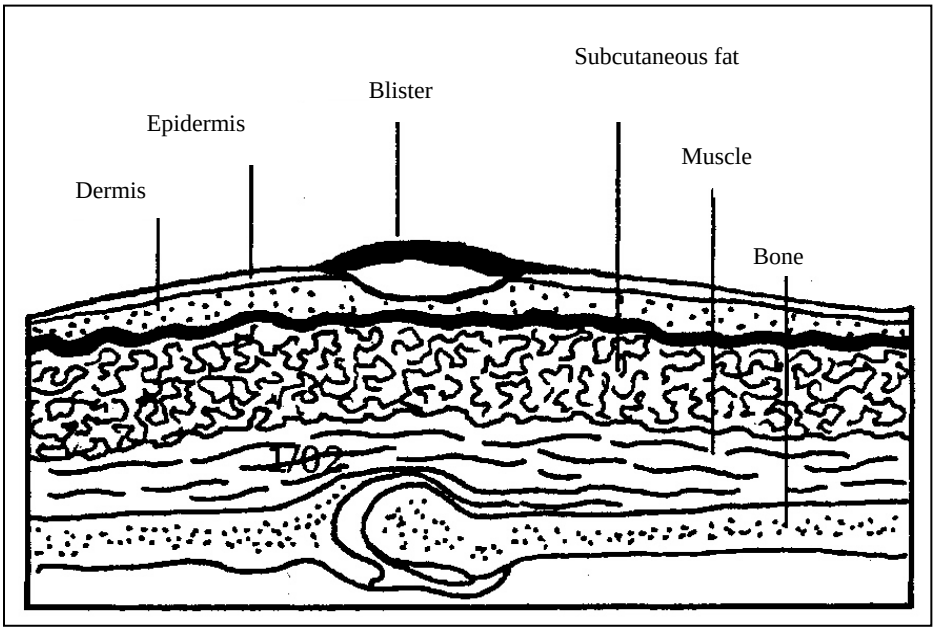
4. A defined area of persistent redness in lightly pigmented skin, whereas in darker skin tones, the ulcer may appear with persistent red, blue, or purple hues.

Stage I.



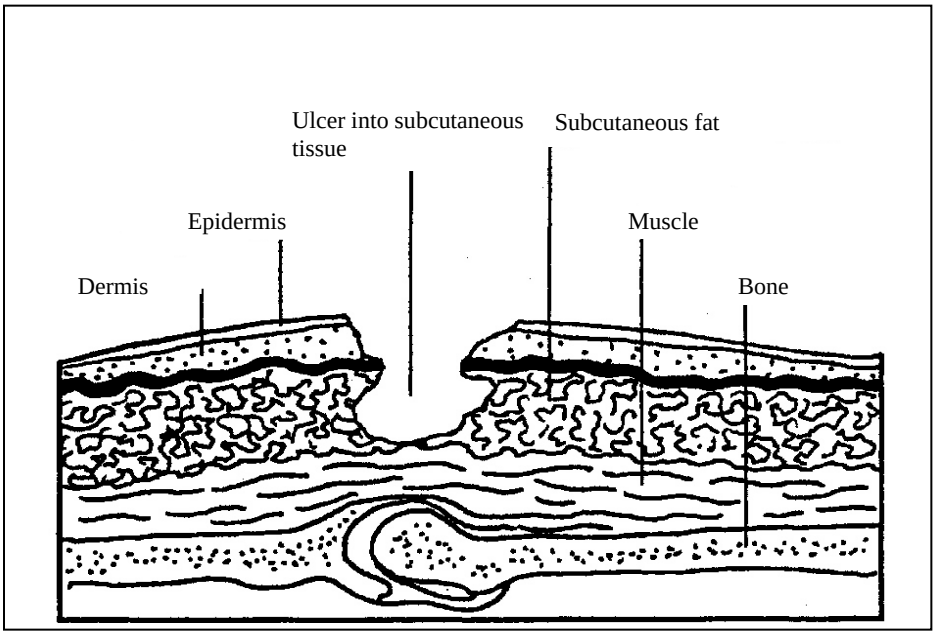
B. Stage II – partial thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion, blister, or shallow crater.

Stage II.



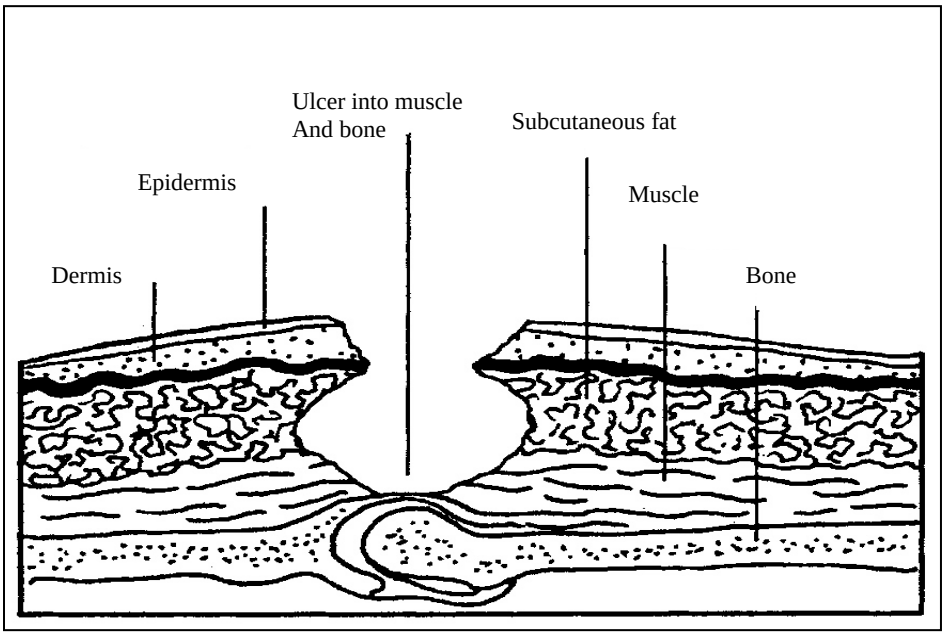
C. Stage III – Full thickness skin loss involving damage to, or death of, subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue.

Stage III.



D. Stage IV – full thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures (e.g., tendon, joint capsule). Undermining and sinus tracts also may be associated with Stage IV pressure ulcers.

Stage IV.



LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

EVALUATION ITEMS:

1. What are the four main parts of the body plan?

Match the changes occurring in "normal" older adults with how they affect drug effectiveness.

___ 2.	Decrease in liver function	a. changes affecting absorption of drugs
___ 3.	Lowered cardiac output	b. changes affecting distribution of drugs
___ 4.	Reduced filtration by kidneys	c. changes affecting metabolism of drugs
___ 5.	Less gastric acidity	d. changes affecting elimination of drugs

6. List one special risk for ill older adults.

LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

Match body system to body function.

A.	Cardiovascular	G.	Nervous
B.	Digestive	H.	Reproductive
C.	Endocrine	I.	Respiratory
D.	Integumentary	J.	Sensory
E.	Lymphatic	K.	Urinary
F.	Musculoskeletal		

___ 7. Vision, hearing, and balance

___ 8. Gives body movement and support

___ 9. Controls and coordinates body activities

___ 10. Prepares food for use and excretes wastes

___ 11. Provides oxygen for cells

___ 12. Carries nutrients and oxygen to cells

___ 13. Produces urine

___ 14. Manufactures Vitamin D

___15. Regulates metabolism

___ 16. Produces hormones responsible for secondary sex characteristics.

___ 17. Filters body impurities

Name two structures in each system.

18. Musculoskeletal system.

A.

B.

19. Nervous system.

    A.

    B.

20. Sensory system.

    A.

    B.

21. Cardiovascular system.

    A.

    B.

22. Respiratory system.

    A.

    B.

23. Digestive system.

    A.

    B.

24. Urinary system.

    A.

    B.

25. Reproductive system.

    MALE:

    A.

    B.

    FEMALE:

    A.

    B.

26. Endocrine system.

    A.

    B.

27. Integumentary system.

    A.

    B.

28. Lymphatic system.

    A.

    B.

Match disease/condition to the appropriate definition.

A.	Cerebral Vascular Accident (CVA)	G.	Deafness
B.	Congestive Heart Failure	H.	Glaucoma
C.	Cataracts	I.	Shingles
D.	Epilepsy	J.	Hypertension
E.	Fracture	K.	Alzheimer's Disease
F.	Arthritis	L.	Parkinson's Disease

29. ___ A condition in which the heart does not work effectively and fluid builds up in the feet, legs, and the lungs.

30. ___ A condition in which the lens in the eye becomes cloudy, impairing vision.

31. ___ A clot, hemorrhage, or other occlusion blocks circulation to area of brain & causes tissue damage and often paralysis.

32. ___ A condition in which joints become inflamed and stiffened.

33. ___ A condition in which the blood moves through the vessels with too much pressure.

34. ___ A neurological condition characterized by brief alternations of consciousness and seizures.

35. ___ A break in a bone.

36. ___ A condition of not being able to hear sounds.

37. ___ A condition of the eye caused by too much pressure in the eye; may lead to blindness.

38. ___ A condition in which the herpes virus from chicken pox has laid dormant and emerges again in the form of a painful lesion on the peripheral nerves.

39. ___ A chronic nervous system disease characterized by fine, slowly spreading tremors.

40. ___ A chronic organic disorder of the brain characterized by confusion, memory loss, restlessness, and speech disturbances; with no current treatment.

Circle the letter of the best answer.

41. Laxatives would be used to treat a disease or condition of which body system?

    a. Digestive.
    b. Cardiac.
    c. Nervous.
    d. Urinary.

42. Antidepressants would be used to treat a disease or condition of which body system?

    a. Digestive.
    b. Cardiac.
    c. Nervous.
    d. Urinary.

43. Vasodilators would be used to treat a disease or condition of which body system?

    a. Cardiovascular.
    b. Endocrine.
    c. Musculoskeletal.
    d. Sensory.

44. Tranquilizers would be used to treat a disease or condition of which body system?

    a. Lymphatic.
    b. Nervous.
    c. Musculoskeletal.
    d. Sensory.

45. Thyroid medications would be used to treat a disease or condition of which body system?

a. Urinary.
b. Sensory.
c. Respiratory.
d. Endocrine.

46. Dermatological medications would be used to treat a disease or condition of which body system?

a. Endocrine.
b. Integumentary.
c. Nervous.
d. Sensory.

47. Antiarthritic medications would be used to treat a disease or condition of which body system?

a. Cardiovascular.
b. Endocrine.
c. Musculoskeletal.
d. Urinary.

48. Hypoglycemics would be used to treat a disease or condition of which body system?

a. Endocrine.
b. Integumentary.
c. Nervous.
d. Respiratory.

LESSON PLAN: 9

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

SCOPE OF UNIT:

This unit includes body systems, drug classifications, and observing and reporting.

INFORMATION TOPIC: III-9 OR DEMONSTRATION:

INTRODUCTION TO PHARMACOLOGY
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. List the steps in the drug cycle.
2. Identify the main organ of drug metabolism.
3. Identify the main organs of drug excretion.
4. Differentiate between local and systemic effects of medications.
5. Identify basic drug classifications and their corresponding body system.
6. List observations that must be reported to the licensed nurse.

SUPPLEMENTAL TEACHING/LEARNING ITEMS:

HO 20: Common drug categories.

HO 21: Common drug side effects.

HO 22: Pain control – Use of Analgesics.

HO 23: Worksheet of OTC Analgesics.

HO 24: Worksheet – Drug Information Cards.

INFORMATION ASSIGNMENT:

Read Lesson Plan 9 prior to class and be prepared to discuss the information presented.

INTRODUCTION

Pharmacology is the study of drugs and how they affect living organisms. After a medication is administered, it goes through several steps before it is excreted from the body. While it is in the body the drug can act either locally or systemically. In order to safely administer medications in a long term care setting, the medication technician must have an understanding of basic pharmacology including the steps in the drug cycle, drug effects, and how drugs are classified based on their affect on body systems. Observations to make about each classification of drug are also vital to a safe medication pass.

From the moment it is discovered, every drug has a chemical name that describes its molecular structure. The generic name of a drug is determined by the drug company and an agency called the United States Adopted Names Council. Once the drug has received final FDA approval, the drug company releases it with a brand or trade name.

LESSON PLAN: 9

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

OUTLINE:

I. Drug cycle – after a medication is administered, it goes through several steps before it is excreted from the body. These steps include:

   A. Absorption – from the site of administration. The speed at which the medication is absorbed depends on the route of administration. For example, medications injected into a muscle would usually be absorbed more quickly than medications given orally.

   B. Distribution – to the body by the circulatory system. Once the drug has entered the blood stream it moves throughout the body by attaching to proteins in the blood.

   C. Metabolism – of the medication. The main organ of drug metabolism is the liver. Because of this, any condition that causes a decrease in liver function, such as hepatitis, affects the way a drug is metabolized in the body.

   D. Excretion – of the medication from the body. Excretion of drugs is an important step because it rids the body of waste products. The kidneys are the main organs of drug excretion. Poor kidney function can prolong the effects of some drugs and lead to a toxic build up of the drug in the body.

II. Local vs. Systemic Effects of Medications

   A. Drugs can act either locally or systemically on the body.

   B. A local effect means that the drug affects only those tissues at the site of administration and immediately surrounding it. When an antihistamine cream is applied to an area of itching on the skin it produces a local effect and the itching stops. The drug (an antihistamine) is not absorbed into the body and it does not affect any other body system.

   C. A systemic effect means that the drug effect is felt throughout the body. For example, when an analgesic is taken for a headache and the person also has a sore back, the medication will affect both parts of the body and should relieve both areas of pain. Because of the different types of effects possible, it is very important that the medication be administered by the correct route to maximize its positive effects and avoid potentially dangerous negative effects.

III. Drug Categories

A. Drugs are listed under a variety of categories based on the way in which they affect the body as well as the body system affected. Some drugs work on several body systems and are used for many different conditions. Other drugs are more specific and affect only one body system and are rarely used for more than one condition. Handout 20 provides an easy reference for basic information about the common categories of drugs. Handout 21 contains information about common drug side effects (HO 20, HO 21).

IV. Musculoskeletal System

A. Analgesics are used to relieve pain. The strongest analgesics are opioid (narcotic) controlled substances. Non steroidal anti-inflammatory medications decrease both pain and inflammation (HO 22).

1. Opioid (narcotic) analgesics – most are Schedule II and Schedule III (C-II and C-III) controlled substances because of their high abuse potential. Combination with non-controlled substances usually poses less abuse potential than single ingredient products. They relieve pain, produce feelings of euphoria, drowsiness, mental clouding and, in higher doses, induce deep sleep. It is very important to know that narcotic analgesics depress respirations. Always check the resident's respiratory rate before giving narcotic analgesics. Generally do not administer if respirations are below 12/min or if systolic BP is below 90, without specific guidelines. Length of action:

a. Demerol (meperidine), C-II, 2-4 hours.

b. Morphine, C-II, 4-5 hours.

c. MS Contin (morphine ER) C-II, 8-12 hours

d. Codeine, C-II, 4-6 hours.

e. Dilaudid (hydromorphone), C-II, 3-4 hours.

f. Duragesic (fentanyl), C-II, transdermal patch, 48-72 hours.

g. Darvon; Darvon N (propoxyphene), C-IV, 4-6 hours.

h. Roxicodone (oxycodone), C-II, 2-4 hours.

i. OxyContin (oxycodone extended release), C-II, 8-12 hours.

2. Opioid (narcotic) combinations.

a. Tylox, Percocet (oxycodone/acetaminophen), C-II, 4-5 hours.

b. Percodan (oxycodone/aspirin), C-II, 4-5 hours.

c. Lortab, Lorcet, Vicodin (hydrocodone/acetaminophen), C-III, 4-5 hours.

d. Tylenol with Codeine (codeine/acetaminophen), C-III, 4-5 hours.

e. Empirin with Codeine (codeine/aspirin), C-III, 4-5 hours.

f. Darvocet N, Propacet (propoxyphene acetaminophen), C-IV, 4-5 hours.

3. Non-opioid analgesics.

   a. Fiorinal (butalbital/aspirin/caffeine), C-III.

   b. Fioricet (butalbital/acetaminophen/caffeine), not a controlled substance.

   c. Ultram (tramadol), not a controlled substance.

4. Adjuvant analgesics – drugs from other categories that affect the perception of pain, especially useful in treating neuropathic pain.

   a. Antidepressants – Norpramin, Aventyl.

   b. Anticonvulsants – Tegretol, Klonopin, Neurontin, Lyrica

   c. Antiarrythmics – Mexitil.

   d. Antispasmodics – Lioresal.

5. Anti-pyretic analgesics (relieve pain and fever) Tylenol (acetaminophen).

6. Anti-inflammatory/anti-pyretic analgesics (relieve inflammation, fever, and pain).

   a. Aspirin (acetylsalicylic acid).

   b. Ecotrin (aspirin, enteric coated).

   c. Aspirin E.C. (aspirin, enteric coated).

   d. Analgesic combinations-many are C-III controlled substances because of their potential for abuse.

7. Non-Steroidal Anti-Inflammatory Drugs (NSAID) – very irritating to the gastrointestinal (GI) tract. Observe for signs of stomach upset, burning, or any evidence of GI bleeding.

    a. Motrin (ibuprofen) is marketed in many OTC (over-the-counter) preparations: Datril, Advil, Motrin II, and many store brands of ibuprofen.
    b. Toradol (ketorolac).

    c. Indocin (indomethacin).

    d. Feldene (piroxicam).

    e. Anaprox (naproxen sodium).

    f. Mobic (meloxicam)

8. Synthetic prostaglandin, Cytotec (misoprostol) – inhibits gastric acid secretions. Used to prevent GI ulceration caused by NSAIDs. May also stimulate uterine contractions and are contraindicated during pregnancy.

9. Anti-gout medications are used specifically to treat the form of arthritis caused by a build up of uric acid crystals in the joints.

    a. Benemid (probenecid).

    b. Zyloprim (allopurinol).

10. Cox-2 inhibitors such as Celebrex (celecoxib) – used to treat osteoarthritis.

11. Skeletal muscle relaxants – used to relax skeletal muscles.

    a. Paraflex; Parafon Forte DSC (chlorzoxazone).

    b. Robaxin (methocarbamol).

    c. Lioresal (baclofen) – spasticity of MS; other spasms.

    d. Dantrium (dantrolene) – for spasticity related to spinal cord injury, stroke, MS.

12. Calcium supplements.

    a. Oscal, Tums, Caltrate (calcium carbonate).

13. Parathyroid-like drugs, Miacalcin.

14. Osteoporosis treatments

a. Fosamax (alendronate sodium)

Actonel (risendronate sodium)

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications, (e.g., decreased respiratory rate or hypotension from narcotic pain medication).

3. Joint stiffness not relieved by prn meds, movement, and/or rest and warmth.

4. Redness and swelling to joints, skin over painful bony areas.

5. Gait difficulties and/or changes in ability to move.

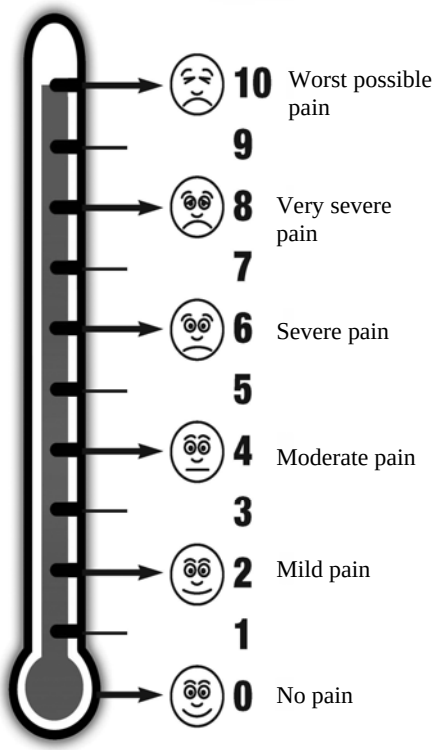
6. Unreported deformities of limb or joint.

7. Dizziness or difficulty retaining balance in bed, on chair or during ambulating.

8. Decreased range of motion.

9. Pain – exact location, type of pain and duration; elderly may not experience severe pain with fracture.

Figure 9.1
Pain Scale



C. Pain assessment each shift.

1. Document the individual's statement of pain as whatever he or she says it is. Is the pain new or different than before?

2. Quality of pain.

   a. Somatic (well localized) such as pain in skin or bone (e.g., aching, stabbing, throbbing, and pressure).

   b. Visceral (poorly localized) such as pain in organs or viscera (e.g.,

gnawing, cramping, aching and sharp).

c. Neuropathic such as pain in nerves (e.g., burning, tingling, shooting, and lancinating).

3. Identify the intensity of pain using the thermometer tool, or a pain assessment tool required by the facility policy, and document the number corresponding with scale used (see previous page Figure 9.1).

a. Show the scale and explain its purpose. "This is a pain rating scale that will help me understand your pain so that I may help you obtain pain relief. I will ask you regularly about pain, but anytime you have pain you must also let me know."

b. If they are alert, oriented, and cognitively intact, you may use the numbers on the thermometer to rate pain: "On this pain rating scale, 0 is no pain, 2 is mild pain, 4 moderate pain, 6 severe pain, 8 very severe pain, and 10 is the worst possible pain."

c. For those unable to use the numbers have them point to the face that best describes how they currently feel due to their pain.

d. If the individual is either incoherent or comatose, utilize the non-communicative tool to identify the presence and degree of pain. Document the number that best describes your observation(s) and judgment that your assessment is based on (see Figure 9.2).

Figure 9.2, Non-Communicative Pain Tool

Verbal/Vocal		**Body Movement**		**Facial**		**Touching**	
0	Positive	0	Moves easily	0	Smiling	0	No extraneous touching of self
2-4	Whimper/ moan	5	Neutral, shifting, pacing	2-4	Neutral	5	Rubbing, patting
5-7	Repetitive speech, crying	10	Tense, not moving	5-7	Frown, grimace	10	Clenched hands, tight muscles
8-10	Screaming			8-10	Clenched teeth		

4. Document individual's response, utilizing the assessment tool, to all medication or non-medication pain relief treatment.

V. Nervous System

A. Anti-Parkinson drugs used to treat the symptoms of Parkinson's disease.

1. Sinemet (levodopa-carbidopa).
2. Eldepryl (selegiline).
3. Parlodel (bromocriptine).
4. Symmetrel (amantadine).
5. Cogentin (benztropine).
6. Artane (trihexyphenidyl).
7. Lodosyn (carbidopa).
8. Requip (ropinirole)
9. Mirapex (pramipexole)

B. Corticosteroids used to treat inflammatory conditions such as MS.

1. Deltasone (prednisone).
2. ACTH (adrenocorticotropic hormone).
3. Medrol (methylprednisolone).

C. Anticonvulsants to control certain types of seizures.

1. Dilantin (phenytoin).
2. Tegretol (carbamazepine).
3. Phenobarbital.
4. Depakene/Depakote (valproic acid).
5. Mysoline (primidone).
6. Zarontin (ethosuximide).
7. Klonopin (clonazepam).
8. Valium (diazepam).
9. Felbatol (felbamate).
10. Neurontin (gabapentin).

11. Zonegran (zonisamide)

12. Keppra (levetiracetam)

13. Gabitril (tiagabine hydrochloride)

14. Lyrica (pregabalin)

15. Lamictal (lamotrigine)

D. Antidepressants – also called mood elevators; given to relieve symptoms of depression.

1. Elavil (amitriptyline).

2. Tofranil (imipramine).

3. Sinequan (doxepin).

4. Pamelor (nortriptyline).

5. Desyrel (trazodone).

6. Prozac (fluoxetine).

7. Paxil (paroxetine).

8. Zoloft (sertraline).

9. Effexor (venlafaxine).

10. Celexa (citalopram).

11. Lexapro (escitalopram oxalate).

12. Remeron (mirtazapine).

13. Wellbutrin (bupropion).

14. Cymbalta (duloxetine)

E. Anti-psychotic agents – used in the management of psychoses.

1. Phenothiazines.

a. Thorazine (chlorpromazine).

b. Mellaril (thioridazine).

c. Prolixin (fluphenazine).

2. Haldol (haloperidol).

F. Atypical antipsychotics

4. Loxitane (loxapine).

1. Risperdal (risperidone).

2. Clozaril (clozapine).

3. Zyprexa (olanzapine).

4. Seroquel (quetiapine).

5. Geodon (ziprasidone HCI)

G. Sedative/hypnotic used in treatment of insomnia or restlessness.

1. Noctec (chloral hydrate).

2. Dalmane (flurazepam).

3. Restoril (temazepam).

4. Halcion (triazolam).

5. Ambien (zolpidem).

H. Anti-anxiety agents/tranquilizers – calm the central nervous system.

1. Ativan (lorazepam).

2. Librium (chlordiazepoxide).

3. Valium (diazepam).

4. Tranxene (clorazepate).

5. Xanax (alprazolam).

6. Buspar (buspirone).

8. Atarax (hydroxyzine).

9. Vistaril (hydroxyzine).

I. Medications used to slow the progression of Alzheimer's disease.

1. Aricept (donepezil).

2. Reminyl (galantamine).

3. Exelon (rivastigmine tartrate).

4. Namenda (memantine).

J. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications, (e.g., bleeding, swollen, tender gums) for a resident receiving Dilantin.

3. Any change in mental status: unusually excited, animated, or lethargic.

4. Any dramatic change in personality and/or behavior.

5. Any change in communication skills, (e.g., suddenly unable to speak clearly).

6. Slurred or absent speech.

7. Complaints of headaches or dizziness.

8. Vision changes.

9. Nausea or vomiting.

10. Change in ability to balance, gait changes, tremors.

11. Dysphagia or choking.

12. Fainting.

13. Chills and/or convulsion.

14. Signs of tardive dyskinesia: sucking and smacking motions of lips, lateral jaw movements, puffing of cheeks with tongue thrusting and rolling, making fly catching movements.

VI. Sensory System

A. Related medications.

1. Ophthalmic preparations.
   a. Glaucoma medications.

1) Betoptic (betaxolol).

2) Timoptic (timolol).

3) Cosopt (dorzolamide/ timolol)

4) Isopto-carpine (pilocarpine).

5) Alphagan P (brimonidine).

6) Trusopt (dorzolamide)

7) Xalatan (latanoprost)

8) Lumigan (bimatoprost)

9) Travatan (travaprost)

b. Anti-histamine drops – decreases inflammation and moistens eyes.

1) Vasocon (naphazoline).

2) Visine (tetrahydrozoline).

Zaditor (ketotifen fumate)

c. Antibiotic drops to treat infection.

1) Neosporin (polymyxin B, neomycin, and gramicidin).

2) Garamycin (gentamicin).

3) NeoDecadron (neomycin and dexamethasone).

4) Sodium Sulamyd (sulfacetamide).

5) Zymar (gatrifloxacin)

6) Ciloxan (ciprofloxacin)

d. Artificial tears – moisten the eye.

1) Tears Naturale.

2) Artificial tears.

3) Liquifilm.

2. Otic (ear) preparations – medications for various ear problems; ear preparations should be warmed to body temperature, but care must be taken not to overheat.

    a. Cortisporin – steroid (hydrocortisone) and antibiotic (neomycin) combination used to treat otitis media.

    b. Cerumenex (triethanolamine) – for removal of excessive earwax.

    c. Debrox (carbamide peroxide) – for removal of excessive earwax.

    d. Auralgan (antipyrine, benzocaine, glycerin) – for relief of ear pain.

    e. Antibiotic drops.

3. Nasal preparations.

    a. Decongestant sprays such as Afrin (oxymetazoline HCl) nasal spray.

    b. Nasal inhalers to treat allergy symptoms such as Nasacort (triamcinolone), Rhinocort (budesonide), and Flonase (fluticasone).

    c. Sodium chloride sprays such as Ocean Mist to relieve dry nasal membranes.

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Pain to skin, eyes, ears, nose, mouth, or throat.

4. Vision difficulties or changes.

5. Hearing changes or abnormal drainage from ears.

6. Speech or swallowing difficulties.

7. Foul drainage from mouth or nose.

8. Discharge from eyes or redness/swelling of sclera or conjunctiva.

9. Unusual or excessive itching to eyes or ears.

10. Redness or open areas on the skin – may be the early stages of pressure ulcers.

11. Acute tingling, prickling, or numbness of body – note exact location and onset.

12. Reported changes in taste sensations.

CAUTION: Watch for allergic reactions.

VII. Cardiovascular System

A. Related medications.

1. Cardiac glycoside.

a. Lanoxin (digoxin) – increases the force of the heart's contractions. Take apical pulse for one full minute. If apical pulse is below 60 or greater than 110, check with the nurse before giving medication.

2. Anti-cholesterol agents – used to lower blood cholesterol.

a. Mevacor (lovastatin).

b. Questran (cholestyramine).

c. Vytorin (ezetimibe/simvastatin).

3. Anti-hypertensives.

NOTE: Normal systolic BP in the elderly is 100-150 mm/Hg. Normal diastolic BP in the elderly is 60-90 mm/Hg.

a. Miscellaneous.

1) Catapres (clonidine) – also comes in patch form.

2) Minipres (prazosin).

3) Hytrin (terazosin).

b. Beta blockers – block "message" that causes heart to beat fast. Pulse should be taken for one full minute prior to administration. If pulse is less than 60, check with the nurse before giving the medication.

1) Inderal (propranolol) – also used to treat arrhythmias.

2) Corgard (nadolol).

3) Blocadren (timolol).

4) Lopressor (metoprolol).

5) Tenormin (atenolol).

c. ACE (Angiotensin-converting enzyme) inhibitors.

1) Capoten (captopril).

2) Prinivil (lisinopril).

3) Vasotec (enalapril).

d. ARB (angiotensin receptor blockers)

1) Atacand, (candesartan)
2) Tevetan,(eprosartan)
3) Avapro, (irbesartan)
4) Mycardis, (telmisartan)
5) Diovan, (valsartan)
6) Cozaar (losartan)

4. Anti-arrhythmic – used to treat irregular heart beats.

a. Pronestyl (procainamide).

b. Procan SR (procainamide sustained release).

c. Quinidex (quinidine).

d. Norpace (disopyramide).

e. Tambocor (flecainide).

5. Anti-anginal agent – to improve the blood supply to the heart muscle and prevent angina pain.

a. Nitrostat (nitroglycerin) – sublingual, these drugs have short shelf life and must be protected from the light.

b. Nitropaste (nitroglycerin) – apply to the chest wall.

c. Nitrodisc, Transderm-Nitro (nitroglycerin transdermal patch).

d. Isordil (isosorbide).

e. Cardizem (diltiazem).

6. Calcium channel blockers – blocks calcium ions and causes heart to beat slower; relieves and controls angina.

a. Procardia (nifedipine).

b. Cardizem (diltiazem).

c. Calan, Isoptin (verapamil) – also used for arrhythmia.

d. Calan SR, Isoptin SR (verapamil, sustained release).

e. Norvasc (amlodipine besylate)

7. Anti-coagulants – these drugs increase the time it takes for blood to clot, commonly referred to as “blood thinners.”

a. Coumadin (warfarin sodium) – always observe for signs of bleeding, bruising, blood in stool or urine; tarry stools, dizziness, and coffee ground emesis.

8. Platelet aggregation inhibitors – prevent platelets from sticking together and causing a clot to form.

a. Plavix (clopidogrel).

b. Aspirin – also used to thin blood.

c. Persantine (dipyridimole) used with anti-coagulants.

9. Vitamins, minerals, electrolytes.

a. Vitamins – most common multiple vitamins.

1) Fat soluble – A, D, E, K.

2) Water soluble – C and B vitamins.

b. Minerals.

1) Feosol (ferrous sulfate, "iron").

c. Electrolytes.

1) Potassium chloride-dilute in juice.

2) K-lyte.

10. Diuretics – see urinary system.

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Tachycardia: pulse rate greater than 100 consistently and not associated with distress or pain.

4. Bradycardia: pulse rate less than 60 consistently and not associated with sleep; some residents will have artificial pacemakers to correct this.

5. Edema: swelling of the soft tissues, extremities, or eyes.

6. Sudden weight gain of more than 5 pounds in one week.

7. Shortness of breath or difficulty breathing – elevate head.

8. Any complaint of chest pain should be reported immediately.

IMPORTANT NOTICE: The elderly may not experience severe chest pain with a major heart attack! Pain in the neck, jaw, shoulder or epigastric area, dyspnea, tachypnea, irregular pulse, hypotension, restlessness, dizziness, fatigue and weakness can all be signs of an MI in the elderly.

9. Change in level of consciousness.

10. Hypertension – high blood pressure readings greater than 150 systolic or 90 diastolic.

11. Hypotension – low blood pressure; readings less than 100 systolic or 60 diastolic.

12. Irregular rhythm of heart beats – skipped beats or complaints of palpitations.

13. Weak heartbeat.

14. Unusual skin color, extreme pallor, cyanosis, gray, "ashy," or olive.

15. Diaphoresis not associated with fever or environment.

16. Extreme fatigue.

17. Persistent rhythmic hiccups – may be an indication that a pacemaker wire is out of position.

VIII. Respiratory System

A. Related medications.

1. Bronchodilators – used to open air passages. May be given orally, through an inhaler, or as a nebulizer treatment.

    a. Theo-Dur (theophylline).

    b. Proventil (albuterol) – comes in oral and inhalant.

    c. Atrovent (ipratropium) – available only in inhalant.

    d. Alupent (metaproterenol).

    e. Serevent (salmeterol).

    f. Spiriva (tiotropium)- inhaler

2. Anti-inflammatory – used to treat inflammation in the respiratory tract.

    a. Vanceril (beclomethasone).

    b. Advair (fluticasone/salmeterol).

CAUTION: When using Vanceril or Advair, thrush may develop if resident does not rinse his/her mouth well after each use.

    c. Pulmicort Respule or Turbuhaler (budesonide).

3. Cough/cold preparations.

    a. Antihistamines – decreases allergic reactions. Drowsiness is the most common side effect.

        1) Periactin (cyproheptadine).

        2) Benadryl (diphenhydramine).

        3) Drixoral (decongestant/antihistamine).

        4) Dimetane (brompheniramine).

        5) Phenergan (promethazine).

        6) Claritin (loratadine).

        7) Zyrtec (cetirizine).

    b. Decongestants – used to relieve sinus pressure and cold symptoms.

        1) Sudafed (pseudoephedrine) – contraindicated with some antihypertensive medications.

2) Actifed (antihistamine/decongestant combination).

3) Dimetapp (antihistamine/decongestant combination).

c. Expectorants – loosens secretions so that they are more easily coughed up.

1) Robitussin (guaifenesin) – available in several varieties. Be sure you are giving the RIGHT one.

2) Tussi-Organidin NR (guaifenesin/codeine).

3) Mucinex (guaifenesin).

NOTE: Unless the resident is on restricted fluids, always give extra fluids for colds to thin mucous.

4. Anti-infective – drugs used to combat infections.

a. Antibiotics.

1) Penicillin – used less because of allergies.

2) Keflex (cephalexin).

3) Amoxil (amoxicillin).

4) Polycillin N (ampicillin).

5) Bactrim (trimethoprim and sulfamethoxazole).

6) Septra (trimethoprim and sulfamethoxazole).

7) E-mycin (erythromycin).

8) Sumycin (tetracycline).

CAUTION: Do not give Sumycin (tetracycline) with food, milk, or antacids.

9) Cipro (ciprofloxacin).

10) Vancocin (vancomycin).

11) Geocillin (carbenicillin).

12) Vibramycin (doxycyline).

13) Zithromax (azithromycin).

15) Biaxin (clorithromycin).

16) Levaquin (levofloxacin).

18) INH (isoniazid).

19) Rifadin (rifampin).

20) Macrodantin (nitrofurantoin)

B. Cough suppressants – used to reduce coughing for dry coughs.

1. Robitussin (dextromethorphan) – available in several varieties. Be sure you are giving the RIGHT one.

2. Tessalon Perles (benzonatate)-do not crush or chew

NOTE: In most cases, cough suppressants should not be given with or followed by water. It should be the last medication given as it has a local effect on the cough receptors in the throat.

C. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications (e.g., drowsiness from an antihistamine).

3. Dyspnea – difficult breathing, shortness of breath.

4. Cheyne-stokes breathing or other irregular patterns – note length of time of periods of apnea.

5. Cough – note if productive or non-productive.

6. Expectorations – secretions coughed or spit out of the trachea and lungs; note amount and color; bloody expectorations are called hemoptysis.
7. Chest pain.

8. Complaint of sore throat or difficulty swallowing.

9. Respiratory rate above 20, or less than 14.

IX. Digestive System

A. Related medications.

1. Anticholinergic/gastrointestinal drugs – used for peptic ulcers.

a. Combination drugs.

1) Librax (clidinium/chlordiazepoxide) (see Librium).

b. Histamine H_2 antagonists – decrease stomach acid production; do not give with antacids.

1) Tagamet (cimetidine).

2) Zantac (rantidine).

3) Pepcid (famotidine).

2. Other gastrointestinal drugs.

a. Carafate (sucralfate) – take on empty stomach.

b. Prilosec (omeprazole) – decrease acid production.

c. Reglan (metoclopramide) – GI stimulant.

e. Prevacid (lansoprazole).

3. Antacids – relieve heartburn/acid stomach by neutralizing acid; best to give one hour before, or 2 hours after oral medications.

a. Mylanta (magnesium hydroxide) – may cause diarrhea.

b. Maalox, Alamag suspension (aluminum hydroxide and magnesium hydroxide).

4. Anti-diarrheals – used to treat diarrhea.

a. Lomotil (diphenoxylate with atropine).

b. Imodium (loperamide).

c. Kaopectate (bismuth subsalicylate).

5. Anti-emetics – used to treat nausea and vomiting.

a. Tigan (trimethobenzamide).

b. Compazine (prochlorperazine).

c. Dramamine (dimenhydrinate).

d. Antivert (meclizine).

6. Laxatives – used to treat constipation, give with 6-8 ounces of fluids.

    a. Saline type – attracts water into intestine.

        1) Milk of magnesia.

    b. Bulk producing type – retains water in feces.

        1) Metamucil (psyllium).

        2) Citrucel (methylcellulose).

    c. Irritant/stimulant type – stimulates peristalsis.

        1) Dulcolax (bisacodyl).

    d. Emollient – lubricates the bowel.

        1) Mineral oil.

    e. Fecal softeners – promotes water retention in the fecal mass.

        1) Colace (docusate sodium).

        2) DSS (docusate sodium).

        3) Diocto (docusate sodium).

    f. Enemas.

        1) Fleet (sodium phosphate).

        2) Oil retention (mineral oil).

        3) Other.

    g. Chronulac (lactulose) – synthetic sugar that causes the stool to retain water.

7. Gallstone Solubilizers – Acitigall (ursodiol).

8. Hemorrhoidal preparations – Anusol (emollient, protectant combination).

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Bleeding from mouth, nose, or rectum – hematemesis (vomiting blood), coffee ground emesis, black tarry stools.

4. Nausea/vomiting – note amount, type, character, and color of emesis.

5. Halitosis – bad breath or any unusual breath odor.

6. Distended abdomen.

7. Any complaint of abdominal pain.

8. Dysphagia – difficult swallowing.

9. Poor appetite.

10. Poorly fitting, lost, or broken dentures.

11. Constipation of symptoms of impaction.

12. Diarrhea – check for cause; may be too many laxatives.

X. Urinary System

A. Related medications.

1. Diuretics "water pills" – remove excess fluids from the body. Administer so action will occur during waking hours.

a. Thiazide types – commonly used to treat edema and high blood pressure.

1) HydroDIURIL (hydrochlorothiazide).

2) Dyazide (hydrochlorothiazide and triamterene).

3) Hygroton (chlorthalidone).

4) Diuril (chlorothiazide).

b. Loop diuretics – causes potassium loss and usually requires potassium replacement.

1) Lasix (furosemide).

2) Bumex (bumetanide).

3) Edecrin (ethacrynic acid).

c. Other.

1) Aldactazide (spironolactone and hydrochlorothiazide).

2) Diamox (acetazolamide) used often for glaucoma.

2. Urinary antiseptics and anti-infectives.

a. Macrodantin (nitrofurantoin).

b. Noroxin (norfloxacin) – urinary anti-infective.

c. Hiprex, Mandelamine, Urex (methenamine) – urinary anti-infective.

d. Septra DS (trimethoprim and sulfamethoxazole).

3. Urinary analgesics/antispasmodics.

a. Pyridium (phenazopyridine).

b. Urispas (flavoxate).

c. Ditropan (oxybutynin).

Detrol (tolterodine)

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Pain.

4. Urine abnormalities.

a. Blood.

b. Stones.

c. Sediment.

d. Mucous.

e. Unusual color.

f. Foul odor.

5. Frequency – need to empty the bladder more often than normal.

6. Retention – inability to empty bladder; retaining urine.

7. Males.

    a. Difficulty starting the urinary system and/or voiding small amounts (less than 60 cc).

    b. Edema of head of penis or foreskin.

XI. Reproductive System

A. Related medications.

1. Hormones – these medications replace or supplement hormones that are normally secreted by the glands of the endocrine system.

    a. Estrogens.

    b. Premarin (estrogens, conjugated) – female hormone.

    c. Provera (medroxyprogesterone).

    d. Oral contraceptives (estrogens and progestin/progesterone).

    e. Testosterone.

2. Anti-fungals – drugs that combat fungal infections.

    a. Nilstat (nystatin).

    b. Monistat (miconazole).

    c. Nizoral (ketoconazole).

    d. Mycelex (clotrimazole)

3. Anti-protozoals – used to treat infections caused by protozoa.

    a. Flagyl (metronidazole) – used to treat infection of the genitourinay system.

    b. Vibramycin (doxycycline).

4. Prostate medications.

    a. Hytrin (terazosin).

b. Proscar (finasteride).

c. Flomax (tamsulosin hydrochloride)

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Pain in genital area.

4. Female – post menopausal bleeding.

5. Foul odor in the genital region with or without unusual discharge.

6. Severe itching in the genital region.

7. Skin abnormalities.

a. Warts.

b. Redness.

c. Lesions.

d. Rashes.

XII. Endocrine System

A. Related medications.

1. Hormones and synthetic substitutes – these medications replace or supplement hormones that are normally secreted by the glands of the endocrine system.

2. Corticosteroids – Used to treat inflammation; commonly referred to as "steroids."

a. Orasone (prednisone).

b. Hydrocortone (hydrocortisone).

c. Cortone (cortisone).

d. Medrol (methylprednisolone).

3. Thyroid – used when the thyroid gland does not produce enough.

a. Synthroid – (levothyroxine).

b. Armour thyroid (thyroid-desicated).

4. Anti-thyroid – to treat conditions when thyroid over-produces.

a. Tapazole (methimazole).

b. Iodotope (radioactive iodine).

5. Insulin – always injectable.

6. Oral hypoglycemics.

a. Orinase (tolbutamide).

b. Avandia (rosiglitazone).

c. Micronase, Glynase (glyburide).

d. Glucotrol (glipizide).

e. Actos (pioglitazone).

f. Glucophage (metformin).

g. Prandia (repaglinide)

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.
2. All undesired effects of prn or routine medications.
3. Hypoactivity or hyperactivity.
4. “Moon” face that may develop from cortisone therapy.
5. Mental status change.
6. Weight gain or loss of more than 5 pounds in one week.
7. Signs/symptoms of hyperglycemia (high blood sugar).
    a. Flushed.
    b. Hot, dry skin.
    c. Fruity, alcohol or acetone odor to breath.
    d. Extreme thirst.
    e. Frequent urination.
    f. Hunger.
    g. Blurred vision.
    h. Nausea.
    i. Drowsiness.
    j. Blood glucose above 110mg/dL.
8. Signs/symptoms of hypoglycemia (low blood sugar).
    a. Pale.
    b. Cool, clammy skin.
    c. Shaking/tremors.
    d. Dizziness.
    e. Hunger.
    f. Anxiety.

g. Unusual weakness/fatigue.

h. Headache.

i. Irritability.

j. Blurred vision.

k. Blood glucose below 70mg/dL.

l. Extreme thirst.

m. Excessive urination.

XIII. Integumentary System

A. Related medications.

1. Topical products.

a. Vaginal anti-infectives – used to treat candida albicans, a yeast infection.

1) Mycostatin (nystatin).

2) Monistat (miconazole).

b. Burn preparations; Silvadene (silver sulfadiazine) – cream for prevention of infections in burns.

c. Anti-seborrheic – used when the sebaceous glands overproduce sebum on skin.

1) Selsun shampoo (selenium) – removes sebum from scalp.

d. Topical anti-infective – used to treat bacterial infections of the skin.

1) Bacitracin.

2) Neosporin (neomycin, polymyxin B, bacitracin).

3) Polysporin (polymyxin B, and bacitracin).

4) Garamycin (gentamicin sulfate).

5) Aerosporin (polymyxin B).

e. Topical anti-fungals – used to treat fungal infections of the skin.

1) Desenex, Lotrimin (clotrimazole) – for athlete's foot, ringworm, and prickly heat.

2) Mycostatin (nystatin).

3) Mycolog (nystatin/triamcinolone).

4) Lamisil (terbinafine).

f. Scabies/pediculocides – used to treat scabies or lice.

1) Kwell (lindane) – FOLLOW DIRECTIONS EXACTLY.

2) Elimite/NIX (permethrin).

3) RID (pyrethrin).

g. Topical corticosteroids – used to treat skin inflammation.

1) Cortef, Cortaid (hydrocortisone).

2) Kenalog, Aristocort (triamcinolone).

3) Medrol (methylprednisolone).

4) Topicort (desoximetasone).

h. Topical antihistamines-Benadryl (diphenhydramine).

i. Topical antivirals; Zovirax (acyclovir).

j. Topical anesthetic; Nupercainal (dibucaine) – especially used for hemorrhoids.

k. Wet dressings and soaks.

1) Domeboro tablets (aluminum sulfate) – used to make Burow's Solution.

2) Normal saline.

l. Topical enzyme preparations – used to remove dead tissue which allows healing to take place.

1) Elase (fibrinolysin and desoxyribonuclease).

2) Santyl ointment (collagenase).

m. Antiseptics – used to cleanse the skin.

1) Betadine (providone-iodine).

n. Miscellaneous rectal preparations.

o. Hemorrhoidal preparations – Anusol (emollient, protectant combination).

1) Anusol HC (emollient, protectant/hydrocortisone).

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Pain.

4. Abnormal color of skin; pallor, redness, blue, gray, jaundice.

5. Abnormal lesions; skin tears, decubitus, changing sores, purulence.

6. Itching rashes, urticaria (hives), extreme dry skin.

7. Unusual bruising, petechiae.

8. Unusual loss of hair.

9. Abnormal nail color and/or nail loss or inflammation.

10. Numbness or tingling of skin.

11. Rash on inter-digital webs on hands with severe night itching.

XIV. Immune/Lymphatic System

A. Related Medications.

1. Anti-infective – used to treat infections.

2. Influenza vaccine – used to prevent influenza.

3. Pneumonia vaccine – used to prevent pneumonia.

4. Antivirals

a. Retrovir (zidovudine).

b. Epivir (lamivudine).

c. Rescriptor (delaviridine mesylate).

d. Agnerase (amprenavir).

B. Observations to report to the licensed nurse.

1. All abnormal vital signs should be reported and recorded.

2. All undesired effects of prn or routine medications.

3. Pain to abdomen, flank, neck, or groin/genital area.

4. Nodules – lump developing, usually in the axilla or groin.

COMMON DRUG CATEGORIES

This information is not intended to be inclusive of all categories, but is included to provide an easy reference for students.

1. Analgesics – relieve pain; divided into narcotic and non-narcotics analgesics.
2. Antacids – neutralize stomach acid and are used to treat ulcers, gastritis and GERD.
3. Antianginal – used to treat angina (chest pain).
4. Anti-anxiety/tranquilizers – decrease anxiety and tension.
5. Antiarrhythmics – used to treat abnormal hear rate or rhythm (arrhythmias).
6. Antibiotics – used to treat bacterial infections.
7. Anticoagulants – prevent blood clots, commonly called “blood thinners.”
8. Anticonvulsants/antiepileptics – used to control or prevent seizures.
9. Antidepressant/mood elevators – used to treat depression.
10. Antidiabetics – used to treat diabetes, includes insulins and oral hypoglycemics.
11. Antidiarrheals – used to treat diarrhea.
12. Antiemetics – used to treat nausea or vomiting.
13. Antifungals – used to treat fungal infections.
14. Antihistamines – used to treat allergy symptoms and allergic reactions.
15. Antihypertensives – used to treat high blood pressure.
16. Anti-infectives – used to treat infections.
17. Antiparkinsons – used to treat symptoms associated with Parkinson’s disease.
18. Antivirals – used to treat viral infections.
19. Antipsychotics – used to treat mental illness.
20. Bronchodilators – open breathing passages.
21. Cardiovascular drugs – used to treat conditions of the cardiovascular system.

22. Corticosteroids – used to treat inflammation and severe allergic reactions.

23. Dermatologicals – used to treat conditions of the hair, skin and nails.

24. Diuretics – used to remove excess body fluids, commonly called “water pills.”

25. Electrolytes – used to replace chemicals such as potassium, sodium or chloride in the body.

26. Laxatives – used to treat constipation.

27. Nonsteroidal anti-inflammatory drugs (NSAIDS) – used to treat inflammation.

28. Sedatives/hypnotics – used to promote sleep.

29. Skeletal muscle relaxants – decrease muscle tone, anxiety and tension.

30. Thyroid replacements – replace thyroid hormone in residents with hypothyroidism.

31. Vitamins/minerals – used to supplement or replace chemicals lacking in the diet.

COMMON DRUG SIDE EFFECTS

This information is not intended to be inclusive of all side effects, but is included to provide an easy reference for students.

1. Analgesics – GI irritation if aspirin based. Respiratory depression, constipation, urinary retention, dizziness, hypotension, nausea, and confusion with narcotic analgesics.

2. Antacids – constipation.

3. Antianginal – headaches.

4. Anti-anxiety/tranquilizers – dizziness, drowsiness, lethargy, slurred speech, ataxia, blurred vision, falls.

5. Antiarrhythmic – confusion, slurred speech, lightheadedness, seizures, hypotension.

6. Antibiotics – secondary yeast infections, diarrhea, secondary clostirium difficile infections.

7. Anticoagulants – uncontrolled bleeding, bruising.

8. Anticonvulsants/antiepileptics – dizziness, lethargy.

9. Antidepressant/mood elevators – dry mouth, constipation, blurred vision, postural hypotension, dizziness, tachycardia, urinary retention, interactions with alcohol.

10. Antidiabetics – low blood sugar.

11. Antidiarrheals – constipation.

12. Antifungals – nausea if alcohol used while on some medications.

13. Antihistamines – dizziness, lethargy, urinary difficulty, short-term memory dysfunction.

14. Antihypertensives – dizziness, falls, orthostatic hypotension.

15. Antiparkinsons – uncontrolled movements such as grimacing, tongue movements, rapid eye blinking, twisting of the necks, arm and legs, dark urine.

16. Antipsychotics – jaundice, sedation, dizziness, falls, ocular changes. Orthostatic hypotension, scaling on the skin with sunlight exposure, uncontrolled movements such as grimacing, tongue movements, rapid eye blinking, twisting of the neck, arm and legs.

17. Bronchodilators – restlessness, nervousness, confusion, palpitations, tachycardia, chest pain, increased blood pressure.

18. Cardiovascular drugs – fatigue, loss of appetite, nausea, vomiting, vision disturbances, nightmares, nervousness, drowsiness, hallucinations, bradycardia, arrhythmias, and hypokalemia with cardiac glycosides.

19. Diuretics – fluid and electrolyte imbalance, dehydration, hypotension, increased blood glucose levels.

20. Corticosteroids – sodium retention, increased blood pressure, insomnia, psychotic behavior, osteoporosis with long-term use.

21. Laxatives – diarrhea, malabsorption, reduced absorption of fat-soluble vitamins, and magnesium toxicity with magnesium based laxatives.

22. Nonsteroidal anti-inflammatory drugs (NSAIDS) – GI irritation, prolonged bleeding time, tinnitus, vertigo, increase risk of toxicity in residents with impaired renal function.

23. Sedatives/hypnotics – dizziness and falls.

24. Skeletal muscle relaxants – lethargy, drowsiness.

PAIN CONTROL – USE OF ANALGESICS

Analgesics: Group of drugs given for the control of pain.

"Pain isn't an easy condition to define. It is a sensation. Sensations can be interpreted in different ways. The perception of pain is influenced by:

1. Fatigue.
2. Anxiety.
3. Fear.
4. Anticipation of pain.

How we feel pain:

1. Free nerve endings act as pain receptors.
2. Impulses (special messages) travel through specialized pain fibers to the spinal cord and then to the brain.
3. Brain sends a message to the body about the pain. EXAMPLE: If you are touching a hot stove, the brain will tell your hand to pull away.

Understanding pain assessment.

1. Pain assessment is the duty of the licensed nurse and physician.

CMT's have an obligation to understand the pain assessment and management process:

1. Document the individuals statement of pain as whatever her/she says it is.
2. In the case of chronic or intractable pain, give analgesics in doses high enough and frequent enough to control the pain.
3. For chronic or intractable pain, treat the pain before it returns.
4. For any other pain, treat without delay as soon as it is reported. In the case of residents who are not able to report pain, treat as soon as symptoms are noted:

    A. Be alert for behaviors that may indicate pain. Actions speak louder than words when residents are in pain. Pay particular attention to physical aggression, verbal aggression, facial expressions, restlessness, and resistance to caregivers. When implementing a facility behavior intervention program, start with considering the pain assessment of each resident. The following list of actions may represent pain.

B. Facial expressions – frown, grimace, fearful, sad, teeth clenched, eyes wide open or shut tight.

C. Physical movements – restless, fidgeting, absence of movement, slow or cautious movements, guarding, rocking, rigidity, rubbing, holding parts of body, wandering.

D. Vocalizations – groaning, moaning, repeated phrases, yelling out, and noisy breathing.

E. Social – sleepless or sleeping most of the time, irritability, agitated, combative, crying, trying to get attention, refusal to go to activities, loss of appetite, withdrawn, resist care.

F. Aggression – physical or verbal.

5. Acute pain must be evaluated by a physician to treat the cause.

WORK SHEET OF OTC ANALGESICS

Instructions: Take this work sheet to your grocery store, discount center, pharmacy, or convenience store and read labels on the following.

Strength in mg.						
Drug Name	Aspirin	Acetaminophen	Ibuprofen	Caffeine	Other	$
Anacin						
Anacin Free						
Datril						
Excedrin						
Extra Strength Excedrin						
Aleve						
Bufferin						
Advil						
Tylenol Arthritis						
Buffered Aspirin						
Ibuprofen						
Alka-seltzer						
Tylenol						
Extra Strength Tylenol						
Acetaminophen						

WORK SHEET – DRUG INFORMATION CARDS

Directions: Look up the 25 most commonly used medications in your facility. Your instructor may determine which medications to look up. Record the information on a 4" x 6" index card for each medication.

You may need to use the back of the card for some medications. One example has been included below. Include the following:

Brand name
Generic name
Classification
Indications
Contraindications
Normal dosage for age group
Forms available
Side effects
Nursing interventions

Sample Drug Information Card:

BRAND NAME: Lanoxin.

GENERIC NAME: digoxin.

CLASSIFICATION: cardiacglycoside.

INDICATIONS: congestive heart failure; atrial fibrillation.

CONTRAINDICATIONS: fibrillation, previous adverse reactions;

NORMAL DOSAGE FOR AGE GROUP: 0.125 mg/day.

FORMS AVAILABLE: oral tablet, pediatric elixir, injectables.

SIDE EFFECTS: fatigue, weakness, loss of appetite or nausea, visual disturbances, low blood pressure.

NURSING INTERVENTIONS: take apical pulse for one full minute before giving, report to charge nurse. Hold medication if apical pulse is below 60 or above 110.

LESSON PLAN: 9

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS AND OBSERVATIONS

EVALUATION ITEMS:

1. List the four (4) steps in the drug cycle and give a short explanation of each step

   a.

   b.

   c.

   d.

2. What is the main organ of drug metabolism?

3. What is the main organ or drug excretion?

4. What is the difference between local and systemic effects of medications?

5. List five (5) signs/symptoms of hyperglycemia

a.

b.

c.

d.

e.

6. List five (5) signs/symptoms of hypoglycemia

a.

b.

c.

d.

e.

Match the drug each drug classification with the correct description of its use.

A. Analgesic
B. Antacid
C. Anticoagulant
D. Antiarrhythmic
E. Antiemetic
F. Anti-infective
G. Corticosteroid
H. Bronchodilator
I. Diuretic
J. Electrolyte
K. Skeletal muscle relaxant
L. Thyroid
M. Tranquilizer
N. Vitamin/Mineral

____ 7. Used to supplement the diet. A,B,C, D, E, K and iron are examples.

____ 8. Used to relieve pain.

____ 9. Used to decrease anxiety.

____ 10. Neutralized acid in the stomach.

____ 11. Used to replace hormones in patients with hypothyroidism.

____ 12. Prevents blood clots.

____ 13. Used to relax muscles after a sprain or strain.

____ 14. Prevents or treats abnormal heart rate or rhythm.

____ 15. Used to replace chemicals, such as potassium, in the body.

____ 16. Used to treat nausea and vomiting.

____ 17. Removes excess fluids from the body.

____ 18. Used to treat an infection.

____ 19. Opens air passages in person with lung disease.

____ 20. Decreases inflammation.

LESSON PLAN: 10

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

SCOPE OF UNIT:

This unit includes guidelines for observing and reporting.

INFORMATION TOPIC: III-10 OR DEMONSTRATION: III-10

OBSERVING AND REPORTING
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

Information:

1. List three major problems encountered in drug use at home.
2. Identify major problems of drug use in long-term care facility.
3. Identify approaches to special problems in medication administration.
4. Name five (5) techniques used in observation.
5. Recognize physical and psychosocial changes in residents, which must be reported to the charge nurse.

Demonstration:

1. Count apical pulse.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. HO 25: Look-Alike and Sound-Alike Drugs.
2. HO 26: Types of Hearing Aids.
3. HO 27: Operation of a Hearing Aid.
4. HO 28: Communicating with the Aphasic Resident.

INFORMATION ASSIGNMENT:

Read Lesson Plan 10 prior to class and be prepared to discuss the information presented and return the demonstration on counting the apical pulse.

INTRODUCTION

Adverse drug reactions are a serious problem regardless of age. It is essential that the medication technician develop skills in observing responses to drug therapy. This lesson includes the major problems encountered by the drug user, techniques in observations, and the changes in behavior that require immediate attention.

LESSON PLAN: 10

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

OUTLINE:

I. Major problems of Drug Use at Home

A. Availability of drugs such as herbals and over-the-counter (OTC) drugs.

B. Self-medication.

1. Prescription drugs not taken correctly due to expense, "sharing" of prescription medications, several medications from the same classification from different physicians.

2. Influence of advertising.

C. Treated by more than one physician.

D. High cost of drugs.

E. Inability to open containers.

F. Forgetting to take medications.

G. Inability to read directions due to poor vision.

H. Limited access to pharmacy for refills.

I. Expired medications.

J. Improper storage of medications such as not refrigerating a medication that must be refrigerated.

II. Major problems of Drug Use in the Long-Term Care Facility

A. Physical changes and drug effects.

B. Disorientation.

C. Potential for medication errors due to look-alike and sound-alike drugs (HO 25), illegible handwriting, use of improper abbreviations, incorrect orders and misplaced decimal points.

D. Adverse drug reaction – any drug effect other than what is therapeutically intended. It may be expected and benign or unexpected and potentially harmful.

E. Side effects – mild, but predictable, adverse reactions.

F. Hypersensitivity reaction (allergic response) – result of an antigen-antibody immune reaction that occurs in the body when a drug is given to a susceptible individual.

G. Anaphylactic reaction (life threatening allergic response) – immediate hypersensitivity or anaphylaxis. Typically begins 1 to 30 minutes following exposure to the offending antigen. Tingling sensations and a generalized flush may proceed to fullness in the throat, chest tightness, or a "feeling of impending doom." Generalized rash and sweating are common. Severe reactions include life-threatening involvement of the airway and cardiovascular system.

H. Physical or psychological dependence – certain drugs, especially those subject to abuse (e.g., narcotics for pain), cause dependence. Signs of dependence are increased tolerance to the drug. The body craves more and more analgesics.

I. Cumulative effects – some medications are not metabolized or excreted very fast especially in the elderly, so the drug builds up or accumulates in the body. This can produce toxic or overdose-like effect.

J. Drug interactions – when one drug is administered in combination with or shortly after another drug, the effects of one or both drugs is altered.

    1. Synergism – two unlike drugs whose effects are greater than those of either drug alone.

    2. Antagonism – two unlike drugs whose effects are less than the effect of either drug alone.

K. Unnecessary use of drugs. An unnecessary drug is any drug used:

    1. In an excessive dose.

    2. In duplicate therapy.

    3. For excessive duration.

    4. Without adequate indication for use.

    5. Without adequate monitoring.

    6. When adverse effects indicate the dose should be decreased or the drug discontinued.

L. Polypharmacy refers to:

    1. Use of a drug with no apparent need.

2. Use of more than one drug for the same purpose.

3. Use of drugs to treat adverse drug reactions.

III. Approach to Special Problems in Medication Administration

A. Confusion.

1. Speak slowly, at a normal level, and in a low-pitched voice.

2. Use short, familiar words and simple sentences. Example: “Please drink this glass of water.”

3. Give positive instruction, avoiding “don't” or negative commands. Example: “Please sit down in your chair.”

4. Avoid questions or topics of conversation that require a lot of thought, memory, and words. Instead, be specific about what you are doing or what you want to resident to do. Example, “Mr. James, I have your cough syrup, please drink it.”

5. Avoid instructions that require the resident to remember more than one action at a time. Instead, break the task down into simpler actions. Example: “Mrs. Jennings, lie down on your bed.” (After Mrs. Jennings is lying down, give the next action.) “Mrs. Jennings, please roll on your side.”

B. Blindness.

1. Observe for signs indicating deteriorating eyesight.

a. Stumbling or falling.

b. Holding on to objects when walking.

c. Using touch to find personal things.

2. Encourage use of eyeglasses; clean daily with a soft cloth.

3. Use verbal communication if resident can hear; use normal tone of voice.

4. Use touch.

4. Identify self when entering or leaving a room.

6. Keep surroundings the same – do not rearrange personal items or furniture without asking the resident.

7. When communicating with the blind resident, try the following tips.

    a. With your guidance, show the resident the location of the glass of water.

    b. Tell the resident how many tablets or capsules you have. Indicate if they are large or small.

C. Deafness.

1. Signs indicating hearing loss.

    a. Loss of interest in group activity, in other persons, or in what is being said to him/her.

    b. Apparent disregard for directions or suggestions.

    c. An attempt to lip-read.

2. When communicating with the deaf resident, try the following tip. Write a note to the resident, (e.g., “Mr. Smith, I have your 10 AM medication”).

3. Encourage the resident to use a hearing aid and give him/her time to adjust it (HO 26, HO 27).

4. Face the resident in a lighted area; stand where he/she can see you.

5. Use moderate tone of voice; do not shout at resident.

6. Reduce background noise.

7. Attempt to learn some sign language.

D. Speech disorder

1. Dysarthria – weakness or paralysis of muscles of lips, tongue, and throat; may be due to brain damage from stroke or accident

2. Aphasia – language disorder in which resident has difficulty understanding words and using them correctly due to damage of the part of the brain that controls speech (HO 28).

    a. Expressive – resident has difficulty saying what he/she is thinking and wants to say; may also have trouble writing and making gestures to act out what he/she is trying to say.

    b. Receptive – resident cannot understand what is being said to him/her; gestures and pantomime may be confuse him/her; may

have difficulty understanding what he/she is reading or recognizing the words.

c. Global – a combination of expressive and receptive aphasia.

3. How to communicate to the resident with speech disorder.

a. Encourage the resident to express self in any way possible.

b. Continue to talk to the resident and encourage other to also talk to the resident.

c. Use short, simple sentences and use the same words each time when you give directions.

d. Watch the resident for gestures of body movements with which he/she may be communicating.

e. Be patient, do not speak for the resident, although you may want to help him/her with the words with which he/she is having difficulty.

f. Do not talk with another person in front of the resident if he/she cannot understand.

g. Remember the resident is still considered an adult.

h. Remember the basic principles of effective communication.

E. Disabled.

1. Do not hurry resident.

2. Assist only as needed.

F. Uncooperative.

1. Sit down, make yourself comfortable. Explain procedure, respect resident's rights, and use a positive attitude!

G. Difficulty swallowing.

1. Offer resident drink of water first to lubricate throat.

2. Place medication on unaffected side, one at a time. If tablet is large (and is scored), break tablet in half using clean technique.

3. Offer plenty of fresh water following each tablet. Do NOT hurry resident. Communicate with charge nurse, it is possible the resident may need medications crushed and/or require a liquid medication form.

IV. Techniques of Observation

A. Vital signs.

1. TPR (including apical pulse).

2. BP.

B. Using your senses, what you can tell by:

1. Sight.

2. Smell.

3. Touch.

4. Hearing.

V. Observations to Report to the Licensed Nurse

A. Physical changes such as changes in skin color or temperature, facial expressions, drooping on one side of the mouth, wound drainage, shortness of breath, or any change from what is "normal" for the resident.

B. Psychosocial (emotional/social) conditions associated with the aging process.

1. Depressive reactions.

2. Hypochondriasis/hypochondriac.

3. Paranoid reaction.

4. Catastrophic reaction.

5. Transient situational reactions.

6. Sleep disturbances.

7. Organic mental syndrome (formerly organic brain syndrome).

VI. Demonstrate the Procedure for Counting Apical Pulse

VII. Summary and Conclusion

A. Major problems of drug use at home.

B. Major problems of drug use in the long-term care facility.

C. Approach to special problems in medication administration.

D. Techniques of observation.

E. Observations to report to the licensed nurse.

F. Review procedure for counting apical pulse.

The next lesson is on basic guidelines for medication administration.

LESSON PLAN: 10

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

PROCEDURE FOR COUNTING APICAL PULSE:

1. Wash your hands.
2. Assemble necessary equipment.
3. Identify and greet resident. Identify self.
4. Explain what you are going to do.
5. Provide privacy.
6. Resident should be in sitting/supine position.
7. Clean the earpieces and diaphragm of the stethoscope with alcohol wipes.
8. Raise the resident's gown to expose the nipple area of the left chest. Do not expose more of the chest than necessary.
9. Warm the diaphragm of the stethoscope with your hands before placing it on the chest.
10. Place the stethoscope earpieces in your ears.
11. Locate the apical pulse. The diaphragm should be placed just below the left nipple. Listen carefully.
12. Count the pulse for 1 full minute. Note if the pulse is regular or irregular. Record the pulse on a sheet of paper.
13. Cover the resident.
14. Remove the earpieces from your ears and clean them with alcohol wipes. Also clean the diaphragm with alcohol wipes.
15. Return stethoscope to its proper place.
16. Wash your hands.
17. Make the resident comfortable; place call signal within reach.
18. Record observations and report anything unusual to the charge nurse.

LESSON PLAN: 10

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

EVALUATION ITEM:

NAME OF STUDENT:

COUNT APICAL PULSE

EQUIPMENT:

1. Watch with second hand
2. Alcohol wipes
3. Stethoscope with diaphragm
4. Pencil and paper

CHECK IF THE STUDENT DID THE FOLLOWING	YES	NO
1. Wash your hands		
2. Assemble necessary equipment		
3. Identify and greet resident. Identify self.		
4. Explain what you are going to do.		
5. Provide privacy.		
6. Resident should be in sitting/supine position.		
7. Clean the earpieces and stethoscope's diaphragm with alcohol wipes.		
8. Raise the resident's gown to expose the nipple area of the left chest. Do not expose more of the chest than necessary.		
9. Warm the stethoscope's diaphragm with your hands before placing it on the chest.		
10. Place the stethoscope's earpieces in your ears.		
11. Locate the apical pulse. The diaphragm should be placed just below the left nipple. Listen carefully.		
12. Count the pulse for 1 full minute. Note if the pulse is regular or irregular. Record pulse on sheet of paper.		

13. Cover the resident.		
14. Remove the earpieces from your ears and clean them with alcohol wipes. Also clean the diaphragm with alcohol wipes.		
15. Return stethoscope to its proper place.		
16. Wash your hands.		
17. Make the resident comfortable; place call signal within reach.		
18. Record observations and report anything unusual to the charge nurse.		

The student has satisfactorily completed the procedure "COUNT APICAL PULSE" according to the steps outlined.

Instructor's Signature Date
(Verifying Satisfactory Completion)

LOOK ALIKE AND SOUND ALIKE DRUGS

Accolate	Accupril
	Accutane
	Aclovate
Accupril	Accolate
	Accutane
	Aciphex
Accutane	Accupril
Acetazolamide	acetohexamide
Acetohexamide	acetazolamide
Acetylcholine	acetylcysteine
Acetylcysteine	acetylcholine
Aciphex	Accupril
	Aricept
Aclovate	Accolate
Acnomel	Actonel
Actonel	Acnomel
	Actos
Actos	Actonel
Adderall	Inderal
Adriamycin	Aredia
Advair	Advicor
Advicor	Advair
Afrin	aspirin
Aggraslat	Aggrenox
	argatroban
Aggrenox	Aggrastat
Albutein	albuteral
albuterol	Albeutein
	atenolol
Aldactazide	Aldactone
Aldactone	Aldactazide
Aldara	Alora
Aleve	Alesse
Alfenta	Sufenta
affentanil	Anafranil
	fentanyl
	sufentanil
Alkeran	Leukeran
Alora	Aldara
alprazolam	alprostadil
	lorazepam
alprostadil	alprazolam
Altace	alteplase
	Artane
alteplase	Altace
Altocor	Advicor
Alupent	Atrovent
Amaryl	Amerge
Amerge	Amaryl
Amicar	amikacin
	Amikin
	Omacor
amikacin	Amicar
amiloride	amlogarone
	amlodipine
aminophylline	amitriptyline
	ampicillin
amiodarone	amiloride
amitriptyline	aminophylline
	nortriptyline
amolodipine	amiloride
amoxapine	amoxicillin
amoxicillin	amoxapine
ampicillin	aminophylline
Amvaz	Amvisc
Amvisc	Amvaz
Anafranil	alfentanil
	enalapril
	nafarelin
Anaprox	Anaspaz
Anaspaz	Anaprox
	Antispas
Antivert	Axert
Anusol	Anusol-HC
	Aplisol
	Aquasol
Aplisol	Anusol
Aquasol	Anusol
Aranesp	Aricept
Aredia	Adriamycin
argatroban	Aggrastat
Aricept	Aciphex
	Aranesp
	Ascriptin
Artane	Altace
Asacol	Os-Cal
Ascriptin	Aricept
asparaginase	pegaspargase
aspirin	Afrin
atenolol	albuterol
	timolol
Atgam	Ativan
Ativan	Atgam
	Avitene
Atrovent	Alupent
Avalide	Avandia
Avandamet	Avandia
Avandia	Avalide
	Avandamet
	Coumadin
	Prandin
Aventyl	Bentyl
Avinza	Invanz
	Evista
Avitene	Ativan
Avonex	Avelox
Axert	Antivert
azatadine	azathioprine
azathioprine	azatadine
	Azulfidine
azidothymidine	azathioprine
azithromycin	erythromycin
Azulfidine	azathioprine
bacitracin	Bactrim
	Bactroban
baclofen	Bactroban
Bactrim	bacitracin
	Bactroban
Bactroban	Bacitracin
	baclofen
	Bactrim
Benadryl	benazepril
	Bentyl
benazepril	Benadryl
Bentyl	Aventyl
	Benadryl
benztropine	bromocriptine
Betadine	betaine
betaine	Betadine
betaxolol	bethanechol
bethanechol	betaxolol
bromocriptine	benztropine
bupivacaine	mepivacaine
bupropion	buspirone
buspirone	bupropion
	risperidone
butabarbital	butalbital
butalbital	butabarbital

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

Cafegot Carafate
Caladryl calamine
calamine Caladryl
Calan Colace
calcifediol calcitriol
calcitonin calcitriol
calcitriol calcifediol
calcitonin
calcium glubionate
calcium
gluconate
calcium gluconate
calcium
blubionate
Capastat Cepastat
Capitrol captopril
captopril Capitrol
Carafate Cafergot
Carbatrol Cartrol
carboplatin cisplatin
Cardend Cardura
codeine
Cardizem CD (SR, LA)
Cardizem SR (CD, LA)
Cardura Cardene
Cordarone
Coumadin
K-Dur
Ridaura
carteolol carvedilol
Cartrol Carbatrol
carvedilol carteolol
Cefol Cefzil
Cefotan Ceftin
cefotaxime cefoxitin
cefizoxime
cefuroxime
cefotetan cefoxitin
cefoxitin cefotaxime
Cefotetan
Cytoxan
ceftazidime ceftizoxime
Ceftin Cefotan
Cefzil
ceftozoxime cefotaxime
ceftazidime
cefuroxime cerotaxime
deferoxamine
Cefzil Cefol
Ceftin
Celebrex Celex
Cerebyx

Cepastat Capastat
Cerebyx Celebrex
Cerezyme
Ceredase Cerezyme
Cerezyme Cerebyx
Ceredase
Chlorambuc
Chloromycetin
Chloromycetin chlorambucil
Chlorpromazine
chloropropamide
clomipramine
prochlorperazine
chlorpropamide
chlorpromazine
Cidex Lidex
Ciloxan cinoxacin
Cytoxan
Cimetidine simethicone
cinoxacin Ciloxan
cisplatin carboplatin
Citracal Citrucel
Citrucel Citracal
Clarinex Claritin
Claritin Clarinex
Clinoril clozaril
Clomiphene clomipramine
clonidine
clomipramine chlorpromazine
clomiphene
clonazepam clorazepate
forazepam
clonidine clomiphene
clonazepam
quinidine
clotrimazole co-trimoxazole
Clozaril Clinoril
colazal
codeine Cardene
Lodine
Colace Calan
Colazal Cloazril
combivent Combivir
combivir Combivent
Compazine Copaxone

Comvax
Recombivax HB
Copaxone Compazine
Cordarone Cardura
Cordran Cordarone
Coreg Corgard
Corgard Coreg
Cortef Lortab
co-trimoxazole clotrimazole
Coumadin Avandia
Cardura
kemadrin
Covera HS Provera
Cozaar Hyzaar
Zocor
Cyclophosphamide
Cyclosporine
Cycloserine
cyclobenzaprine
cyclosporine
cyclosporine
cyclophosphamide
cycloserine
Cyklokapron
Cyklokapron cyclosporin
Cyproheptadine
cyclobenzaprine
Cytadren cytarabine
cytarabine Cytadren
Cytogam Cytoxan
Cytotec Cytoxan
Cytoxan cefoxitin
Ciloxan
CytoGam Cytotex

dacarbazine proxcarbazine
dactinomycin daptomycin
Dalmane Demulen
Dantrium Daraprim
Daraprim Dantrium

Darvocet-N Darvon-N
Darvon Diovan
Darvon-N Darvocet-N
daunorubicin dactinomycin
doxorubicin
idarubicin
deferoxamine cefuroxime

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

Delsym	Desyrel
Demerol	Demulen
	Detrol
Demulen	Dalmane
	Demerol
Depo-Medrol	Solu-Medrol
Dermatop	Dimetapp
desipramine	disopyramide
	imipramine
Desogen	Digoxin
Desoximetasone	dexamethasone
Desoxyn	digoxin
Desyrel	Delsym
	Zestril
Dexamethasone	desoximetasone
Dexedrine	Dextran
Dexedrine	Excedrin
Dextran	Dexedrine
DiaBeta	Zebeta
Diamox	Trimox
diazepam	diazoxide
	Ditropan
diazoxide	diazepam
	Dyazide
dichloroacetic acid	trichloroacetic acid
diclofenac	Diflucan
	Duphalac
dicyclomine	doxycycline
	dyclonine
Diflucan	diclofenac
	Diprivan
	disulfiram
digoxin	Desogen
	Desoxyn
	doxepin
Dilantin	Dilaudid
Dilaudid	Dilantin
Dimenhydrinate	dimenhydrinate
Diprivan	Ditropan
Diprosone	dapsone
dipyridamole	disopyramide
disopyramide	desipramine
	dipyridamole
disulfiram	Diflucan
dithranol	Ditropan

Ditropan	diazepam
	Diprivan
	dithranol
doutamine	dopamine
Dolobid	Slo-bid
donepezil	doxepin
dopamine	dobutamine
	Dopram
Dopram	dopamine
doxapram	doxazosin
	doxepin
	doxorubicin
doxazasin	doxapram
	doxepin
	doxonrubicin
doxepin	digoxin
	donepezil
	doxapram
	Doxazosin
	Doxidan
Doxidan	doxepin
Doxil	Doxy
	Paxil
doxorubicin	dactinomycin
	daunorubicin
	doxacurium
	doxapram
	doxazosin
	idarubicin
Doxy	Doxil
doxycycline	dicyclomine
	doxylamine
doxylamine	doxycycline
dronabinol	droperidol
droperidol	dronabinol
duloxetine	fluoxetine
Duphalac	diclofenac
Dyazide	diazoxide
Dynabac	Dynacin
	DynaCirc
Dynacin	Dynabac
	DynaCirc
DynaCirc	Dynabac
	Dynacin
Ecotrin	Edecrin
Edecrin	Ecotrin
Eldepryl	enalapril

Eldonpaque Forte	Eldoquin Forte
Eldoquin Forte	Eldopaque Forte
Elmiron	Imuran
Emcyt	Eryc
Enablex	Enbrel
enalepril	Anafranil
	Eldepryl
Enbrel	Enablex
enflurane	isoflurane
Entex	Tenex
ephedrine	epinephrine
epinephrine	ephedrine
Epogen	Neupogen
Eryc	Emcyt
Erythrocin	Ethmozine
erythromycin	azithromycin
	Ethmozine
ethambutol	Ethmozine
Ethamolin	ethanol
ethanol	Ethamolin
	Ethyol
Ethmozine	Erythrocin
	erythromycin
	ethambutol
ethosuximide	methsuximide
Ethyol	ethanol
etidronate	etomidate
etomidate	etidronate
Eurax	Evoxac
	Serax
	Urex
Evoxac	Eurax
Excedrin	Dexedrine
Factrel	Sectral
Fareston	Fosrenol
Faslodex	Fosamax
Femara	Femhrt
Femhrt	Femara
Femiron	Femring
Femring	Femiron
fentanyl	altentanil
	sufentanil
Feosol	Fer-in-Sol
Feridex	Fertinex

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

Fer-In-Sol	Feosol
Fertinex	Feridex
fioricet	Fiorinal
Fiorinal	Fioricet
	Florinef
flecainide	fluconazole
Flexeril	Floxin
Flomax	Fosamax
	Volmax
Florinef	Fiorinal
Floxin	Flexeril
fluconazole	flecainide
Fludara	FUDR
Flumadine	flunisolide
	flutamide
flunisolide	Flumadine
	fluocinonide
flucinolone	fluocinonide
fluocinonide	flunisolide
	flucinolone
fluoxetine	duloxetine
	fluvastatin
flutamide	flumadine
fluvastatin	fluoxetine
folid acid	folinic acid
folinic acid	folic acid
Foradil	Toradol
Fosamax	Faslodex
	Flomax
Fosrenol	Fareston
fosinopril	lisinopril
FUDR	Fludara
furosemide	Torsemide
Furoxone	Fuzeon
Fuzeon	Furoxone
Glimepiride	glipizide
glipizide	glimepiride
	glyburide
Glucotrol	glyburide
glyburide	glipizide
	Glucotrol
GoLYTELY	NuLytely
guaifenesin	guanfacine
guanabenz	guanadrel
	guanfacine
guanadrel	guanabenz
guanethidine	guanidine
guanfacine	guaifenesin
	guanabenz
	guanidine
guanidine	guanethidine
	guanfacine

Halcinonide	Halcion
Halcion	halcinonide
	Haldol
	Healon
Haidol	Halcion
	Halog
	Stadol
Halog	Haldol
Healon	Halcion
	Hyalgan
Heparin	Hespan
Hespan	Heparin
Humalog	Humulin
Humulin	Humalog
Hyalgan	Healon
Hycodan	Vicodin
hydralazine	hydroxyzine
hydrochlorothiaziee	
	hydroflumethiazide
hydrocodone	
	hydrocortisone
hydrocortisone	hydrocodone
hydroxychloroquine	
	hydroflumethiazide
hydrochlorothiazide	
hydromorphone	morphine
hydroxychloroquine	
	hydrocortisone
hydroxyurea	hydroxyzine
hydroxyzine	hydralazine
	Hydrogesic
	hydroxyurea
Hytone	Vytone
Idarubicin	daunorubicin
	doxorubicin
Iletin	Lente
Imdur	Imuran
	K-Dur
imipramine	desipramine
Imodium	Indocin
	Ionamin
Imuran	Elmiron
	Imdur
	Inderal
indapamide	iopamidol
	lopidine
Inderal	Adderall
	Imuran
	Inderide
	Isordil
Inderide	Inderal

Indocin	Imodium
	Vicodin
Inspra	Spiriva
interferon 2	interleukin 2
interferon alfa-2a	
	interferon alfa-2b
interferon alfa-2b	
	interferon alfa-2a
interleukin 2	interferon 2
	interleukin 11
Invanz	Avinza
iodine	Iopidine
	Lodine
ionamin	imodium
iopamidol	indapamide
Iopidine	iodipamide
	iodine
	Lodine
isoflurane	enflurane
Isopto Carbachol	
	Isopto Carpine
Isopto Carpine	
	Isopto Carbachol
Isordil	Inderal
	Isuprel
Isuprel	Isordil
Kaletra	Keppra
K-Dur	Cardura
Kemadrin	Coumadin
Keppra	Kaletra
Kiaron	Klo-Con
Klor-Con	Klaron
K-Phos Neutral	
	Neutra-Phos-K
lactose	Lactulose
lactulose	lactose
Lamictal	Lamisil
	Lomotil
Lamisil	Lamictal
lamivudine	lamotrigine
lamotrigine	lamivudine
Lanoxin	Levsinex
	Lonox
Lantus	Lente
Lasix	Lidex
	Lusiq
Lente	lletin
	Lantus
leucovorin	Leukera

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

	Leukeran
Leukeran	Alkeran
	leucovorin
	Leukine
Leukine	Leukeran
Leustatin	lovastatin
Levatol	Lipitor
Levbid	Lithobid
	Lorabid
Levitra	Lexiva
Lexiva	Levitra
levothyroxine	liothyronine
Librax	Librium
Librium	Librax
Lidex	Cidex
	Lasix
Lioresal	lisinopril
liothyronine	levothyroxine
Lipitor	Levatol
lisinopril	fosinopril
	Lioresal
Lithobid	levbid
	Lithostat
	Lithotabs
Lithostat	Lithobid
	Lithotabs
Lithotabs	Lithobid
	Lithostat
Lodine	codeine
	iodine
Lomotil	Lamictal
Lonox	Lanoxin
	Loprox
Loprox	Lonox
Lorabid	Levbid
	Lortab
lorazepam	alprazolam
	clonazepam
Lortab	Cortef
	Lorabid
Lotensin	lovastatin
Lotrimin	Lotrisone
Lotrisone	Lotrimin
lovastatin	Leustatin
	Lotensin
Lovenox	Lotronex
Lupron	Nuprin
Luxiq	Lasix

Magnesium sulfate	
	manganese sulfate
manganese sulfate	
	magnesium sulfate
Maxidex	Maxzide
Maxzide	Maxidex
Mebaral	Medrol
Medrol	Mebaral
medroxyprogesterone	
	methylprednisolone
	methyltestosterone
melphalan	Mephyton
mephobarbital	
	methocarbamol
Mephyton	melphalan
	mephenytoin
mepivacaine	bupivacaine
metaproterenol	metipranolol
	metoprolol
methazolamide	metolazone
methenamine	methionine
methionine	methenamine
methocarbamol	mephobarbital
methsuximide	ethosuximide
methylprednisolone	
	medroxyprogesterone
methyltestosterone	
	medroxyprogesterone
metipranolol	metaproterenol
metolazone	methazolamide
	metoprolol
metoprolol	metaproterenol
	metolazone
	misoprostol
metyrapone	metyrosine
metyrosine	metyrapone
Mevacor	Mivacron
miconazole	Micronase
	Micronor
Micro-K	Micronase
Micronase	miconazole
	Micro-K
	Micronor
Micronor	miconazole
	Micronase
Midrin	Mydfrin
Mifeprex	Mirapex
mifepristone	misoprostol
Minocin	niacin
MiraLax	Mirapex
Mirapex	Mifeprex
	MiraLax
misoprostol	mifepristone
Mivacron	Mevacor

Monopril	Monurol
Monurol	Monoprril
Morphine	
	hydromorphone
Mucinex	Mucomyst
Mucomyst	Mucinex
Myambutol	Nembutal
Mycelex	Myoflex
Mydfrin	Midrin
Mylanta	Mynatal
Myleran	Mylicon
Mylicon	Myleran
Mynatal	Mylanta
Myoflex	Mycelex
nafarelin	Anafranil
Naldecon	Nalfon
Nalfon	Naldecon
naloxone	naltrexone
naltrexone	naloxone
Nasarel	Nizoral
Navane	Norvasc
	Nubain
Nembutal	Myambutol
Nephro-Calci	Nephrocaps
Nephrocaps	Nephro-Calci
Neulasta	Neumega
Neumega	Neulasta
	Neupogen
Neupogen	Epogen
	Nutramigen
Neurontin	Neutrexin
	Noroxin
Neutra-Phos-K	K-Phos
Neutral	
Neutrexin	Neurontin
niacin	Minocin
nicardipine	nifedipine
Nicorette	Nordette
nifedipine	nicardipine
	nimodipine
nimodipine	nifedipine
nitroglycerin	nitroprusside
nitroprusside	nitroglycerin
Nitrostat	Hyperstat
	Nystatin
Nizoral	Nasarel
Nordette	Nicorette
Noroxin	Neurontin
nortriptyline	amitriptyline
Norvasc	Navane
Nubain	Navane
NuLytely	GoLYTELY
Nuprin	Lupron

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

Nutramigren	Neupogen
Nystatin	nitrostat
Occlusal-HP	Ocuflox
OctreoScan	octreotide
	Oncoscint
octreotide	OctreoScan
Ocufen	Ocuflox
Ocuflox	Occlusal-HP
	Ocufen
olanzapine	olsalazine
olsalazine	olanzapine
Omacor	Amicar
OnoScint	OctreoScan
opium tincture	camphorated
tincture of opium (paragoric)	
opium tincture, camphorated	
(paregoric)	opium
tincture	
Optiray	Optivar
Optivar	Optiray
Ortho-Cept	Ortho-Cyclen
Ortho-Cyclen	Ortho-Cept
Os-Cal	Asacol
oxybutynin	OxyContin
OxyContin	oxybutynin
	oxycodone
oxymetazoline	oxymetholone
oxymetholone	
	oxymetazoline
	oxymorphone
oxymorphone	oxymetholone
Oxytrol	Roxanol
	Uroxatral
paclitaxel	paroxetine
	Paxil
	paroxetine
Pamelor	Panlor
Panadol	pindolol
Panlor	Pamelor
Paraplatin	Platinol
paregoric	Percogesic
Parlodel	pindolol
paroxetine	paclitaxel
	pyridoxine
Patanol	Platinol
Paxil	Doxil
	paclitaxel
	Plavix
	Taxol
pegaspargase	asparaginase
penicillamine	penicillin
penicillin	penicillamine
penicillin G	potassium
penicillin g procaine	
	penicillin g
	procaine
penicillin g	potassium
pentobarbital	phenobarbital
pentosan	pentostatin
pentostatin	pentosan
Pentrax	Permax
Percocet	Percodan
Percodan	Percocet
	Percogesic
	Periactin
Percogesic	Paregoric
	Percodan
Perdiem	Pyridium
Peridex	Precedex
Permax	Pentrax
	Pernox
Pernox	Permax
phenobarbital	pentobarbital
phentermine	phentolamine
phentolamine	phentermine
pHisoDerm	pHisoHex
pHisoHex	pHisoDerm
Phos-Flur	PhosLo
PhosLo	Phos-Flur
physostigmine	Prostigmin
	pyridoxtigmine
pindolol	Panadol
	Parlodel
	Plendil
Pitocin	Pitressin
Pitressin	Pitocin
Platinol	Paraplatin
	Patanol
Plavix	Paxil
Plendil	pindolol
	Pletal
	Prinivil
Pletal	Plendil
Polocaine	prilocaine
prafidoxime	Pramoxine
	pyridoxine
Pramoxine	pralidoxime
Prandin	Avandia
Prevachol	Prevacid
	propranolol
Pre-Care	Precose
Precedex	Peridex
Precose	Pre-Care
prednisolone	prednisone
prednisone	prednisolone
	primidone
Premarin	Primaxin
	Remeron
Premphase	Prempro
Prempro	Premphase
Prevacid	Prevachol
	Prevpac
Prevpak	Prevacid
prilocaine	Polocaine
	Prilosec
Prilosec	prilocaine
	Prinivil
	Prozac
Primaxin	Premarin
	Primacor
primidone	prednisone
Prinivil	Prilosec
	Proventil
ProAmatine	protamine
probenecid	Procanbid
	Procanbid
Procanbid	probenecid
	probenecid
procarbazine	dacarbazine
prochlorperazine	
	chlorpromazine
propranolol	Prevachol
propylithiouracil	Purinethol
Proscar	ProSom
	Prozac
	Psorcon
ProSom	Proscar
	Prozac
	Psorcon
Prostigmin	
	physostigmine
protamine	ProAmatine
	Protonix
	Protopam
Protonix	protamine
	Protopic
Protopic	Protonix
Protopam	protamine
Proventil	Prinvil
Provera	Covera HS
Prozac	Prilosec
	Proscar
	ProSom
Psorcon	Proscar
	ProSom
Purinethol	
	propylthiouracil

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

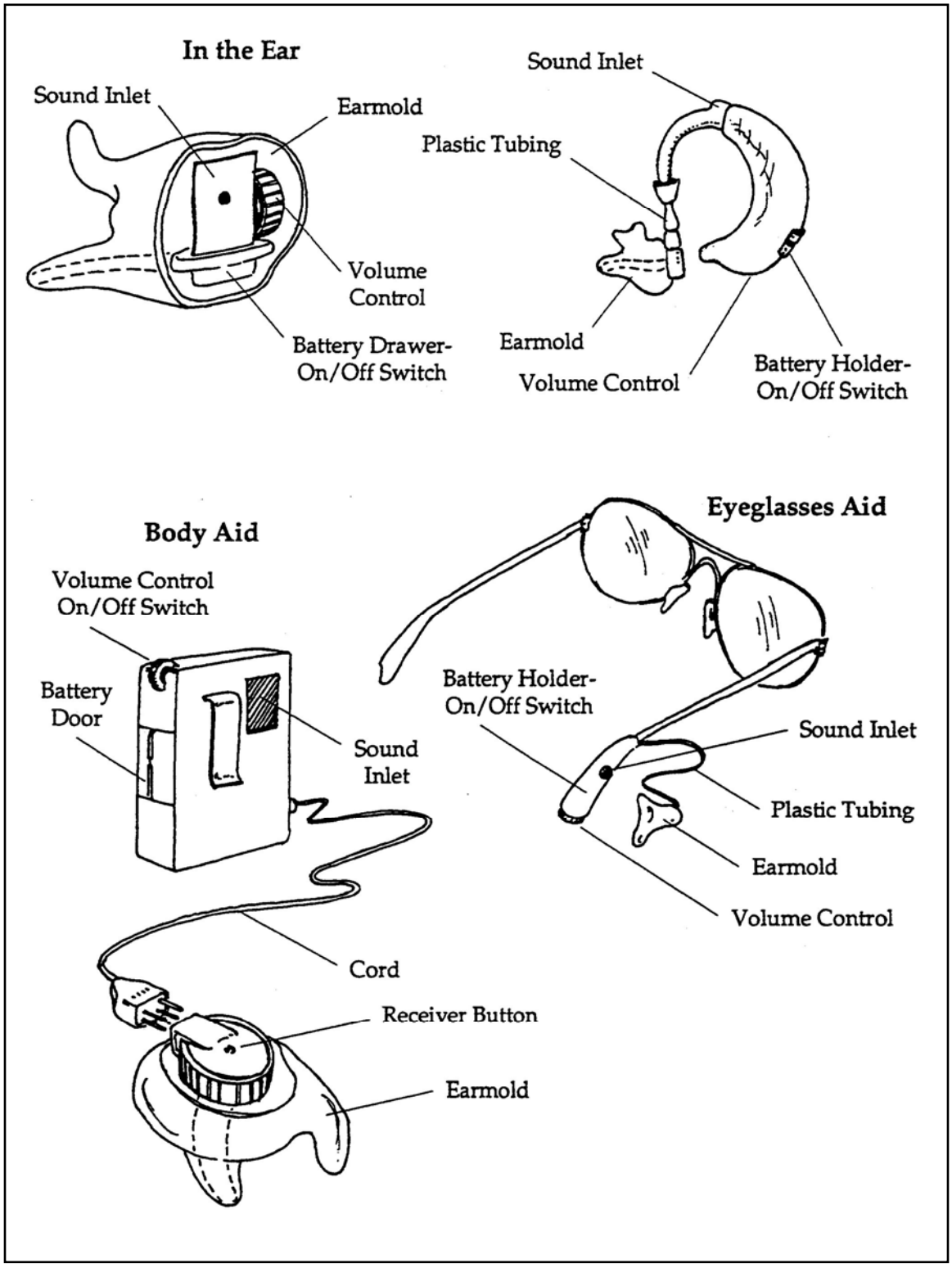
Pyridium	Perdiem
	Pyridoxine
Pyridostigmine	
	physostigmine
pyridoxine	paroxetine
	pralidoxime
	Pyridium
quinidine	clonidine
	quinine
quinine	quinidine
rantitidine	rimantadine
	ritodrine
Rebetol	Rebetron
Rebetron	Rebetol
Recombivax HB	Comvax
Reglan	Renagel
Regranex	Repronex
Remeron	Premarin
	Zemuron
Renacidin	Remicade
Renagel	Reglan
Repronex	Regranex
reserpine	risperidone
Restasis	Retavase
Restoril	Risperdal
	Vistaril
	Zestril
Retavase	Restasis
Retrovir	ritonavir
Revex	ReVia
ReVia	Revex
Ribavirin	riboflavin
riboflavin	Ribavirin
Rifabutin	rifampin
Rifadin	Rifater
	Ritalin
Rifater	Rifadin
Rifamate	rifampin
rifampin	ritabutin
	Rifamate
	rifapentine
	riflaximin
rifaximin	rifampin
rimantadine	ranitidine
Risperdal	Restoril
risperidone	reserpine
Ritalin	Rifadin
Ritalin LA	Ritalin SR
Ritalin SR	Ritalin LA
ritodrine	ranitidine
ritonavir	Retrovir
Roxanol	Oxytrol
	roxicet
	Uroxatral
Roxicet	Roxanol
Rynatan	Rynatuss
Rynatuss	Rynatan
Salagen	selegiline
Sandimmune	Sandostatin
Sandostatin	Sandimmune
saquinavir	Sinequan
Sarafem	Serophene
Sectral	Factrel
	Septra
selegiline	Salagen
Serax	Eurax
	Xerac
Serophene	Sarafem
sertraline	Soriatane
Simethicone	cimetidine
Sinequan	saquinavir
	Singulair
Slo-bid	Dolobid
Solu-Medrol	Depo-Medrol
somatropin	sumatriptan
Soriatane	sertraline
sotalol	Stadol
spiriva	Inspra
Stadol	sotalol
Sufenta	Alfenta
	Survanta
sufentanil	alfentanil
sulfadiazine	sulfasalazine
sulfasalazine	sulfadiazine
	sulfisoxazole
sulfisoxazole	sulfasalazine
sumatriptan	somatropin
Surbex	Surtak
Surtak	Surbex
Survanta	Sufenta
Synagis	Synalgos-DC
Synalar	Synarel
Synalgos-DC	Synagis
Synarel	Synalar
Tarceva	Tacrine
	Tarka
Tacrine	Tarceva
Tarka	Tarceva
Taxol	Paxil
	Taxotere
Taxotere	Taxol
Tegretol	Toradol
	Trental
Tenex	Entex
	Xanax
Tequin	Ticlid
terbinafine	terbutaline
terbutaline	terbinafine
	tolbutamide
terconazole	tioconazole
testolactone	testosterone
testosterone	testolactone
tetracycline	tigercycline
TheraFlu	Thera-Flur
Thera-Flur	TheraFlu
thiamine	Thorazine
thioridazine	thiothixene
thioridazine	Thorazine
thiothixene	thioridazine
Thorazine	thiamine
	thioridazine
tiagabine	tizanidine
Tiazac	Ziac
ticarcillin	tigecycline
Ticlid	Tequin
tigecycline	tetracycline
	ticarcillin
timolol	atenolol
Timoptic	Viroptic
tioconazole	terconazole
tiopronin	tiotropium
tiotropium	tiopronin
tizanidine	tiagabine
TobraDex	Trobex
tobramycin	Trobicin
Tobrex	TobraDex
tolazamide	tolbutamide
tolbutamide	terbutaline
	tolazamide
Topamax	Toprol XL
Toprol XL	Topamax
Toradol	Foradil
	Tegretol
	Torecan
	tramadol
Torecan	Toradol
Torsemide	furosemide
Tracleer	tricor
tramadol	Toradol
	Trandate
Trandate	tramadol
	Trental

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

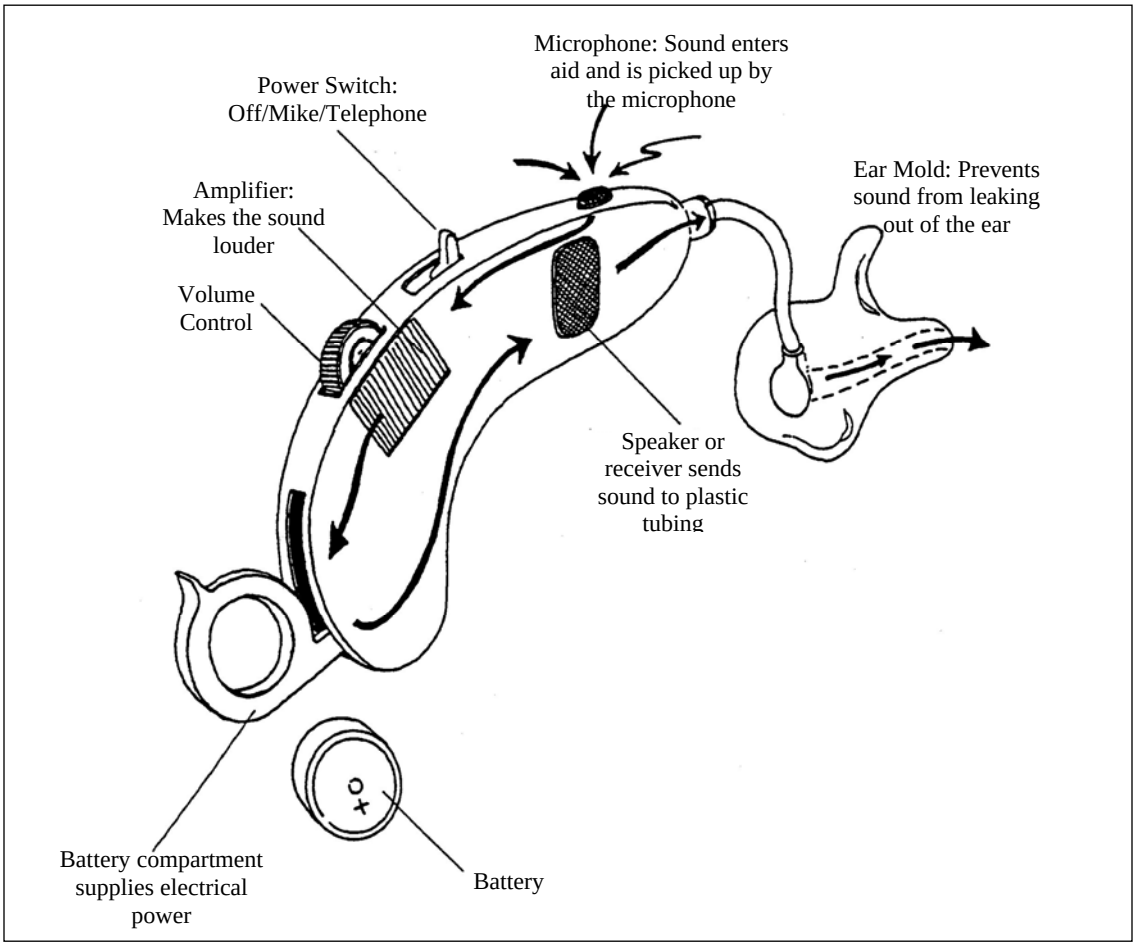
Travatan	Xalatan
trazodone	tramadol
Trental	Tegretol
	Trandate
tretinoin	trientine
triameterene	trimipramine
trichloroacetic acid	dichloroacetic acid
Tricor	Tracleer
trientine	tretinoin
trimipramine	triameterene
Trimox	triamterene
	Diamox
	Tylox
Trobicin	tobramycin
Tylenol	Tylox
Tylox	Trimox
	Tylenol
Ultane	Ultram
Ultram	Ultane
Urex	Eurax
Urised	Urispas
Urispas	Urised
Uroxatral	Oxytrol
	Roxanol
Valcyte	Valium
Valium	Valcyte
Vaniqa	Viagra
Vantin	Ventolin
Vasocidin	Vasodilan
Vasodilan	Vasocidin
Ventolin	Vantin
VePesie	Versed
Verelan	Virilon
	Vivarin
	Voltaren
Versacaps	Vesicare
Versed	VePresid
Vesicare	Versacaps
Viagra	Vaniqa
Vicodin	Hycodan
	Indocin
Vigamox	Vigomar
Vigomar	Vigamox
Volmax	Flomax
vinblastine	vincristine
	vinorelbine
vincristine	vinblastine
vinorelbine	vinblastine
Vioxx	Zyvox
Virilon	Verelan
Viroptic	Timoptic
Vistaril	Restoril
Vivarin	Verelan
Voltaren	Verelan
Vytone	Hytone
Welbutrin SR XL	Wellbutrin
Xalatan	Travatan
Xanax	Tenex
	Xopenex
	Zantac
Xeloda	Xenical
Xenical	Xeloda
Xerac	Serax
Xopenex	Xanax
Zantac	Xanax
	Zofran
	Zyrtec
Zarontin	Zaroxolyn
Zaroxolyn	Zarontin
Zebeta	DiaBeta
Zelnorm	Zemuron
Zemuron	Zelnorm
Zestril	Desyrel
	Restoril
	Vistaril
	Zetia
	Zostrix
Zetia	Zestril
Ziac	Tiasac
Zocor	Cozaar
Zofran	Zantac
	Zosyn
ZORprin	Zyloprim
Zostrix	Zestril
	Zovirax
Zosyn	Zofran
	Zyfox
Zovirax	Zostrix
	Zyvox
Zylprim	ZORprin
Zymar	Zymine
Zymine	Zymar
Zyprexa	Zyrtec
Zyrtec	Zantac
	Zyprexa
Zyvox	Vioxx
	Zosyn
	Zovirax

This data was reproduced with permissions from Hospital Pharmacy; Davis, M.D., Drug Names that Look-Alike and Sound-Alike. *Hospital Pharmacy 39*(2): Supplemental Wall Chart.

TYPES OF HEARING AIDS



OPERATION OF A HEARING AID



COMMUNICATING WITH THE APHASIC RESIDENT

Aphasia – Language difficulty, due to brain damage, which can affect listening, speaking, reading, and writing skills.

Comprehension:

Simplify

1. Talk about only one idea at a time.
2. Use short sentences with simple, common words.
3. Use gestures, facial expressions, vocal inflections.

Allow Time

1. Pause between short sentences
2. Slow down rate of speech and allow the resident time to process information.

Orient Resident

1. Discuss topics of interest in the resident's life.
2. Orient resident to people, place, and time by pointing out and discussing people and items in the environment.
3. Keep resident aware of time of day via mealtimes, medications, and announcements of visitors and times they frequently come.

Confirm

Resident may respond to gestures or sound of your voice without understanding you.

1. Ask resident question.
2. Allow resident to respond.
3. Ask resident an opposite question; if resident responds the same to both questions, you are not communicating.
4. Be sure you have resident's attention.
5. Let resident know there was a misunderstanding.
6. Speak more slowly.
7. Repeat message.
8. Use gestures, pointing, and facial expressions. Do not speak more loudly if client did not understand you. Confusion increases with added noise and distractions, and when more than one person is talking.

Expression:

Allow Time

1. Be patient and accepting of resident's attempts to communicate.

Guess

1. Determine the subject by asking more specific questions.
2. Make statements about what you think the resident means.

Alternative Communication

1. Communication board
2. Gestural system – If you use gestures when communicating with aphasic residents, this may stimulate their use of gestures.

Verbal Communication

1. Ask questions requiring yes/no one-word response.
2. With more verbal residents who have word-finding difficulties, encourage substitute ways of expressing meaning by asking questions like:
   "What do you use it for?"
   "Where is it?"
   "What does it look like?"
   "Why do you need it?"
3. When a resident does convey what he/she wants, in a way other than verbal, say the word for him/her.

Respect

1. Speak to the resident in an adult manner, she/he is an intelligent adult who is aware of her/his surroundings even though language function is impaired.
2. Include the resident in the conversation; don't talk as though he/she is not there, is deaf, or is mentally impaired.

LESSON PLAN: 10

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

EVALUATION ITEMS:

1. List three major problems encountered in drug use at home.

   a.
   b.
   c.

2. Identify three major problems of drug use in the long-term care facility.

   a.
   b.
   c.

Circle the letter of the best answer.

3. Which of the following techniques would not be appropriate to use with the resident who is blind?

   a. Keep surrounding environment the same.
   b. Speak in a loud voice.
   c. Tell resident how many tablets you have.
   d. Use touch to direct the resident.

4. Which of the following techniques would be appropriate to use with a confused resident?

   a. Speak in a loud voice.
   b. Keep surrounding environment the same.
   c. Change the procedure every time you give a medication.
   d. Give negative instructions such as "don't call out."

5. Name five techniques used in observation.

   a.
   b.
   c.
   d.
   e.

6. What are three psychosocial changes that must be reported to the charge nurse?

   a.
   b.
   c.