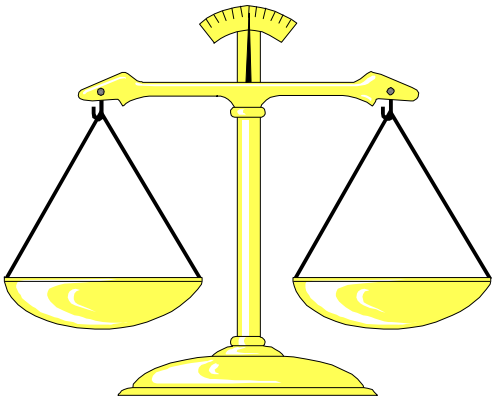
TEXAS MEDICATION AIDE

BASIC COURSE CURRICULUM

FOR NURSING FACILITIES AND RELATED INSTITUTIONS

Effective Date May 1, 1996



COMMUNICATE BEFORE YOU MEDICATE!
"HELPING PEOPLE MAKE THE BEST OF MEDICATIONS"

Texas Department of Aging and Disability Services

Medication Aide Program, W-245

P.O. Box 149030, Austin, Texas 78714-9030

ACKNOWLEDGEMENT

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MEDICATION AID BASIC COURSE CURRICULUM

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Unit I.	INTRODUCTION AND ORIENTATION AND BASIC CONCEPTS	
Section A.	Basic Roles and Responsibilities of the Medication Aide.	Medication Aide Training Program Rules. Secure new rules and regulations.
	1. Overall requirements, course objectives.	Discuss students perception of the medication aide role.
	a. Self-evaluation and review.	
	b. Achievements expected.	Medications are administered only as ordered by physician.
	c. Course examinations and final examination.	
	d. Prerequisites for enrolling in the training program.	Stress importance that medication aides act under supervision of licensed nurse - not independently.
	2. Comprehend acts or practices prohibited by medication aides.	
	3. Understand functions authorized to be performed by the medication aide.	
	4. Identify the legal and ethical implications for the medication aide.	
	a. Need to administer medications as ordered by physician.	
	b. Administer medications limited under medication aide rules.	
	c. Responsibilities for own actions.	
	d. Additional roles and responsibilities as taught by the instructors.	
	5. Discuss the types of clinical experiences that the students will gain during that portion of the training program.	Indicate that the clinical portion of the medication aide training is "hands-on" rather than observation.
	6. Treat residents as individuals and be aware of their medication and treatment orders.	Review program training rules regarding training requirements.
	a. Identify each resident in any setting in the facility.	
	b. Know each patient's normal activity and recognize that deviations from this may be a result of their medication therapy.	

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Section B.	History of Drug Use.		Samples of crude drugs, if available.
	1.	Drugs commonly used in facilities are grouped according to:	Journal advertisements to identify source of drugs.
		a. Scheduled (controlled) - Abusive medication which must be counted and controlled. Log kept for each medication.	Identify and know drugs from the three groups.
		b. Legend - Require prescription.	
		c. Non-Legend - Can be purchased without a prescription. Must be supplied by the facility for Medicaid residents.	
Section C.	Reasons for Giving Drugs.		Lecture and discuss reasons.
	1.	Cure disease	
	2.	Relieve symptoms	Expand upon any areas not covered in the outline.
	3.	Aid in diagnosis	
	4.	Replace body fluids	
	5.	Prevent illness	
	6.	Maintain quality of life	

Course Outline	Teaching Aids/Plan
Section D. Problems in Drug Administration. 1. Availability of drugs 2. Self medications 3. Protection of residents against "patent" medications purchased over the counter 4. Cost of medications 5. Modern attitude toward drugs 6. Alteration of body functions by drugs 7. Determining the need of PRN (as needed) medications 8. Reasons to withhold medication 9. Residents refusal privilege 10. Crushing Inappropriate medications	Discussion of these problems; correlate problems as related between facility and general public.

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Section E. Drug Legislation 1. Federal Food, Drug, and Cosmetic Ac. 2. Texas Dangerous Drug Laws 3. Nurse Practice Act. 4. Controlled Substance Act. a. Classification of controlled substances. 1. Schedule I -- highest abuse potential 2. Schedule II 3. Schedule III 4. Schedule IV 5. Schedule V. -- lowest abuse potential b. Special Considerations 1. Schedule I -- not medically approved or very limited approval. 2. Schedule II -- most abused, must count 3. Schedule III, IV -- Must count 4. Schedule V -- Least abused, do no need to keep count sheets or control records. 5. Facility Standards for Participation under Medicare and Medicaid. 6. Facility Standards.	Limited and brief discussion of this section. Legislation and drugs under the Federal and State Food, Drug, and Cosmetic Act; State Dangerous Drug Laws (further discussion provided by consultant pharmacist); and Controlled Substances Act. Discuss problems of self medications and dangers of transferring medications between containers and residents FDA responsible for purity, safety, effectiveness, strength, labeling and packaging of drugs. Recognize labeling regulations required for dispensed medications (prescription) under Texas Dangerous Drug Laws. Identify labeling requirements under facility's standards.

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Section F. Personnel Involved in Residents' Drug Therapy. 1. Physician 2. Pharmacist 3. Registered Nurse and Licensed Vocational Nurse, and Medication Aides a. Preparing drugs for administration i. Equipment ii. Procedure b. Administration of medications c. Observing, documenting, and reporting reactions to medicine 4. Interdisciplinary team in a 15 beds or less mental retardation facility. 5. The role of the medication aide in relation to the health care team.	Identify the roles of the physician, pharmacist, registered nurse, and licensed vocational nurse. In a 15 bed or less facility, identify the roles of inter- disciplinary team members as outlined in Minimum Licensing Standards for Facilities Serving the Mentally Retarded Citizens of Texas.

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Section G.	Resource Reference for Drug Information. 1. Identify various up-to-date textbooks and materials used in the training program and found in facilities. 2. Demonstrate the ability to use these resources. 3. Discuss several common drug standards and references. 4. Select various (common) references where information may be obtained concerning drugs. 5. Prepare practice problems to demonstrate resource use and familiarity. 6. Identify procedures for contacting pharmacist for drug information.	Various textbooks and resource materials. Drug package brochures prepared by pharmaceutical manufacturers. Prepare drug cards for commonly ordered medications. Physician's Desk Reference. American Hospital Formulary Service. Facts and Comparisons. Nursing-oriented medication reference textbook. Discuss the facility's pharmaceutical and nursing policies and procedures manuals. Other appropriate references, text, and handouts.

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Section H. Pharmacodynamics. 1. Medications are ordered for a specific resident to modify or change a specific condition. 2. Medications may cause unwanted reactions. a. Side effect b. Toxic effect c. Synergistic effect d. Allergic reactions e. Drug-drug interactions f. Drug-food interactions g. Other reactions as selected by the instructors 3. Types of drug reactions. a. Local effect b. Systemic effect c. Emotional (placebo) effect -- The fact that placebos work is not because the pain is only imagined. Recent research indicates that placebos work probably because they enhance the effects of the body's own pain-relieving mechanisms. 4. Factors that influence medication action. a. Dosage strength b. Presence of food in stomach c. Interaction with other medication d. Solubility of the medication e. Disease state of the patient f. Aging g. Ostomates h. Other factors as selected by instructors 5. Conditions of residents which may modify dosage. a. Age, weight, and sex b. Time of administration c. Route of administering medication d. Rate excreted from body e. Drug combination f. Drug interaction g. Drug absorption	Use examples of commonly known medications to illustrate these definitions. Give students examples of unwanted reactions to medications. Students may have experienced reactions of their own. Be alert for changes in the residents' responses to their present medications when new medications are ordered and administered. The greater the amount of the drug above usual dosage requirements, the greater the expected effect. Food delays emptying the stomach. When best time to take medication. Fat soluble drugs. Water soluble drugs. Diseases involving the liver where many drugs may be detoxified or metabolized, and the kidneys which excrete most drugs, may alter drug responses. Aging may cause patient to be more sensitive to drugs. Actual examples may be discussed as to how these conditions may effect a resident. Explain each condition.

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Section I. Forms in Which Medication are Available. Drug preparations: liquids, solids, and semi-solids. 1. Solid oral dosage forms a. Tablets i. Scored ii. Unscored b. Capsules c. Enteric-coated d. Long-acting or prolonged-action tablets or capsules e. Sublingual 2. Liquid oral dosage forms a. Syrup b. Elixir c. Sugar-free liquid d. Effervescent tablets e. Solution f. Emulsions g. Suspensions 3. Suppositories a. Rectal b. Vaginal 4. Aerosol, under pressure a. Solutions b. Powders 5. Topicals a. ointments (usually semi-solids oily base) b. Creams (non-greasy) c. Lotions (usually water base) d. Liniment (oil, alcohol) e. Shampoos	Show examples of these forms by the pharmacist instructor. Reference to white pages of Physician's Desk Reference. Discuss and learn examples of various drug forms. Discuss special problems associated with the various drug forms (if any). Aerosol - Discuss principle and nebulizer; however, emphasize that medication aides may not administer medications by the aerosol route involving inhalation therapy. Demonstrate and discuss routes of administration. - oral - rectal - sublingual - topical - otic - nasal - ophthalmic - aerosol Parenterals are not discussed since the medication aide may not administer these drugs; however, they should be knowledgeable of the routes of parenteral injection.

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Section I Continued 6. Other forms a. Magmas b. Gels c. C. Mixtures d. Mucilages e. Tincture f. Extracts g. 9- Patches 7. Factors influencing choice of dosage form of medication. 8. Other common route of administration for the dosage forms involved. a. Otic medication b. ophthalmic medication c. C. Nasal medication d. Transdermal	

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Section J. Common Medical Abbreviations, Symbols, Terminology, and Drug Names. 1. Study and learn common medical abbreviations. 2. Terminology used in ordering and administering of medications. a. Generic names b. Brand names i. trademark names c. Drug labeling d. Controlled drug e. Pharmacology f. Therapeutics g. Toxic pharmaceuticals h. Drug chemotherapy i. Dangerous drug j. Non-legend drug 3. Drug names a. Chemical name b. Generic name c. Official name d. Trade name 4. Trade name drugs versus generic	Students learn abbreviations in short lists over several class sessions, and as appropriate to other class lessons. Use flash cards and other approaches as deemed necessary by the instructors. Names by which drugs are used and their differences are quite confusing to the student. However, this information is vital to the person preparing and administering the drug. Give the students a list of drugs and have them recognize and list the chemical, generic, official and trade name. ** Handout on Medical Abbreviations. ** Handout on Medical Terminology.

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Section K. Weights, measures, and Simple Mathematics. 1. Study and learn the apothecaries system as it relates to medications. 2. Study and learn the metric system as it relates to medications. 3. Review the basic four arithmetic functions. a. Add b. Subtract c. Multiply d. Divide 4. Explain how to read decimals and fractions. 5. Explain how to add simple fractions and decimals. 6. Student should be knowledgeable, for example: a. That 1/4 + 1/4 = 1/2 b. That 0.5 x 2 = 1.0 c. That a milligram is a smaller unit of measure than a gram. d. That an ounce is larger than a gram. 7. Know basic Roman numerals, 1/2 through 100, as it relates to medications. 8. Medication aides may not calculate any resident's medication doses for administration. However, medication aides may measure a prescribed amount of a liquid medication to be administered and may break a tablet for administration to residents provided that the licensed nurse has calculated the dosage, and is accurately documented on the medication card (or its equivalent). 9. Equivalency among the three systems of measurement have not been included in this outline since medication aides are not permitted to convert dosage in preparing drugs for administration except as noted above.	Write abbreviations for units of measurement in the metric, apothecaries, and household system when given the name. Organize in order of relative size units of measurements within metric, apothecaries, and household systems. Review math, measurements, and Roman numerals throughout entire course of study. Use practical problems. Use graduated medicine cups, graduate dropper.

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Section L. Use of Generic Drugs. 1. Cross reference of generic drugs with brand name drugs. 2. When may generic drugs be used in place of brand name drugs. 3. Documentation of the use of generic drugs. Section M. Medication Storage and Distribution Cart System. 1. Types of medication cart systems used. 2. How does the cart system differ from other methods of medication storage and distribution currently used in facilities. 3. Unit dose packaging. 4. Unit of use dose.	Learn how to look up generic drug names when the brand name drug is known. Learn generic drug name of the same brand name drug as selected by the instructor. Know how medication cart systems are used. Discuss the various types of cart systems. Lecture and demonstration.

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Unit II. ADMINISTRATION OF MEDICATIONS Section A. Medication Supply and Storage. a. How medications are supplied a. Multiple dose containers b. Unit dose packaging c. Unit dose use d. Bulk non-legend drugs e. Liquid medications f. Otic, ophthalmic, nasal special type containers g. Aerosols 2. Labeling of the medication container a. Resident's full name. b. Prescribing physician's name. c. Pharmacy's prescription number. d. Name, strength, and amount of the drug dispensed. e. Expiration date of all time-dated drugs. f. Date of issuance (date the prescription was filled or refilled). g. Warning labels if needed. h. Physician's direction for use. i. If the label is on the container of a Controlled Substances Act drug, the label has to have the following warning: "Caution: Federal law prohibits the transfer of this drug to any person other than the patient for who it was prescribed." j. Name, address, and telephone number of the issuing pharmacy. k. Small multiple dose containers are placed into another container and the pharmacy's regular label, properly completed, will be affixed to it. Also, if multiple dose containers of drugs are too small for a regular prescription label to be affixed, a strip label will be attached containing the name of the resident and the prescription number. If the two containers become separated, the small drug container will still have the resident identification. -OR- The dispensing container is not required to bear the label specified above if: 1) the drug is prescribed for administration to an ultimate user who is institutionalized in a licensed health care institution (e.g., nursing home, hospice, hospital);	Have examples of various types of containers. Discuss the various ways medications are supplied to the facility. Discuss unit dose systems of packaging drugs and unit of use. Have examples of properly labeled medication containers for nursing homes and other facilities. Relate what constitutes correct labeling of a dispensed medication. Demonstrate what constitutes proper labeling for bulk non-legend drugs.

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Section A. Continued b. no more than a 34-day supply or 100 dosage units, whichever is less, is dispensed at one time; c. the drug is not in the possession of the ultimate user prior to administration; d. the pharmacist-in-charge has determined that the institution: i. maintains medication administration records which include adequate directions for use for the drug(s) prescribed: ii. maintains records of ordering, receipt, and administration of the drug(s); and iii. provides for appropriate safeguards for the control and storage of the drug(s); and e. the system employed by the pharmacy is dispensing the prescription drug order adequately: i. identifies the: A. pharmacy by name and address; B. unique identification number of the prescription; C. name and strength of the drug dispensed; D. name of the resident; E. name of the prescribing practitioner; and ii. sets forth the directions for use and cautionary statements, if any contained on the prescription drug order or required by law. 2. Medication storage. a. Medication room. i. only authorized personnel may have access. b. Medication cart. c. Schedule II of controlled drugs. i. under two separate locks. d. Other schedules of controlled drugs. e. Drugs requiring refrigeration. f. Drugs requiring protection from light. g. Emergency drug kit. h. Internal, external, and poisons. i. Stock, bulk non-legend drugs. j. Medications stored in residents' medication individual storage bin. k. Care and cleaning of storage room, cart and refrigerator.	Comprehend facility's storage policies of storage of residents' medications and storage of stock, bulk non-legend drugs. Show how the medication cart is used to store medications. Discuss and learn medications requiring refrigeration. Discuss potential errors that may arise in the supplying and storage of medications. Identify facility's requirements for emergency drugs. Discuss requirements for proper storage of internal medications, external medications, external preparations, and poisons. Demonstrate the care and cleaning of cabinets and bins that are used to store medications.

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Section B. Medication Orders. 1. Physician's written orders on resident's current clinical records. a. Checking physician's orders 2. Prescription orders 3. Stat orders 4. Verbal orders (prohibited act by medication aides) 5. Routine orders 6. PRN (as needed) orders 7. Stop orders on medications 8. Refill instructions 9. Checking the medication orders a. An accessible system of checking current physician's orders is usually used. b. Medication order sheet for each patient/resident contains physician's orders for each medication the individual is to receive. 10. Nursing Kardex and information required 11. Medication cards (or its equivalent) and information required 12. Drug profile sheet 13. Health care plans	Identify differences between orders in the clinical record and on a prescription. Show similarities. Identify facility policy for medication orders. Comprehend medication aide rule that prohibits a medication aide from receiving or assuming responsibility for reducing to writing (taking) verbal or telephone orders from a physician, dentist, or a podiatrist. Discuss and illustrate the nursing Kardex, physician order sheet, medication card, clinical records, and drug profile sheet. Discuss and illustrate the health care plans. Make medication cards (or its equivalent) for instructor assigned medications.

Course Outline	Teaching Aids/Plan
Section C. Potential Causes for Medication Errors 1. Failure to follow the 116 rights". a. Right medication b. Right dose c. Right time d. Right route of administration e. Right patient/resident f. Right recording procedure 2. Interruptions or loss of concentration 3. Lack of knowledge 4. Too mechanical due to familiarity 5. Inadequate communication 6. Improper transcribing and documentation 7. Omission of medications 8. Incident reports 9. Assumptions 10. Take for granted 11. Failure to listen and/or see	Practice order verification system to check medication orders. Discuss points where potential drug errors or unsafe practices may occur and whereby they can be prevented by using the checking medication orders system. This system may be expanded upon to suit local needs. Show procedure and how to report and follow up when an administration error is made. Explain how to write an incident report for a medication error.

Course Outline	Teaching Aids/Plan
Section D. Role and Responsibilities of the Medication Aide in Drug Therapy. 1. Preparing equipment. 2. Preparing drugs for administration. 3. Assessing residents before and after medication administration. 4. Preparing the resident and equipment. 5. Administering medications. 6. Observing, recording, and reporting. 7. Responsibilities for other medication. a. PRN b. refused c. omitted 8. Care of equipment. 9. Communications with facility staff and resident. 10. Maintaining Universal Precautions. 11. Exercise sound common sense. 12. Report resident changes orally and in writing per facility policy.	Emphasize that students will perform the expected tasks through lecture, demonstration, and laboratory. Relate this topic to what is outlined in the medication aide program training rules. Know the responsibilities of medication aide when giving a medicine to a resident. Emphasize importance of checking expiration dates.

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Section E.	Preparing (Setting Up) of Medications.		Identify the equipment needed to prepare and administer.
	1.	Expected effects of each medication administered.	Describe expected effects of several prescribed medications as selected by the instructor.
	2.	Preventing the transfer of infection and contamination of medications.	Demonstrate how to prepare (set up) medications accurately.
		a. Handwashing between contacts with resident.	Practice how to properly wash hands to prevent infection.
		b. Handling medications as little as possible.	Identify procedures to prevent drug contamination.
		c. Keep medication tray in clean area while passing medications.	Demonstrate proper care for medication tray and other equipment.
		d. Cleaning medication tray following use.	Review additional techniques to prevent transfer of infection and contamination.
	3.	The medication preparation area must be:	
		a. Well lighted	
		b. Free of distractions and interruptions	
		c. Neat, clean, and orderly	
		d. Ventilated and comfortable (71OF to 810F)	
	4.	The medication aide must concentrate on accuracy in preparing medications.	Discuss the preparation of medication and unit dose exception.
	5.	If any medication has fallen from its container or found in storage bin or shelf, it must be discarded. If possible, discard it in the presence of a witness. Write an incident report.	Return demonstration of the preparation of medications.
	6.	Read and reconcile the label three times:	
		a. When taking medicine from resident's storage bin.	
		b. When removing or pouring medication from containers or unit dose medications from the package.	
		c. When returning the medication container to the storage bin.	
	7.	The person that prepares (sets up) the medicine must administer the medicine, except in a unit dose medication cart distribution system.	Discuss the security of medications and its relationship to the safety of residents.

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Section E. (Continued) 8. To maintain security do not leave medications unattended in accordance with facility policy. a. Keep the medication room locked. b. Do not store or leave unlocked medications unattended. c. Do not leave medications or medication tray unattended. 9. The ordering of additional medications on a reasonable and timely basis, in advance of the last available dose and present said "medication needs list" to the facility's licensed nurse. 10. Proper inventory records must be maintained on controlled drugs. 11. Crushing medication. a. Make sure that the medication may be safely crushed, i.e., not enteric coated, sustained-release or similar form. b. Use Medication Crusher. Make sure that equipment is free of residue from crushed medication. c. Mix with food appropriate for resident's diet just before administering. 12. Liquid medication. a. Pour on side away from label. b. View medication cup at eye level. c. Read level of medication from bottom of meniscus or curve of liquid surface.	Discuss the correct dosage of medications for the right resident, also practice laboratory demonstration. Define unattended, secured, and/or locked. Relate methods and procedures for informing licensed nurse of the need of additional medications. Identify drugs which may require special controls and record keeping. Name controls which may be used. Show examples of forms which may be used for signing out controlled drugs and for change of shift counting. Practice specific techniques for crushing medications. Borrow crusher, if possible, to illustrate how to use and keep clean. Practice specific techniques for pouring medications.

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Section F. Procedures and Techniques for Administering Medications. 1. Route of administration a. Oral b. Rectal c. Sublingual d. Ophthalmic e. Otic f. Nasal g. Liquids h. Aerosols (skin) i. Transdermal j. Vaginal 2. Special techniques a. Aged patient b. Hostile patient c. Mute/withdrawn patient d. Residents with physical limitations e. Residents refusing to take medications f. Non-communicating residents g. Non-ambulatory residents h. Children/infants i. Pregnant residents j. Postpartum residents 3. Identification of the resident is essential before administering any medication. 4. Review medications which require checking pulse before administering. 5. Inform resident of your presence and explain procedure. (No surprises, do not startle.)	Demonstrate proper procedures and techniques for administering medications through lecture and laboratory. Practice administering oral medicines in lab. Small candies make satisfactory "medication." Use cards, trays, unit dose packages and cups as found in the work setting. Illustrate how to deal with the special type of resident through lecture and role demonstrations. Review techniques to correctly identify resident.

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Section G. Administration of oxygen. 1. Medication aides may administer oxygen per nasal cannula or a non-sealing face mask only in an emergency. Immediately after onset of the emergency, the medication aide shall verbally notify the licensed nurse on duty or on call and appropriately document the action and notification. 2. Oxygen administration procedures. a. Administration of oxygen by use of a nasal cannula. b. Administration of oxygen by use of a non-sealing face mask. c. Regulation of the prescribed flow of oxygen to the resident.	Demonstrate correct procedure and flow rate for oxygen. Emphasize Emergency

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Section H. Medication Aides Responsibilities Following Drug Administration. 1. Observation of resident's. a. Intended drug action and effects. b. Side effects and untold side effects. c. Stomach irritations. d. Toxic reactions. e. Allergic reactions. f. Assure oral medications were swallowed. 2. Nursing action a. Prevention of side effects and what to do when side effects occur. b. Recognition of changes in resident's behavior indicating symptoms of drug reactions. c. Reporting to licensed nurse when side effects occur. d. Recording of side effects. 3. Take vital signs as instructed per facility policy. Be alert to changes in resident, observe, and monitor. a. Temperature b. Pulse c. Respiration d. Blood Pressure	Lecture and use examples for ways you may observe resident for side effects. Discuss additional ways for observations as selected by the instructor. Relate how to prevent side effects such as medications to be taken with food, or away from food, or crushing of medications, and other responsibilities. List side effects as selected by the instructor. Each student shall be required to learn and develop skill in taking a resident's vital signs. Laboratory demonstrations of accurately taking vital signs.

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Section I. Medical Records 1. Medical records appropriate to medication administration. a. medication administration record b. PRN medication records c. Nurses notes d. Incident report records e. Flow sheets f. Comprehensive Assessment and Comprehensive Care Plan 2. Protection of medical records 3. Access to medical records 4. Release of information from medical records 5. Retention of medical records 6. Legal responsibility 7. Documentation of medication administered a. Control b. Accountability c. Confidentiality 8. General guidelines a. Chart after giving b. Write clearly using ink c. Initial or sign all charting according to facility policy 9. Specific situations a. medication not given at scheduled time (also if refused or held). i. usually charted by circling the scheduled time on medication record and initialing ii. it. completed by recording in nurse's notes reason drug was not given. iii. co - signed by licensed personnel.	Lecture and demonstration. Demonstrate how to properly complete (fill out) the appropriate records. Discuss Comprehensive Assessment and Comprehensive Care Plan pertaining to medication. Practice recording medication administration on the appropriate records and correlate with physician's orders, Kardex, medication cards as assigned by the instructor. Include study of the entire chart if you feel it is appropriate. Provide practice problems to illustrate how to chart specific situations. Use actual chart materials, if possible. Identify general guidelines to follow in recording medication administration. Reinforce the value of reporting errors. Give examples of how this is beneficial. Use forms from more than one institution, if possible, show how to complete form. Identify appropriate recording procedures when medication is given at times other than regularly scheduled or when errors are made.

Course Outline	Teaching Aids/Plans
Section I. (Continued) b. Controlled drug inventory records. i. ongoing individual doses ii. shift reconciliation c. PRN, STAT, and NOW i. chart on medication record, according to institutional procedure. ii. record administration in nurse's notes along with observations of pertinent resident behavior. iii. institutions may also report PRN and STAT medication use during change of shift report. c. Medication errors i. reporting error to supervisor is vital so that necessary remedial measures may be started. ii. completing an incident report, following institutional policy and procedure iii. Reporting orally and in writing on a timely and reasonable basis.	Define and discuss definitions

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Unit III. AFFECTING THE CARDIOVASCULAR SYSTEM 1. Cardiovascular structure and function a. Heart - a muscular organ which rhythmically pumps blood. The heartbeat should be regular in rate and force. b. Blood vessels i. arteries - muscular tubes which carry blood containing oxygen and other nutrients to body tissue. Arteries can constrict and dilate to change blood pressure. ii. veins - vessels which return blood containing carbon dioxide and other wastes from tissues to heart. (The heart then pumps blood to lungs to be re-oxygenated. The kidneys filter wastes as the blood is recycled). c. Changes associated with the aging process. 2. Drugs used for congestive heart failure. a. How the body malfunctions: heart failure results from the heart not working effectively as a pump. There are many conditions which can cause congestive heart failure (CHF). When the heart cannot pump effectively, fluid "backs up" in the vessels and tissues causing edema in the tissues, abdomen or lungs. In addition to cardiac drugs, diuretics are commonly given to treat and prevent CHF. b. Action: slow and strengthen the heart's contraction so that it pumps more blood with each beat. c. Side effects are often signs of toxicity (excessive effect). i. excessive slowing of heart. ii. irregular heartbeat. iii. gastrointestinal symptoms: anorexia, nausea, vomiting. iv. confusion, weakness. v. visual blurring.	Identify the basic structures and functions of the cardiovascular system. Review changes associated with aging. Students may be able to give examples of residents with each of these cardiac disorders. Attaching this new information about medications to a person they know may help them better understand and remember these drugs. For CHF: Identify the action and major side effects of these various classes of drugs. Name commonly used digitalis drugs. Identify measures which help ensure safe administration of these various classes of drugs.

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d. Examples: i. digoxin (Lanoxin) and Lanoxicap. e. Implications for care: i. Check pulse before giving. Should be 60/minute or more or as physician determines. ii. Notify licensed nurse before giving medicine if pulse is slow or other signs of toxicity are present. 3. Drugs used for angina (nitrates). a. How the body malfunctions: angina results from lack of oxygenated blood to areas of the heart muscle. The pattern of pain remains fairly constant for one individual but varies between individuals. Anginal attacks are usually set off by physical activity or emotional stress. b. Action: dilate coronary blood vessels. c. Side effect are often due to systemic vasodilation. i. throbbing headache. ii. postural hypotension (dizziness, weakness). d. Examples: i. nitroglycerin sublingual tablets – for rapid action ii. nitroglycerin products (ointments and patches) for prevention of angina, often used at night. iii. isosorbide dinitrate (Isordil, Sorbitrate) - oral medication possibly effective for prevention of angina. iv. isosorbide mononitrate (Monoket)(Ismo).	Show similarities in appearance and labelling to reinforce need to read label closely. Digitoxin rarely used. Review how to check apical pulse. Name commonly used anti-anginal drugs. Demonstrate how to measure and where to apply ointment. Demonstrate preparation and application of ointment and patches.

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e. Implications for care: i. sublingual tablets are to be placed under the tongue to be dissolved and absorbed into the mouth's blood vessels for quick action. ii. advise the resident to lie down or sit down after taking sublingual tablets so that he will not feel faint or fall. iii. keep tablets in manufacturer's container (glass, light-proof) to prevent deterioration.	
4. Drugs used for arrhythmias. a. How the heart malfunctions: the heart beats irregularly. b. Action: promote a normal rhythm of the heartbeat. Drugs have this effect by depressing the ability of the cardiac muscle to respond to irregular or weak signals. c. Side or toxic effects: i. slow pulse - even normal impulses do not cause the heart to beat. ii. postural hypotension, dizziness—slowed heart action may lower blood pressure. iii. Quinidine may cause G.I. upset, ringing in the ears, and other symptoms. d. Examples: quinidine propranolol (Inderal) procainamide (Procan SR) e. Implications for care: i. report postural hypotension, slowed pulse, low blood pressure to supervisor. ii. if quinine causes G.I. upset, give with food.	Identify the action, side effects and names of antiarrhythmic drugs.
5. Drugs used to treat hypertension (antihypertensives). a. How the body malfunctions: with hypertension, the blood pressure remains elevated. If not reduced, blood vessels in the brain, kidney, and heart are likely to be damaged. b. Action: lower blood pressure. Many do this by dilating blood vessels. Will not improve hypertension caused by arteriosclerosis. often used in conjunction with diuretics.	Name commonly used anti- hypertensive drugs. Identify the action and major side effects of antihypertensive drugs.

Course Outline	Teaching Aids/Plan
c. Side effects: postural hypotension drowsiness d. Examples: i. calcium channel blockers Examples – (a) nifedipine (Procardia) (b) diltiazem (Cardizem) (c) verapamil (Isoptin) (Calan) ii. Angiotensin Converting Enzyme Inhibitors (ACE Inhibitors) Examples – (a) captopril (Capoten) (b) enalopril (Vasotec) (c) lisinopril (Zestril) (Prinivil) iii. When hypertension is not relieved by the use of one drug, a combination of two or more drugs may be ordered. Examples – (a) lisinopril & hydrochlorothiazide (Zestoretic) (b) enalapril & hydrochlorothiazide (Vasoretic) (c) aldactone & hydrochlorothiazide (Aldactazide) iv. Beta-blockers - also used to treat arrhythmias, angina and migraine headaches. Examples – (a) propranolol (Inderal) (b) metoprolol (Lopressor) (c) atenolol (Tenormin) v. Other antihypertensives Examples – (a) clonidine (Catapres) (b) methyldopa (Aldomet) (c) Prazosin (Minipress) e. Implications for care: i. check blood pressure (B.P.) routinely. ii. since the resident may faint easily, he should rise slowly from lying to a sitting of standing position. Hot baths or showers may also make him more prone to faint. Standing still may also precipitate fainting. Encourage movement. iii. if the medication is omitted or suddenly discontinued, the resident's B.P. may rise higher.	Review proper techniques to obtain accurate B.P. Identify measure to monitor drug effect and to ensure resident safety.

Course Outline	Teaching Aids/Plan
6. Anticoagulants. a. How the body malfunctions: abnormal clotting may cause damage to the brain, heart, or lungs (cerebrovascular accident, myocardial infarction, pulmonary embolism, T.I.Als - Transient Ischemic Attacks). b. Action: inhibit clotting of blood. c. Side effect: bleeding - the result of excessive action. Vitamin K (Mephyton) is antidote. d. Example: warfarin (Coumadin). e. Implications for care: i. observe for signs of bleeding: bleeding gums, bruising, blood in urine or stools. ii. protect from injury, e.g., shave with an electric razor. iii. sudden extremely severe headache. iv. compatibility with other ordered medications (example - avoid aspirin or aspirin containing products). 7. Other Cardiovascular medications. a. Decreased blood flow may lead to end organ damage. Examples: (a) papaverine (Pavabid) - peripheral vasodilator. (b) pentoxyphylline (Trental) improves peripheral circulation.	Name a commonly used anticoagulant. Identify the action and main side effect of anticoagulant medication. Aspirin – Anticoagulants Heparin - (implications for care and observations). Discuss disease states (Peripheral Vascular Disease, Diabetes,others).

Course Outline	Teaching Aids/Plan
Unit IV. DRUGS AFFECTING THE URINARY SYSTEM 1. Urinary structure and functions. a. The main functions of the urinary system are to remove waste products from the body and regulate the amount of water in the body. b. Structures. i. kidneys - contain the filtering units. ii. ureters - muscular tubes which drain urine from kidney to bladder. iii. bladder - muscular structure which stores urine. iv. urethra - muscular tube through which urine passes out of the body. v. prostate - male reproductive gland located around the urethra at the base of the bladder. Enlargement may produce urinary obstruction. c. Normal urine should be clear, pale yellow. d. Changes associated with aging. 2. Diuretic drugs. a. Action: to increase urine production. Discuss situations in which diuretics are used such as edema and hypertension. b. major side effects: some diuretics cause excessive potassium loss and should be given with potassium replacement or conscientious dietary replacement; some diuretics are potassium sparing and may not require potassium replacement. c. Examples: i. furosemide (Lasix). ii. hydrochlorothiazide (Hydrodiuril, Esidrix). iii. triamterene and hydrochlorothiazide (Dyazide, Maxzide) - a combination of two diuretics. iv. bumetanide (Bumex). v. spironolactone (Aldactone).	May review changes associated with aging. Identify basic structures and functions of the urinary system. Identify the action and major side effects of diuretics. Name commonly used diuretics. Identify nursing actions to monitor the diuretic's actions, to observe for complications and to promote comfort for the resident.

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d. Implications for care: i. give early in day. ii. give with plenty of fluid unless physician restricts. iii. monitor effectiveness by taking routine body weight and assessing edema, checking blood pressure, presence of thirst, and input and output. iv. a daily weight change of greater than +2 lb. is significant. v. potassium depletion may result in confusion, gas, muscle weakness, muscle cramping, and/or an irregular heartbeat. vi. encourage the resident to eat a variety of foods.	Discuss value of laboratory monitoring. Review foods which are sources of potassium.
3. Potassium replacement drugs. a. Action: replace potassium (K) lost when certain diuretics are used. b. Major side effects: stomach irritation. c. Examples: i. KCL - abbreviation for potassium chloride. ii. Slow-K - wax matrix form for delayed release. iii. K-Lyte.	Identify the reason potassium replacement drugs are used.
d. Implications for care: i. give with food to help prevent gastric irritation. ii. do not give wax matrix form with hot food or liquid to prevent melting. iii. may be ordered in milli-equivalents (mEq)	Identify nursing actions to prevent medication reactions.
4. Drugs that affect bladder tone. a. Oxybutynin (Ditropan) - antispasmodic drug that reduces bladder contractions and delays the initial urge to void in persons with neurogenic bladder. b. b.Bethanechol (Urecholine) - increases bladder tone, promotes voiding.	Review nursing measures which help residents regain bladder control.

Course Outline	Teaching Aids/Plan
5. Urinary anti-infectives a. Action and use: to prevent or treat urinary tract infections. b. Side effects and examples of drugs and some implications for care: i. sulfisoxizole (Gantrisin) – from sulfonamide family. ii. nitrofurantoin (Macrodantin) – frequently causes G.I. upset. Give with food. May color the urine rust-brown. Other drugs used to treat urinary infections may also color the urine. iii. trimethoprim and sulfamethoxizole (Septra, Bactrim) - used for resistant urinary infections. iv. methenamine (Hiprex) - used for persons who are susceptible to chronic, recurrent infections. Physician may order Vitamin C or other medication to acidify the urine when this drug is given. v. ciprofloxacin (Cipro), Norfloxacin (Noroxin), ofloxacin (Floxin). c. Implications for care: encourage fluids and regular emptying of bladder.	Identify drugs which are used to treat urinary tract infections and nursing measures to promote effectiveness.

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Unit V. DRUGS AFFECTING THE RESPIRATORY SYSTEM 1. Structure and function of the respiratory system. a. Parts of the respiratory system and their function. i. nose - warms, moistens and filters inhaled air. ii. pharynx (throat) - passageway for air. iii. larynx - "voice box." iv. trachea - "wind pipe", - reinforced tube leading to bronchi. v. bronchus (bronchi) - tube(s) leading to the lungs. vi. Bronchioles - smaller divisions of tubes leading deeper within the lung tissue vii. alveolus - small sac at end of bronchiole. Oxygen and carbon-dioxide are exchanged from the blood circulation through the walls of the alveoli. viii. lung - organ which contains the bronchioles and alveoli. b. Changes associated with aging. 2. Oxygen (0_2) a. Use to treat hypoxia. may be given continuously for a person whose lung tissue has been severely damaged by disease. May be given on an emergency basis to a resident who suddenly becomes short of breath. b. Toxic effects: i. results from oxygen being supplied in greater amounts than the body needs. ii. may include drowsiness, confusion, and respiratory depression (dangerously slowed breathing). c. Implications for care: i. maintain oxygen flow rate at low levels ordered by physician to prevent respiratory depression. ii. oxygen supports combustion. Take special precautions to limit the potential sources of fire.	Review changes associated with aging. Identify the basic structures and functions of the respiratory system. Review appropriate care for residents with upper respiratory disorders. Refer to Unit II, Section G. Review medication aide rules for administration of oxygen on a emergency basis. Administer oxygen with caution to COPD residents in order to avoid respiratory depression.

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3. Bronchodilator drugs. a. Action: dilate or increase the opening size of the bronchioles and alveolar ducts. Decrease swelling or congestion in the respiratory tract. b. Use: to treat obstructive respiratory disorders such as asthma, emphysema or chronic bronchitis. c. Side effects: tachycardia nervousness and insomnia some may inhibit voiding d. Examples: bronchodilators may be given by aerosol, oral tablets, elixirs, syrups and suppositories. i. theophylline, aminophylline (use trade names common in your area) are usually administered orally. May also be given as rectal suppository. May cause gastrointestinal distress. ii. isoetharine (Bronkosol) given by inhalation. iii. terbutaline (Brethine) given orally or by inhalation. iv. albuterol (Proventil, Ventolin) e. Implications for care: i. residents may become very dependent on the use of their inhalers. Excessive use results in loss of effectiveness or even decrease in opening size of bronchioles. ii. check pulse to monitor effect on heart. iii. if oral medication causes gastric distress, give with food. iv. the combination of oral and inhaled bronchodilators may result in increased side effects.	Identify the action, use, and side effects of bronchodilator drugs. Name drugs with a bronchodilator action. Medication aides may not administer medications used for intermittent positive pressure breathing (IPPB) treatments or other methods involving inhalation treatment. Discuss the advantages of using theophylline sprinkles.
4. Antihistamine drugs. a. Action: relieve runny nose, sneezing, itchy, watery eyes, caused by allergy. May also relieve urticaria. b. relieve symptoms caused by allergy. c. Side effects: i. drowsiness or dizziness. ii. dry mouth. iii. urinary tract side effects.	Identify actions, use, side effects, and names of antihistamines. Identify implications for care when antihistamines are used

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d. Examples: use names common in your area i. promethazine (Phenergan) - also used for nausea. ii. diphenhydramine (Benadryl) also used as a sedative. iii. newer antihistamine drugs astemizol (Hismanal), loratidine (Claritin), terfenadine (Seldane) - have less sedating side effects. iv. antihistamines may also be combined with decongestants and other drugs. This combination may be used to relieve symptoms of colds as well as allergies. e. Implications for care: i. try to limit residents contact with allergen. ii. encourage fluids. iii. may cause increased drowsiness when combined with other depressant drugs. 5. Anti-Tubercular Drugs: a. Action: bacteriostatic, arrests multiplication of infectious bacteria; bacteriocidal, kills tuberculosis organisms, inhibits bacterial synthesis by blocking or interfering with cellular enzyme reactions. b. Use: treatment of pulmonary tuberculosis and as a preventive in high-risk persons. c. Side effects: most common are cutaneous and gastrointestinal; use with caution in residents with severe kidney and/or liver impairment; be alert to peripheral neuritis preceded by numbness or tingling in hands and feet. d. Examples: rifampin (Rifadin); rifampin, isoniazid, and pyrazinamide combined (Rifater), ethambulol (Myambutol); isoniazid (INH). e. Implications of care: residents are to be carefully monitored and interviewed regularly; it is important that doses are not missed; liver and kidney functions tests performed; cultures and chest X-rays conducted, complete the drug regimen therapy per protocol; advise resident to report any visual defects or jaundice; drug treatments generally continue for 3-6 months to 2 years for active tuberculosis and for 12 months for preventive therapy.	Resource: U.S. Department of Health & Human Services, Centers for Disease Control & Prevention, U.S. Govt. Printing Office, Atlanta Georgia 30333, Phone #(404) 639-1819 -"Prevention and Control of Tuberculosis in Facilities Providing Long Term Care to the Elderly." July 13, 1990.

Course Outline	Teaching Aids/Plan
6. Respiratory combination products - many "cough syrups" are a combination of several drugs which act in different ways. a. Actions may include any or all of: i. antitussive - to relieve cough. ii. expectorant - to reduce thickness of mucus or increase production of mucus. iii. decongestant - to reduce swelling. b. Uses: depending on drugs combined – upper respiratory infections or nonproductive and productive cough. c. Side effects: i. antitussive - narcotic drug may cause sedation; nonnarcotic drug causes no sedation. ii. expectorant none iii. decongestant may cause nervousness and insomnia. d. Examples: many over-the-counter products are available. Add those which are common in your area. i. Robitussin DM ii. Triaminic expectorant iii. Actifed C - prescription drug. Contains antihistamine and narcotic antitussive. e. Implications for care: i. syrup medications may have a demulcent or soothing effect on the throat for a short time after administration. Do not follow with water for 30 minutes. ii. expectorant action is greatly improved if the resident is well hydrated. iii. humidified air may help promote expectoration. iv. increased activity may promote movement of mucus and productive coughing.	Identify the expected actions, side effects, and implications for care when respiratory combination products are used

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Unit VI. DRUGS AFFECTING THE DIGESTIVE SYSTEM, VITAMINS, AND MINERALS	
1. Structure and functions of digestive system organs.	Review changes of digestive system associated with aging.
a. Mouth: chews food and mixes it with saliva.	Use anatomical charts.
b. Esophagus: connects mouth and stomach.	
c. Stomach: hold and mixes food with digestive juices.	
d. Small intestine: food absorbed into bloodstream here.	
e. Large intestine: absorbs water from feces.	
f. Rectum: far end portion of large intestine.	
g. Anus: opening at far end of digestive tract for expelling feces.	
h. Liver: secretes digestive substances.	
i. Pancreas: secretes other digestive substances into the digestive tract and insulin into the bloodstream.	
j. Changes associated with aging.	
2. Drugs affecting digestive system.	Name drugs, actions, side effects, and implications for care for medications which reduce stomach acidity.
a. Antacids.	
i. action: neutralize stomach acid, treat hyperacidity.	
ii. uses: peptic ulcer.	
iii. examples of drugs, grouped as to ingredient and side effects:	
A. sodium bicarbonate (baking soda) - persons on sodium restriction should not use, e.g., persons with heart and kidney problems. Not safe for long term use.	
B. calcium salts (TUMS) – potentially constipating.	
C. aluminum salts (Amphojel, Rolaids) - usually constipating.magnesium salts (Milk of Magnesia) - usually causes diarrhe	
D. magnesium salts (Milk of Magnesia) -usually causes diarrhea.	

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E. combination of magnesium and aluminum (Maalox, Mylanta, Gelusil, Kolantyl, Aludrox, Riopan) - used to balance out the constipating and laxative effect of each. F. simethecone (Mylicon) - antiflatulant agent often added to antacids or taken as preventive. iv. implications for care: A. antacids may interfere with drug absorption so should not be given simultaneously with other medications. B. antacid effect is prolonged when medication is taken with food. b. Drugs that inhibit gastric acid secretion. i. action: used to treat stomach and duodenal ulcers, prevents the release of gastric acid. Side effects are minor. High doses may cause confusion. ii. examples: A. famotidine (Pepcid) B. nizatidine (Axid) C. ranitidine (Zantac) iii. other – omeprazole (Prilosec), sulcralfate (Carafate) - should be given before meals. c. Antiemetics. i. action: suppress nausea and vomiting by acting on brain control center. ii. side effect: drowsiness. iii. examples: A. dimenhydrinate (Dramamine). B. trimethobenzamine (Tigan) C. meclizine (Antivert). D. phenothiazines (Compazine, Thorazine, Phenergan) d. Emetic i. action: induce vomiting by acting on brain control center. ii. side effect: do not use when corrosive product ingested, such as acids or alkalies, or if patient is drowsy or unconscious. iii. examples: Syrup of Ipecac	Review general care to prevent and control nausea, vomiting, and diarrhea. List action, side effect, and examples of drugs which treat nausea and vomiting. Used to treat ingestion of non-caustic substances. Discuss Texas Poison Control Center 1-800-POISON-1 (1-800-764-7661) In emergency dial – 911 Know Regional Poison Center phone numbers and location: Amarillo - 806/354-1631 Dallas 214/590-6626 El Paso 915/521-7660 Galveston - 409/772-3332 San Antonio-210/567-5762 Temple - 817/724-2333

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e. Antidiarrheals - drug to relieve diarrhea. i. absorbants. A. action: soak up excess fluids and bacteria. B. side effects: minimal. C. examples: kaolin; bismuth (Pepto-Bismol); pectin (from apples); kaolin and pectin (Kaopectate). ii. drugs which slow intestinal motility, opiates. A. action: reduce peristalsis by action on central nervous system. B. side effects: drowsiness, may be addicting. C. examples: opiates (Paregoric). iii. drugs which alter intestinal motility. A. action: acts on autonomic nervous system to alter peristalsis. B. uses: spastic colon; diarrhea; Gastroesophogeal Reflux Disease (GERD). C. side effects: varied and many because of effect on entire autonomic nervous system: blurred vision, dry mouth, heart palpitations, urine retention, constipation. D. examples for decreased motility: atropine sulfate and diphenoxylate HCL (Lomotil); atropine, scopolamine and phenobarbital (Donnatal); kaolin; pectin; belladonna (Donnagel); loperamide (Imodium); dicyclomine (Bentyl). E. examples of drugs that enhance intestinal motility: metoclopramide (Reglan); cisapride (Propulsid) - monitor for diarrhea. iv. implications for care in diarrhea in addition to medications: remove cause of diarrhea, replace fluids, rest intestines (limit solids eaten).	Name examples and side effects of antidiarrheal medications according to their action. State non-drug means of controlling diarrhea.
f. Cathartics (laxatives) - drugs which promote defecation. i. laxatives which stimulate intestinal peristalsis: usually act 6-8 hours in oral form. Suppositories act faster. A. examples: castor oil (Neoloid); senna (Senokot); bisacodyl (Dulcolax); phenolphthalein (Ex-Lax, Doxidan).	List examples, side effects, action, speed of actions for drugs which promote defecation. Discuss hazards of chronic use of laxatives. Review bowel training.

Course Outline	Teaching Aids/Plan
B. side effect: abdominal cramping. ii. laxatives which pull fluid into large intestine (saline cathartics). A. example: magnesium hydroxide (Milk of Magnesia); acts within 8 hours. B. implications for care: must be accompanied by good fluid intake. iii. laxatives which increase bulk: act within 12 hours to 3 days; most natural, least irritating action. A. examples: psyllium (Metamucil, Konsyl); methylcellulose (Citrucel). B. side effects: minimal C. implications for care: must be administered with adequate water and continued good fluid intake. Metamucil contains 50% sugar. Use sugar-free formula for diabetics. iv. laxatives which lubricate feces. A. example: mineral oil - acts within 2 to 6 hours. B. side effects: interferes with absorbing nutrients. Should not be taken at mealtime or long term. v. laxatives which moisten fecal matter (fecal softeners): safe and non-irritating; acts in I to 3 days. A. dioctyl calcium sulfosuccinate (Surfak); dioctyl sodium sulfosuccinate (Colace). vi. implication for care in preventing constipation: A. diet should include bulk and adequate fluid. Exercise helps prevent constipation.	State non-drug methods to help prevent and correct constipation. Describe in detail foods which add bulk to diet; methods to help maintain good fluid intake. Review the four basic food groups.
g. Vitamins. i. action: vitamins are substances required for the body to carry out metabolic reactions. The body does not produce all vitamins, so they must be taken in as food. ii. uses: normal healthy persons receiving an adequate, well-balanced diet should not require vitamin supplements. People who for some reason have an inadequate diet or vitamin requirements which exceed their dietary intake of vitamins can benefit from vitamin supplements.	State what functions vitamins (in general) have in the body. State situations when vitamin supplements may be used. Name examples of vitamin supplements.

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iii. side effects: water soluble vitamins B and C, if taken in excess, are excreted in urine, so cause few symptoms. Fat soluble vitamins, A, D, E, and K, if taken in excess may be stored in body fat tissue and cause overdose symptoms.	
iv. examples:	
A. multiple vitamins (Stresstabs).	
B. multiple vitamins (Theragran).	
C. there are many other multiple vitamin preparations. Add those which common in your area.	
h. Minerals (iron).	State what iron is necessary for in the body.
i. action and use: necessary for normal red blood cell function and for function of all body cells. Treats iron deficiency.	
ii. side effects: G.I. irritation, tarry stools, oral liquid form may stain teeth, constipation or diarrhea.	State measures to use in administering iron to minimize side effects.
iii. examples: ferrous sulfate (Feosol); iron and vitamins (Iberet); iron and vitamins (Trinsicon).	
iv. implications for care: may require several months of iron therapy to correct deficiency. Iron given on empty stomach will be best absorbed but most irritating to G.I. tract. Give with food if G.I. upset occurs. Oral liquid form should be placed well back on tongue, or given with straw to avoid staining teeth.	
i. Minerals (calcium).	Identify action and example of calcium medication.
i. action and use: provide calcium to prevent osteoporosis.	
ii. side effect: minimal.	
iii. example: calcium plus Vitamin D; (Oscal, Citracal, TUMS).	

Course Outline	Teaching Aids/Plan
Unit VII. DRUGS AFFECTING THE CENTRAL NERVOUS SYSTEM 1. Structure and function of nervous system. a. Brain - control center for vital bodily functions. b. Spinal cord - contains motor and sensory nerve pathways. c. changes associated with aging. 2. Drugs which are central nervous system stimulants. a. Cerebral stimulants (Select Psychoactive Drugs). i. action: speed up brain activity which in turn speeds up body activity. ii. uses: to improve cognitive awareness and Attention Deficit Disorder (ADD). iii. side effects: excitement, dizziness, dry mouth, restlessness, palpitations, increase pulse and blood pressure, anorexia, insomnia. iv. examples: methylphenidate (Ritalin); caffeine. v. implications for care: should be given early in day so drug's stimulating effect doesn't interfere with sleep; monitoring required. b. Antidepressants (Select Psychoactive Drugs). i. action: alters the chemical process of the brain to relieve symptoms of depression. ii. uses: depression. iii. side effects: postural hypotension, mouth dryness, blurred vision, constipation, difficult urination, confusion, agitation, tremors. iv. implications for care: provide for adequate elimination because of difficult urination and constipation; safety because of blurred vision and postural hypotension; hydration because of mouth dryness; monitoring suggested. v. examples: A. Tricyclic (TCA) – amitriptyline (Elavil); amoxapine (Ascendin); desipramine (Norpramin); doxepin (Sinequan); imipramine (tofranil); nortriptyline (Pamelor). B. Monamine Oxidase Inhibitors (MAO) – tranylcypromine (Parnate), phenelzine (Nardil). Recommended not to consume wine, cheese, pickled fish.	Discuss changes in the nervous system which occur with aging. List parts of the central nervous system and their function. Discuss Comprehensive Drug Management: optional therapeutic outcomes, Drug Utilization Review, Disease Management, Unnecessary Drugs: Excessive Dose Excessive Duration Adequate Monitoring Indications for use Presence or potential for adverse consequences Drug Regimen Review (DRR) Continuous Quality Improvement (CQI) Discuss symptoms of depression.

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C. Serotonin Reuptake Inhibitors (SRI) - sertraline (Zoloft); paroxetine (Paxil); fluoxetine (Prozac). Should be given in morning due to stimulation. may decrease appetite. D. other - trazodone (Desyrel); Serzone (nefazodone); vanlafaxine (Effexor).	
3. Drugs which depress the central nervous system. a. Analgesics (narcotics). (CNS Depressants.) i. action: relieve pain, also used to slow peristalsis and as antitussive. ii. side effects: drowsiness, dizziness, respiratory depression, constipation (may cause paradoxical excitement in elderly). iii. examples: codeine, oxycodone (ingredient of Percodan), propoxyphene (Darvon), propoxyphene napsylate (Darvon N),pentazocine (Talwin). iv. implications for care: A. may cause physical dependence. To be most effective, should be given before pain becomes intense. B. Provide for prevention of constipation. C. report respiratory rate <12 prior to administration. D. Use non-drug measures to promote comfort by providing physical care: positioning, massage, environmental comfort, emotional support. Anxiety makes pain seem more acute. E. monitoring recommended.	List drug names, actions, and side effects for narcotics and analgesics. Discuss resident assessment, pain threshold, analgesic effectiveness, and documentation. Discuss factors in administration of analgesics which enhance their effect. Discuss non-drug measures for relieving pain.
b. Analgesics - Antipyretics (non-narcotic). i. action: relieve pain and reduce fever. ii. side effects: aspirin - gastric upset, interferes with blood clotting. iii. examples: acetylsalicylic acid (ASA) aspirin; acetaminophen (Tylenol), buffered aspirin (Ascriptin and Bufferin); non-steroidal anti-inflammatory drugs (NSAID's) such as ibuprofen (Advil), naproxen (Aleve). iv. implications for care: A. giving aspirin with food can reduce gastric upset. B. see preceding implications with narcotic analgesics. C. monitoring recommended.	Identify action, names, and side effects of non- narcotic analgesics. There are many drugs available which are combinations of analgesics. Some examples are Darvon compound, Tylenol with codeine, Empirin with codeine. Discuss potential risk of liver damage due to excessive use of Tylenol.

Course Outline	Teaching Aids/Plan
c. Sedative/hypnotics (Select Psychoactive Drugs). i. action: sedatives - give calming effect; hypnotics - larger doses of sedatives, cause sleep. ii. side effects: some medications may cause morning "hangovers" and short-term memory loss; some elderly may become excited rather than sedated. Long term continual use is discouraged. iii. examples: flurazepam HCI (Dalmane); chloral hydrate (Noctec); triazolam (Halcion); etazolam (Prosom); oxazepam (Serax); temazepam (Restoril); zolpidem. (Ambien); flurazepam (Dalmane); chloral hydrate (Noctec). iv. implications for care: try non-drug measures first to promote sleep; ensure resident swallows medication; do not substitute sedatives for good nursing care; monitoring recommended.	Name action, side effects, and examples of drugs which are sedative/hypnotic. Elaborate on non-drug measures which promote sleep; snacks, empty bladder, relief of discomfort.
d. Anticonvulsants. i. action: depress abnormal neuronal discharges in CNS. ii. use: inhibit seizure activity. iii. side effects: drowsiness, lethargy, decreased cognitive awareness. iv. examples: phenytoin sodium (Dilantin); carbamazepine (Tegretol); valproic acid (Depakene); divalproex sodium (Depakote); phenobarbital (Various Mfcs.); primidone (Mysoline); gabapentin (Neurontin). v. implications for care with Dilantin: good oral hygiene due to potential overgrowth of gum tissue; monitoring recommended.	Review care of person during convulsion. Anticonvulsants should be given precisely at the same time each day to maintain therapeutic blood levels. Lab values are used to monitor therapeutic blood levels.
e. Antiparkinsonian Agents. i. action and use: treat Parkinson's disease by various actions. ii. ii. side effects: dizziness, postural hypotension, drowsiness, blurred vision, difficulty voiding, dry mouth, G.I. upset. iii. examples benztropine mesylate (Cogentin); trihexyphenidyl HU (Artane); levodopa (Larodopa); levodopa and carbidopa (Sinemet); amantadine (Symmetrel); selegiline (Eldepryl). iv. implications for care: A. measures to promote voiding. B. adequate hydration. C. G.I. side effects lessened by giving drug with food; monitoring recommended.	May review symptoms of Parkinsonism. State action, side effects, examples of drugs given to treat Parkinsonism, and implications for care. Antiparkinsonian agents should be given precisely at the same time each day to maintain therapeutic blood levels.

Course Outline	Teaching Aids/Plan
f. Psychoactive Medications. i. action: may act selectively on the CNS and affects the mind. ii. uses: anxiolytics - primarily treat nervousness and anxiety; anti-psychotics (neuroleptics) - primarily treat mental illness. iii. examples: Anxiolytics – diazepam (Valium); chlordiazepoxide (Librium); hydroxyzine (Atarax, Vistaril); lorazepam (Ativan); alprazolam (Xanax). A. side effects: drowsiness, dizziness, blurred vision, dry mouth, constipation, impaired coordination, decrease respiratory rate. B. implications for care: monitoring required. iv. examples: Antipsychotic (Neuroleptics) – thioridazine HC1 (Mellaril); chlorpromazine (Thorazine); haloperidol (Haldol); risperidone (Risperdal). A. side effects: may cause Parkinson-type symptoms and abnormal movement of extremities: in and out movement of tongue, sucking and smacking lips, lateral jaw movements. May affect thirst awareness. Abrupt withdrawal may trigger seizures. B. implications for care: monitoring required.	Discuss conditions for which tranquilizers are used. Discuss implications for care for the person receiving tranquilizers. Name actions, side effects, and examples of tranquilizers. Alcohol may potentiates the action of anxiolytic activity. Discuss extra pyramidal symptoms (EPS). Describe or define tardive dyskinesia. Discuss risk of falls associated with psychoactive medications.
4. Drugs used for treating manic-depressive (bipolar) disorders. a. action: control and prevent manic episodes. b. side effects: drowsiness, symptoms of toxicity (nausea, tremor, muscle weakness). c. implications for care: persons receiving lithium carbonate (Lithane) should also have adequate salt and juice intake. Unusual loss of salt or fluid from body (vomiting, diarrhea, excessive sweating) may result in toxicity; monitoring recommended.	Discuss manic-depressive symptoms. Discuss use of valproic acid. Discuss the importance of laboratory monitoring and therapeutic window.

Course Outline	Teaching Aids/Plan
5. Organic brain syndrome and some of their ramifications. * The "Why" behind the behaviors of nursing residents: these behaviors are not random, nor do they occur unpredictably, but rather they almost always arise from the following problems: * Cognitive Impairments * Catastrophic Reactions * Delusion, Hallucinations, Depression * Physical Illness * Drug Toxicity Define and discuss the above as well as: • Alzheimer's Disease Amnesia Aphasia Apraxia Agnosia • Parkinsonism - Movement Disorders Akinesia Dystonia Akathisia Tardive Dyskinesia • Clinical Discomforts Hypotension Urinary Retention Dry mouth/fecal impaction • Other types of organic brain syndromes Psychosis Mania Dementia Paranoia Schizophrenia and related situations in the nursing home which may involve drug/behavior phenomenon. Discuss facility "good practices".	Discuss symptomatic treatment and ramifications of drugs used as related to OBRA87 and Federal Regulations governing unnecessary drugs and anti-psychotic drugs. Copies of the above is available by HCFA. For Federal Long Term Care Regulations Forms, Survey Protocols, etc. - such as Standard Operating Manual (SOM) #274, SOM #273 and other SOM's, Medicaid Certification Questions, etc. Contact: Health Care Financing Administration (HCFA) Survey and Certification Review Branch, Division of Health Standards and Quality, 1200 Main Tower Building, Dallas, Texas 75202. 1-800-321-0343 1-214-767-6427 1-214-767-4415 For Clinical Practice Guidelines (Quick Reference Guides for Clinicians) – Documents on a variety of morbidities and Disease Management Guidelines for patient health care management: Contact: Agency for Health Care Policy and Research (AHCPR) at: 1-800-358-9295 or write: AHCPR Publications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907. and study: Surveyors' Guidelines to Antipsychotic Drug use in Nursing Homes.

Course Outline	Teaching Aids/Plan
Unit VIII. AFFECTING THE MUSCULOSKELETAL SYSTEM 1. Structure and function of musculoskeletal system. a. Bones. i. are living tissue; calcium in spaces between cells makes bone hard. ii. bones function as framework for muscles, produce blood cells, store calcium and fat. iii. cartilage - soft tissue covering parts of bones. iv. bone marrow - soft, center part of bone, red blood cells manufactured here. b. Joints. i. where bones connect to each other. ii. ligaments hold bones together. c. Muscles. i. skeletal muscles - work together with bones for body movement. ii. tendons attach muscles to bones. d. Changes associated with aging.	Review effects of aging on musculoskeletal system.
2. Drugs used to treat musculoskeletal disorders. a. Anti-inflammatory. i. action and use: reduce pain, fever and inflammation. Used for diseases such as ostecarthritis, rheumatoid arthritis. ii. side effects: G.I. ulceration; exacerbation of asthma; decline of renal function. iii. examples: acetylsalicylic acid (aspirin); ibuprofen (Motrin); sulindac (Clinoril); naproxen (Naprosyn) (Aleve); nabumetone (Relafen); etodolac (Lodine). iv. implications for care: take care in handling patients requiring these medications so as not to cause further pain in handling or positioning them; may be better tolerated with food. b. Uricosurics. i. action and use: increases urinary excretion (and decrease serum levels) of uric acid. ii. side effects: rash, G.I. disturbance. iii. example: allopurinol (Zyloprim). iv. implications for care: should be accompanied with lots of fluids.	Name drugs, their actions, use, side effects, and implications in treatment of musculoskeletal disorders. Discuss symptoms and care of arthritis. Discuss symptoms (side effects) with large doses of aspirin. Discuss the assets of Cytotec use with NSAIDs. Cytotec (misoprostol) has been proven to prevent NSAID - induced gastric ulcers.

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c. Skeletal muscle relaxants. i. action and use: CNS depressant; relieves pain and stiffness in muscles, from orthopedic disorders and injuries. ii. side effects: drowsiness, light-headedness. iii. example: chlorzoxazone (Parafon DSC); methocarbamol (Robaxin); cyclobenzaprine (Flexeril); carisoprodol (Soma). iv. implications for care: recommended not to take with alcoholic beverages.	

Course Outline	Teaching Aids/Plan
Unit IX. DRUGS AFFECTING THE ENDOCRINE SYSTEM 1. Drugs used to replace thyroid hormone. a. Structure and function: thyroid gland located in neck, controls body's metabolism rate. b. Action and use: for persons who produce insufficient thyroid hormone. May be given for life. c. Side effects: symptoms of excess thyroid hormone, i.e., increase in vital signs, nervousness, weight loss. Since dosage is regulated individually, side effects are infrequent. d. Examples: levothyroxine (Synthroid); thyroid. e. Implications for care: assessment of therapeutic effect, side effects and adverse reactions. f. Changes associated with aging. 2. Drugs used for diabetes. a. Structure and function: pancreas gland located in abdomen, produces insulin, which is necessary for body cells to be able to use or store glucose (digested sugar). b. Changes associated with aging. c. How the body malfunctions: i. due to lack of or insufficient production of insulin, body cells are unable to use glucose, which results in glucose being excreted in the urine. The body, starved for an energy source, breaks down fats and proteins to get energy. By-products of the breakdown, ketones, are also excreted in the urine, but can accumulate in the body to such a level to cause coma. ii. growth onset diabetes - onset in people aged 20 and under, difficult to regulate, usually requires insulin replacement (Type 1).	List actions, side effects, and names of drugs replacing thyroid hormones. Laboratory monitoring required. Describe how the body malfunctions in diabetes, and what changes occur in the urine of an untreated diabetic. Discuss and/or give examples of interrelationships of insulin, diet, activity, stress, and other disease processes. Medication aides may not administer medications by the injection route, therefore, this prohibits them from administering (injecting) insulin.

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iii. adult onset diabetes – onset usually after age 40, easier to regulate, may often be controlled with diet or oral hypoglycemic agents. This type of diabetes is found more frequently than growth onset diabetes among nursing home residents (Type II)	
iv. potential complications with diabetes:	
A. decrease blood circulation.	
1) organ damage (renal failure, liver damage)	
2) visual disturbances	
3) infections	
4) amputations	
d. Treatment of diabetes.	May review testing of urine for glucose and ketones, and glucometer recordings and techniques.
i. diet - keeping body weight ideal; measured amounts of carbohydrate, protein, fat. Diet must balance the amount of insulin in the body, whether given as medication or occurring naturally; mild diabetes may be controlled by diet alone.	
ii. activity - this must balance with food and insulin. increase in activity enhances insulin's effect.	
iii. insulin or hypoglycemic agent as medication.	
A. insulin can be given only by injection, so may not legally be administered by medication aide.	
B. oral hypoglycemic agents.	State name, action, side effects of oral hypoglycemic agents.
1) action: this is not insulin; exact method of action unknown, but effect is to make more of body's insulin available for use.	
2) examples: tolbutamide (Orinase); chlorpropamide (Diabinese); tolazamide (Tolinase); glipizide (Glucotrol); glyburide (Diabeta), (micronase), (Glynase); metformin (Glucophage) - recommended to give 30 minutes before meals.	
3) side effects: G.I. disturbance.	
C. implications for care:	Review complications associated with diabetes as well as nursing measures to help minimize complications.
1) oral hypoglycemic agents recommended to be given approximately 30 minutes before meals.	

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2) change from prescribed diet will upset balance of insulin an glucose. Not eating (flu, diarrhea, or other reasons) may cause hypoglycemia. Eating excess may cause acidosis.	
3) hypoglycemia (insulin shock) caused by too much insulin or too little glucose in blood. Treat by giving immediately some source of sugar (fruit juice, soft drink, candy).	State causes, symptoms, emergency response to hypoglycemia and diabetic acidosis. Discuss importance of different dosage forms containing sugar, alcohol, and sugar-free products.
4) diabetic acidosis and coma - caused by lack of insulin.	
5) monitoring drug-drug interaction, drug-food interaction.	
3. Sex hormones.	
a. Male: testosterone - produced in testes.	
i. action and use:	
A. replacement when there is inadequate production.	
B. anabolic effect – promoter. building of body tissue.	
ii. side effects: masculinizing when given to females, edema.	
iii. example: methandrostenolone (Dianabol).	
iv. implications for care: to be effective, hormones given for anabolic effect must be accompanied by improvement in nutrition.	
v. changes associated with aging.	
A. Benign Prostatic Hypertrophy (BPH) - examples: doxazocin (Cardura); terazocin (Hytrin).	
B. Prostate Cancer – examples: finasteride (Proscar).	Discuss potential side effects.
b. Female: estrogen produced in ovaries.	
i. action and use: replacement after menopause, menstrual disorders, osteoporosis.	
ii. side effects: nausea, abnormal vaginal bleeding.	
iii. examples: (check to see what is commonly used in your area). Conjugated estrogen (Premarin); diethylstilberterol (Stilbesterol); estradiol transdermal system (Estraderm).	

Course Outline	Teaching Aids/Plan
c. Female hormone: progesterone. i. action and use: menstrual disorders. ii. side effects: minimal. iii. example: medroxyprogesterone acetate (Provera). d. Combinations of estrogen and progesterone. i. action and use: contraception for some pre-menopausal residents of nursing homes. ii. side effects: nausea, abnormal vaginal bleeding, edema, blood clots. iii. example: norgestrel estradiol (LoOvral). e. Changes associated with aging. 4. Adrenal Cortical Steroids. a. Produced by adrenal cortex. b. action: replacement therapy, suppress inflammation. c. use: rheumatoid arthritis, allergies, asthma, many unlabeled uses. d. side effects: i. short term: GI disturbances ii. long term: interferes with healing and infection resistance; weight gain, fluid retention, hypertension, "moon" face; osteoporosis; sodium retention; psychosis; ulcers; potassium loss; drug induced diabetes. e. Examples: prednisone (Deltasone); hydrocortisone (Cortef). f. Implications for care: withdrawing these is done gradually, may be on alternate day therapy. Abrupt withdrawal or omitting dose may cause severe, even life-threatening symptoms; many drug-drug interactions.	Show examples of various cortical steroids available: methylprednisolone (Medrol); dexamethasone (Decadron); others

Course Outline	Teaching Aids/Plan
Unit X. ANTIBIOTICS AND OTHER ANTI-INFECTIVE AGENTS	
1. The nature of infection.	Review specific actions the medication aide may take to prevent transferring infection. Review institution's infection control procedures to further illustrate.
a. Cause: microorganisms cause infection. Infection may be spread from one person to another in many ways, e.g., various body secretions, by touch, and by contact with contaminated equipment.	
b. Control: effective handwashing is of primary importance. Discuss other means of preventing or containing infection.	Stress the role the medication aide has in observing for signs of infection and prevention of cross contamination.
c. Signs and symptoms: may not be as prominent as with a younger person.	Identify cause, control measures, signs and symptoms of infection.
i. localized signs and symptoms – local redness, warmth, swelling, pain, limitation of motion.	
ii. bodily signs and symptoms.	
A. first noticeable sign may be a general decline, increasing weakness or confusion.	
B. temperature elevation.	
C. chills and sweating.	
2. Topical anti-infective agents.	Identify terms describing topical anti-infective action.
a. Terms:	Name topical anti-infective agents and identify actions which promote effective use.
i. antiseptic - inhibits the growth of microorganisms. Can be used on living tissue with reasonable safety.	
ii. disinfectant or germicide – kills microorganisms. Since this is a more potent substance, its use on living tissue is limited. Disinfectants are commonly used for objects.	
b. Examples and uses:	
i. Povidone - iodine solution (Betadine) combination of iodine and detergent used to reduce microorganisms grown on skin.	
ii. alcohol - dries skin excessively while removing microorganisms.	
iii. benzalkonium chloride (Zephiran) -antiseptic for cleaning skin or wounds. Is inactivated by soap, detergent, or wound drainage on skin.	

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iv. hydrogen peroxide (H202) - decomposes to water and oxygen on contact with skin. Value is more in its ability to debride and remove medium for bacterial growth than in direct antiseptic value.	
v. include other agents commonly used in your area.	
c. Implications for care:	
i. topical anti-infective agents are most effective when applied to cleansed skin or to other surface.	
3. Systemic anti-infective drugs.	Identify anti-infective drugs, their use, side effects, and implications for care.
a. Use: treat infection.	Since new products are frequently available, check for current use.
b. Side effects:	Display any new drug information for the students.
i. allergic reaction is the most common adverse effect. Serious allergic reactions are most common with the penicillins and sulfas drugs.	
ii. some cause gastric distress, resulting in nausea, vomiting and diarrhea.	
c. Examples:	
i. sulfonamides: e.g., sulfisoxazole (Gantrisin).	Discuss anaphylactic shock.
ii. penicillin antibiotics: e.g., penicillin V; ampicillin; amoxicillin.	Discuss cross sensitivities of penicillins and cephalosporins.
iii. tetracyclines: e.g., doxycycline Vibramycin) - most members of this group should not be taken at the same time as dairy products, antacids, laxatives, or iron containing medication.	Discuss photosensitivity with tetracycline and sulfa drugs.
iv. cephalosporins: cephalexin (Keflex); cefaclor (Ceclor); ceftriaxone (Rocephin).	
v. V. macrolides: erythromycin (E.E.S., E-Mycin, Erythrocin); clarithromycin (Biaxin); azithromycin (Zithromax).	
vi. antifungals - nystatin (Mycostatin); miconazole (Monistat), ketoconazole (Nizoral); fluconazole (Diflucan).	
vii. fluoroquinolones: norfloxacin (Noroxin); ciprofloxacin (Cipro).	
viii. aminoglycosides: gentamycin (Garamycin).	
ix. antituberculosis drugs: isoniazid (various); rifampin (Rifadin); rifabutin Mycobutin) ethambutol (Myambutol); Rifater - combination: rifampin; isoninzid; pyrazinamide	

Course Outline	Teaching Aids/Plan
x. amebicides: metronidazole (Flagyl). xi. antiviral agents: zidovudine (AZT); acyclovir (Zovirax); amantadine (Symmetrel). xii. miscellaneous anti-infectives: extensive - please consult various resource manuals. d. Implications for care: i. many anti-infective drugs are best absorbed when taken on an empty stomach, 1-2 hours before meals. Some antibiotics may be taken without regard to food. (Amoxicillin, penicillin V, cephalosporins and some others). Give with some food if the drug causes gastric distress. ii. give at regularly spaced intervals to help maintain consistent blood level of drug. iii. observe for signs that infection is improving. iv. observe for secondary infection (diarrhea, mouth infection, vaginal infection) which results when resistant microorganisms flourish or normal flora is destroyed. v. be aware of stop orders and disease management protocols.	Discuss sufficient fluid intake with medication administration unless contraindicated.

Course Outline	Teaching Aids/Plan
Unit XI. DRUGS AFFECTING THE EYE 1. Description of the eye. a. Structure and function. i. conjunctiva - mucous membrane which lines the eyelid. ii. sclera - white of eye. iii. cornea - clear surface of anterior eye. iv. iris - pigmented circular muscle which adapts eye to light and gives color to eye. v. V. pupil - opening in center of iris which expands (mydriasis) or constricts (miosis). vi. lens - clear structure which changes shape to focus image for the eye. b. Changes associated with aging. c. Terms used for medication administration are abbreviations for Latin words: i. O.D. (oculus dexter) - right eye. ii. O.S. (oculus sinister) - left eye. iii. O.U. (oculi unitas) - both eyes. 2. Drugs used for glaucoma. a. How the eye malfunctions: glaucoma is the result of increased pressure within the eye. Untreated glaucoma results in blindness. b. Action: decrease intraocular pressure. c. Side effects: i. miosis (impaired vision in low light). ii. visual blurring. d. Examples: pilocarpine (Isopto Carpine); timolol (Timoptic); dorzolamide (Trusopt); betaxolol (Betoptic); levobunolol (Betagan). e. Implications for care: i. provide adequate lighting, especially at night, check vital signs. ii. pain in eye may be a symptom of increasing pressure. Report promptly.	Include a review of special care needs of those with eye disorders. Review the procedure for administration of eye medication. Reinforce sterile techniques. Identify measures which help ensure safety for the resident with glaucoma. Identify the names, action, and side effects of drugs used to treat glaucoma.

Course Outline	Teaching Aids/Plan
3. Eye lubrication. a. How the eye malfunctions: individuals may have insufficient tear production. b. Use: may be used temporarily following cataract surgery. Also used with artificial eyes and contact lenses. c. Action: provide tear-like lubrication. d. Side effects: minimal. e. Example: methylcellulose (Isopto Tears). f. Implications for care: may be applied as ointment or drops.	Identify action, use, and name for eye lubricant.
4. Ophthalmic drugs used for infection. a. Use: for various eye infections, inflammations, or for preventive care following cataract surgery. b. Examples: combination of antibiotics (Neosporin Ophthalmic); sodium Bulfacetamide (Sodium Sulamyd); ciprofloxacin (Ciloxan); norfloxacin (Chibroxin); tobramycin (Tobrex). c. Implications for care: may be applied as ointment or drops; general guideline for use is 10-14 days.	Identify a reason anti-infective drugs may be used in the eye and examples of drugs used. Reinforce sterile techniques and good handwashing.
5. Ophthalmic drugs for inflammation. a. Use: cataract surgery, inflammation. b. examples: fluoromethalone (FML), prednisolone (AK-Pred), diclofenac (Voltaren). c. implications for care: usually used short-term; observe for worsening of condition.	

Course Outline	Teaching Aids/Plan
Unit XII. DRUGS AFFECTING THE EAR. 1. Structure and function of the ear. a. Ear canal: leads from outside to ear drum. b. Ear drum: vibrates, transmitting sound to middle ear. c. C. Middle ear: three small bones that vibrate conducting sound to inner ear. d. Inner ear: contains specialized hearing cells. Hearing is transmitted from these to brain via auditory canal. e. Auditory nerve: transmits round impulses to brain. f. Eustachian tube: connects pharynx and middle ear, equalizes pressure. 2. Changes associated with aging. 3. Drugs used for ear disorders. a. Drugs used to relieve accumulation of ear wax (cerumen). i. use: softens and breaks up ear wax. ii. side effects: local rash. iii. example: triethanolamine (Cerumenex). iv. implications for care: administered into ear canal. b. Antibiotics. i. use: infection. ii. side effect: potential allergic reaction. iii. examples: A. topical medication for treating outer ear infections - hydrocortisone, neomycin, polymyxin B (Cortisporin Otic). B. Inner ear infections require treatment with systemic antibiotics. C. Analgesic - hydrocortisone/acetic acid (Auralgan).	Review changes of hearing associated with aging, care and communications for people with impaired hearing. Review procedure for administration of ear drops and ointment. Name action and side effects of drugs affecting the ear and implications for care. Identify any new drugs available. Review proper administration of ear drops.

Course Outline	Teaching Aids/Plan
Unit XIII. DRUGS AFFECTING THE SKIN 1. Structure and function of skin. a. Epidermis: top layer - cells, flat, horny, constantly shed. b. Dermis: underneath layer - contains blood vessels, oil and sweat glands, hair follicles, nerves, receptors for touch sensations. c. Function of skin: protection, help regulate body temperature, manufacture vitamin D; sense temperature, pain, touch. 2. Changes associated with aging. 3. Drugs used to treat skin disorders - Anti-infectives. a. kill fungus. i. examples: clotrimazole (Lotrimin) tolnaftate (Tinactin). b. kill parasites (lice, scabies). i. examples: lindane (Kwell). 4. Precautions for care: Topical preparations for skin are more concentrated than preparations for mucous membranes. Do not apply skin preparations to mucous membranes because of risk of over-medicating. 5. Transdermal applied medication. a. Examples: Nitroglycerin patches/ointment, Catapres TTS, Transcop, Estraderm, Duragesic, Nicoderm. b. Implications for care: avoid contact with practitioner skin; rotate sites.	Review changes of skin associated with aging. Review prevention of decubitus ulcers (treatment of such is not permitted by medication aides). Review application procedures.

Course Outline	Teaching Aids/Plan
Unit XIV. ALZHEIMER'S DISEASE PATIENTS AND RELATED DISORDERS. 1. History of Alzheimer's disease. 2. Basic characteristics of Alzheimer's patients. 3. Four phases of Alzheimer's disease. 4. Basic procedures in dealing with Alzheimer's patients. a. Create calm and safe environment b. Maximize patient's freedom and independence. c. Monitor resident's functional abilities. d. Establish routine for medication administration. i. administer one drug at a time. ii. do not argue with patient who refuses medication. 5. New treatments for mild to moderate dementia: tacrine (Cognex) A. Alzheimer's Kit available free through: Coordinator, Alzheimer's Program, Texas Department of State Health Services, Bureau of Chronic Disease Prevention and Control, 1100 West 49th Street, Austin, Texas 78756-3199. B. Additional Alzheimer's information available from the Alzheimer's Disease Education and Referral Center, P.O. Box 8250, Silver Spring, MO, 20907-8250, phone #1-800-438-4380. C. The Combined Health Information Database (CHID) is available to the public through BRS/Maxwell Online, an online vendor. You can access this system through many libraries including public, health sciences, and hospital libraries. A fee may be charged for searches. For more information about accessing CHID contact: BRS Online, 8000 Westpark Drive, McLean, VA 22102, 1-800-955-0906.	Review basic characteristics of Alzheimer's patients. Cover the four phases of Alzheimer's disease. Outline some of the misconceptions of Alzheimer's disease. Review basic procedures in dealing with Alzheimer's patients.

Course Outline	Teaching Aids/Plan
Unit XV. IMMUNO-COMPROMISED RESIDENTS 1. Basic characteristics of immuno-compromised residents. 2. Guidelines on the handling of AIDS residents in long term care facilities. 3. Drugs available and approved for the treatment. 4. Implications for care: a. modes of transmission. i. AIDS ii. other b. Universal Precautions c. C. protective isolation. D. Resource: Nursing Facility Requirements for Licensure and Medicaid Certification; Article §19.1601. Infection Control; §19.1602. Universal Precautions. E. Audiovisual materials available through local chapters of the American Red Cross. F. Information on material available on HIV/AIDS available through: HIV/STD Division, Texas Department of Health, 1100 West 49th Street, Austin, Texas 78756, 1-800-299-AIDS. G. US Department of Labor, OSHA - OSHA Publications, P.O. Box 37535, Washington, DC, 20013-7535 Phone #202/219-4667 or call your regional USDL office. • CPL 2-2.44C "Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Standard, 29 CFR 1910.103011 • Fact Sheet No OSHA 92-46 "Bloodborne Pathogens Final Standards: Summary of Key Provisions" • OSHA Phamplet No 3131 "Bloodborne Pathogens and Long Term Care Workers"	Review basic infection control procedures. Review principles of medical asepsis. Explain state guidelines on the handling of AIDS residents in long-term care facilities.

Course Outline	Teaching Aids/Plan
Unit XVI. PEDIATRIC PATIENTS 1. Nutritional considerations. a. Infants have limited nutritional reserves, therefore any loss of fluids can be dangerous. b. Frequency of feeding. c. Symptoms of dehydration: i. age under 18 months - sunken soft spot. ii. loss of skin elasticity. iii. decreased urine output. iv. dry mouth and lips. v. lethargy. 2. Implications for care: a. nutritional considerations b. physical activity concerns. c. ways to administer medication. 3. Ways to administer medications. a. Pediatric doses will be smaller than adult doses based on body weight. b. Try to make medication palatable - can it be mixed with juice. c. C. Equipment: dropper, oral syringes, syringe attached to nipple. d. Prevent aspiration. e. Determine what quantity actually went into child.	Stress that techniques used to administer medication to children may be modified based on activity level of pediatric patient. Discuss pediatric patients in long term care facilities and their special health problems.

Course Outline	Teaching Aids/Plan
Unit XVII. CARE PLANNING ASSISTANCE. 1. Purpose of Care Planning. a. Optimal patient outcomes. b. For shift reports; to plan assignment sheets; to assist with charting. 2. Significance of Interdisciplinary Care Plans. 3. Role of the medication aide as it relates to patient care planning.	Discuss purpose of care planning. Explain how the medication aide is important in patient care planning. For Federal Long Term Care Regulations Forms, Survey Protocols, etc. - such as Standard Operating Manual (SOM) #274, SOM #273 and other SOM's, Medicaid Certification Questions, etc. Contact: Health Care Financing Administration (HCFA) Survey and Certification Review Branch, Division of Health Standards and Quality, 1200 Main Tower Building, Dallas, Texas 75202. 1-800-321-0343 1-214-767-6427 1-214-767-4415 Minimum Data Set (MDS) Reference Manual: To order in Texas and the Southwest, call 1-800-521-9950, elsewhere call MED-PASS, Inc. at 1-800-438-8884 or call Eliot Press directly at (508) 655-8123

Suggested Teaching Procedures

Teaching Procedure #1 - Administering Oral Medications

1. General Guidelines and Precautions
    1. Medication Aides must understand and follow the Rules at 40 TAC Chapter 95 with attention to §95.103 and 995.105 on administering medications.
    2. Work in a clean, organized, well-lighted area and avoid distractions while preparing and administering medications.
    3. Give only medicines that you have prepared.
    4. Give medicines only from clearly labeled containers.
    5. Follow the **SIX RIGHTS** of medication administration.
        a. **Right Patient**
        b. **Right Drug**
        c. **Right Dose**
        d. **Right Route**
        e. **Right Time**
        f. **Right Documentation**
    6. Read the label 3 times as you prepare a medication, carefully checking the drug label against the Medication Administration Record (MAR), med card or physicians orders, according to facility policy:
        a. Check #1 as you take the medicine from storage area.
        b. Check #2 as you pour the medicine.
        c. Check #3: For multi-dose drugs - as you replace the label container into storage area. For unit-dose drugs - at the bedside, before opening the unit-dose medicine package.
2. Assessments (Activities to be completed prior to preparing medications)
    7. Check medication card or MAR against physician's orders or medication kardex, according to facility policy. Check for the **SIX RIGHTS.**
    8. Review your knowledge of medications and look up needed information such as drug actions, therapeutic effects, side effects, usual doses/routes, contraindications and nursing implications.
    9. Review resident data and observe and assess residents on an on-going basis to determine therapeutic effects, side effects, drug allergies, contraindications, and nursing implications.
3. Preparation (setting-up)
    10. Assemble needed supplies and equipment.
    11. Wash hands.
    12. Wear gloves and follow Universal or Standard Precautions if contact with blood, moist body substances, non-intact skin or mucous membrane is likely.
    13. Prepare each medicine separately.
    14. Take medicine container from storage area and check the label per facility policy (Check #1).

15. Pour the ordered dose of the medication and check the label per facility policy (Check #2).
    a. For multi-dose tablets of capsules, pour ordered amount into container lid and then transfer into medicine cup.
    b. For unit-dose packaging, place the unopened, labeled, single-dose container into medicine cup - unopened.
    c. If a scored tablet is to be divided, place tablet in medicine cup or clean paper towel and use a clean, sharp knife to break along scored line.

       Exception: Medication Aides may not divide a tablet unless the requirements of 40 TAC 95.105(b)(5)(B) are met.

    d. If a tablet is to be crushed, crush tablet following facility policy, usually using a clean mortar and pestle or 2 clean, nested spoons.

       Exception: Medication Aides may not crush a tablet unless the requirements of 40 TAC 95.105(b)(6) are met.

    e. If tablets are to be placed in food or fluids, prepare following physician's orders, safe practice, residents preference and facility policy.
    f. To pour liquid medications:
        1) Shake suspension before pouring.
        2) Pour liquid from the unlabeled side of container.
        3) Pour ordered amount into calibrated medicine cup, holding cup at eye level to measure.
        4) Wipe up spills and recap container.
16. Return medicine container to proper storage area, and check the label per facility policy. (Check #3 for multi-dose containers only).

D. Administration

17. Take the medication to the resident on cart or tray, per facility policy. If possible, give medications which are highest priority first.
18. Knock on door, identify self and greet resident by name.
19. Provide privacy, good lighting and elevate height of bed as appropriate.
20. Identify resident following facility policy.
21. Inform resident of medications to be given, explain any special instructions and encourage resident to participate as appropriate.
22. Observe and listen carefully to the resident. Recheck anything that the resident says is new or wrong.
23. Make preliminary pre-administration assessments as ordered and as indicated to determine contraindication and therapeutic effects.
24. Assist resident to as upright a position as possible.
25. For unit-dose medicines, check the label per facility policy (Check #3), then open the unit-dose package and place in medicine cup or residents hand.
26. Check residents preference for taking multiple drugs separately or all together.
27. Give ordered medication(s) to resident by cup, or gently place medicine in residents mouth if indicated. (Follow the **SIX RIGHTS).**

28. Offer water from glass and assist resident to drink and swallow medications.
29. Observe that resident swallows medicines. Assist resident to place medicine on back of tongue to help make swallowing easier if indicated.
30. Assist resident to a position of comfort and safety with call signal in easy reach.
31. Discard disposable supplies. Clean and replace reusable supplies following facility policy.
32. If used, remove and discard gloves following facility policy. Wash hands.
33. Document medications given following facility policy including date, time, dosage, route, signature, and title. Chart and/or report pertinent observations of resident and nursing actions according to facility policy.

Teaching Procedure #2 - Administering Ear Drops

1. Follow Teaching Procedure #1 steps 1 through 23.
2. Check that medicine is labeled "for use in ear".
3. warm ear drops to body temperature by holding bottle in hand for a few minutes.
4. Position resident in a flat, side-lying position with pillow under head and exposing ear to be treated.
5. Assess external ear structure and external ear canal for condition (pain, drainage, etc.) Document and/or report pertinent observations per facility policy.
6. Clean and dry external ear structure and external ear canal with cotton swabs as ordered as indicated.
7. Draw ordered amount of medication into dropper.
8. Straighten ear canal by gently pulling pinna.
    a. upward and outward for adults
    b. downward and backward for children
9. Hold dropper just above - but not touching ear canal, resting hand on residents chin.
10. Instill ordered drops on the side of the ear canal - not directly onto the tympanic membrane.
11. Gently press on tragus (forward part of ear) several times to help drops flow down the ear canal.
12. Place clean cotton ball loosely into outer ear canal, if ordered by doctor.
13. Wipe up any spills with tissues.
14. Instruct resident to remain in same position for at least 5 minutes.
15. Wash hands.
16. Reposition resident and repeat procedure for other ear if ordered.
17. Wash hands.
18. Follow Teaching Procedure #1 steps 30 through 33.

Teaching Procedure # 3 – Administering Nose Drops

1. Follow Teaching Procedure #1 steps 1 through 23.
2. Check that medicine is labeled "for nasal use".
3. Assess degree and character of nasal congestion and drainage. Document and/or report pertinent observations per facility policy.
4. Instruct resident to gently blow nose or clean external nares as appropriate before nose drops are given.
5. Warm nose drops to body temperature by holding bottle in hand for a few minutes.
6. To administer nose drops into nasal cavity: position resident sitting up-right or lying supine. Place a pillow behind shoulders and neck to tilt the head backward until the rasal cavities are nearly vertical.
7. To administer nose drops into nasal sinuses: position resident supine with head of bed as flat as tolerated. Also, as tolerated, have resident extend head over edge of bed or place a pillow under resident's shoulders to tilt head backward until nasal cavities are horizonal.
8. Support neck with your hand if indicated.
9. Raise the tip of the nose with your thumb to visualize nasal passages.
10. Draw the correct dosage of drops into dropper.
11. Instruct resident to breath through mouth while drops are being given.
12. Hold dropper just above nostril - avoid touching nostril.
13. Drop ordered amount of medicine into one nostril, directing drops toward center or uppex part of nostril.
14. Repeat with other nostril if ordered.
15. Keep resident in same position for about 5 minutes for maximum absorption, unless contraindicated.
16. Offer tissues to wipe any drainage from nose, but caution against blowing nose.
17. Follow Teaching Procedure #1 steps 30 through 33

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Teaching Procedure #4 - Administering Eye Drops and Eye Ointments

1. Follow Teaching Procedure #1 steps 1 through 23.
2. Check that medicine is labeled "sterile - for ophthalmic use".
3. Wash hands.
4. Position resident supine or setting with head slightly hyperextended and with head turned slightly toward affected eye.
5. Assess condition of eyes, nature and amount of drainage, and complaints related to eyes Document and/or report pertinent observations per facility policy.
6. If ordered is indicated, cleanse affected eye with clean cotton balls and normal saline from inner to outer canthus. To prevent cross-contamination, use a different cotton ball to clean each eye. Wash hands.
7. Warm eye drops or ointment to body temperature by holding bottle in hands for a few minutes.
8. Draw up ordered eye drops into dropper or uncap ordered eye ointment, placing cap open side up, and discard first drop of ointment. Do not contaminate eye dropper or opening of tube.
9. Expose conjunctival sac by placing fingers of non-dominate hand on residents cheekbone slightly below eyelashes and applying gentle downward pressure.
10. Instruct resident to look upward.
11. To administer eye drops:
12. Hold eye dropper close to - but not touching - conjunctival sac.
    a. Instill ordered eye drops into conjunctival sac.
    b. Repeat any drops that land outside of the eye. Follow facility policy for repeating drops that are blinked out.
    c. With a clean tissue over your finger, apply gentle pressure over the inner canthus for 1 to 2 minutes. This will increase ophthalmic effects and decrease potential systemic effects.
13. To administer eye ointment:
    a. Hold tube of ointment close to - but not touching - eye.
    b. Squeeze a thin line of ointment (about 0.5 inch unless otherwise ordered) into conjunctival sac from inner to outer canthus.
    c. Release squeeze, then twist and lift tube slightly to stop flow of ointment.
14. Slowly release lower lid and instruct resident to gently close eye for 2 to 3 minutes without squeezing or blinking.
15. Wipe or blot excess medication from outside of eye.
16. Wash hands.
17. Repeat procedure for other eye if ordered.
18. Follow Teaching Procedure #1 steps 30 through 33.

1. Follow Teaching Procedure #1 steps 1 through 23.
2. Check that medicine is labeled "for vaginal use".
3. Assure privacy, good lighting and elevate height of bed as appropriate.
4. Assist resident to void prior to procedure if indicated.
5. Assesss condition of perineum and presence of vaginal drainage. Document and/or report pertinent observations per facility policy. .
6. Cleanse perineal area if indicated.
7. Assist resident into dorsal recumbent position with protective pad under buttocks and draped for privacy and warmth.
8. Wash hands and wear disposable gloves.
9. To insert vaginal suppository without applicator:
    a. Remove wrapper and lubricate rounded end of suppository.
    b. Lubricate gloved index finger of dominate hand.
    c. Separate labia with non-dominate hand and locate vaginal opening.
    d. Gently insert rounded end of suppository along posterior vaginal wall approximately 2 to 3 inches with index finger of dominate hand.
10. To insert vaginal medication bv applicator:
    a. To prepare vaginal suppository: remove wrapper, lubricate rounded end of suppository and place tip of suppository on end of applicator.
    b. To prepare vaginal creams, gels or ointments: fill applicator with medicine as ordered and as instructed on package insert.
    c. Separate labia with non-dominate hand and locate vaginal opening.
    d. Gently insert applicator along posterior vaginal wall approximately 2 to 3 inches with gloved dominate hand.
    e. Push plunger of applicator to empty medication into the vaginal vault.
    f. Withdraw applicator.
    g. Discard disposable applicator or clean reusable applicator with warm water and soap and store according to package insert and facility policy.
11. Wipe excess lubricant from perineum and provide perineal pad if indicated.
12. Instuct resident to remain in supine position for 20 minutes if ordered or indicated.
13. Remove and discard gloves following facility policy. Wash hands.
14. Follow Teaching Procedure 41 steps 30 through 33.

Teaching Procedure #6 - Administering Rectal Suppository

1. Follow Teaching Procedure #1 steps 1 through 23.
2. Check that medicine is labeled "for rectal use".
3. Assure privacy and good lighting and elevate height of bed.
4. Assist resident with toileting if indicated.
5. Position resident in a left side-lying position, if tolerated, with upper leg flexed and supported with pillows as needed. Drape for privacy and warmth.
6. Wash hands and wear disposable gloves.
7. Remove wrapper and lubricate rounded end of rectal suppository with water-soluble lubricant.
8. Lubricate gloved index finger of dominate hand.
9. Instruct resident to take slow deep breaths through mouth and relax anal spincture as you insert suppository.
10. Separate buttocks with non-dominate gloved hand and locate anus.
11. Gently insert suppository through anus, past internal anal spincture and into rectum (about 3 inches) using gloved index finger.
    a. Place suppository against rectal wall for absorption - not in fecal mass.
    b. Stop procedure and report to charge nurse if strong resistance or sharp pain occurs.
12. Withdraw finger and wipe anal area with tissue.
13. Instruct resident to retain suppository for at least 20 minutes.
14. If resident has urge to expel suppository, apply gentle pressure by holding pad of tissue over anal area or press buttocks together with hands.
15. Remove and discard gloves following facility policy. Wash hands.
16. If suppository is to stimulate bowel movement, be sure resident has ready access to call signal and assistance.
17. Follow Teaching Procedure #1 steps 30 through 33.

Teaching Procedure #7 - Guidelines for Administering Topical Skin Medications

1. Note the Rules at 40 TAC §95.105(b)(10) relating to prohibited practices in applying topical medications to the skin.
2. Follow Teaching Procedure #1 steps 1 through 23.
3. Check that medicine is labeled "for topical use".
4. Techniques for applying topical skin medication vary widely based on the patient, the drug and the affected area.
5. Apply topical medicines following doctors orders, facility policy, instructions from package inserts and assistance from the charge nurse as indicated.
6. Position resident in bed or chair, exposing area to be treated as appropriate.
7. Assess condition of affected area and need for analgesic prior to topical medication. Docunent and/or report pertinent observations per facility policy.
8. Protect clothing and linen with pads if appropriate.
9. Wash hands and wear gloves if contact with moist body substances is likely.
10. Gently cleanse skin area to be treated with warm water and mild soap as appropriate unless contraindicated.
11. Generally apply topical skin medicine in the direction of hair growth, as this is more comfortable to residents.
12. To apply topical skin medicine in multi-use jars:
    a. Remove lid from jar and set lid upside down position to avoid contaminating inside or lid.
    b. Remove required amount of medicine from container with sterile tongue blade or applicator.
    c. Do not return medicine or used tongue blade/applicator back into container.
    d. Apply to affected skin as ordered or as indicated.
13. To apply topical skin medicine from sealed tubes:
    a. Cleanse piercing cap with alcohol swab.
    b. Remove cap and invert it back into tube to puncture seal.
    c. Squeeze out required medicine and apply as ordered or indicated.
14. General guidelines for applying various forms of topical skin medicines:
    a. Creams: rub gently into affected area as ordered
    b. Lotions: pat or dab onto affected area as ordered
    c. ointments: apply with applicator or tongue blade as ordered
    d. Pastes: usually applied in thin layer with tongue blade as ordered
    e. Liniments: usually rubbed vigorously into affected area as ordered, being careful to avoid trauma to fragile skin.
    f. Foam Sprays: hold can inverted close to affected area and spray as ordered.
    g. Aerosol Sprays: hold can upright 3 to 6 inches from affected area and spray as ordered. A second and third application may be ordered or indicated.
15. When applying topical skin medicine to face, avoid application near the eyes and apply sparingly and carefully near the mouth and nose, because skin topicals are not intended for ophthalmic, oral or nasal use.

16. When applying topical medicines to the scalp: be sure the drug is applied directly to scall - not just to the hair. The recommended technique is to part the hair at about 1/2 inch intervals, and apply the medication to the visible scalp at each part. Determine the recommended time and frequency of shampooing the hair in relation to the scalp treatments.
17. If used, remove and discard gloves following facility policy. Wash hands.
18. Follow Teaching Procedure #1 steps 30 through 33.

UNIT XIX - HANDOUTS

PHARMACOLOGICAL ABBREVIATIONS AND SYMBOLS

Abbreviation	Meaning
a.a.	of each
a.c.	before meals
A.S.A.	aspirin
ad. lib.	as desired
amp.	ampule
A.M.	morning
ax	axillary
b.i.d.	twice daily
B.P.	blood pressure
$\overline{c}$	with
cap	capsule
c/o	complains of
D.C., dc, disc	discontinue
elix.	elixir
et	and
gtt	drops
G.I.	gastrointestinal
hr, h	hour
H_2O	water
H_20_2	hydrogen peroxide
H.S., hs	hour of sleep
I & 0	intake and output
K	potassium
L, lt	left
mg	milligram
M.O.M.	milk of magnesia

PHARMACOLOGICAL ABBREVIATIONS AND SYMBOLS

Abbreviation	Meaning
noc.	night
non rep.	do not repeat
NPO	nothing by mouth
n.s.	normal saline
0	orally
0_2	oxygen
OD	right eye
0S	left eye
ou	both eyes
P.C.	after meals
P.O.	by mouth
P.M.	afternoon
p.r.n.	as necessary
q	every
qd	every day
qh	every hour
qod	every other day
qid	four times daily
q2h	every two hours
q3h	every three hours
q4h	every four hours
q.s.	quantity sufficient
R.	rectal
rt.	right
Rx	prescription
$\overline{s}$	without
s.o.b.	short of breath

PHARMACOLOGICAL ABBREVIATIONS AND SYMBOLS

Abbreviation	Meaning
S.S.	soap suds
ss	one-half
stat	immediately
sub ling.	under the tongue
tab.	tablet
t.i.d.	three times daily
tr.	tincture
T.P.R.	temperatuare, pulse & respiration
ungt	ointment
V.0.	verbal order
wt.	weight
x	times
ʒ	dram (4-5 cc)
oz., ʒ	ounce (30 cc)

Generic and Trade Name Drugs
(arranged by Generic Name)

Courtesy of
P.F.V. Company
Pharmaceutical Consultants

Generic Name	Trade Name
Acetaminophen	Tylenol, Datril, Anacin 3, Phenaphen
Acetaminophen with codeine	Tylenol with Cod, Phenaphen with Cod
Albuterol inhaler or tablets	Proventil, Ventolin
Allopurinol	Zyloprim
Aluminum hydroxide, Magnesium hydroxide, and Simethicone	Mylanta, Gelusil, Mylanta 2, Gelusil 2
Amino Acids	Aminosyn, FreAmine, Travasol
Amitriptyline	Elavil, Endep,
Amoxicillin	Amoxil, Larotid, Polymox, Trimox, Wymox
Ampicillin (oral)	Amcill, Omnipen, Penbritin, Polycillin, Principen, Totacillin
Ampicillin (injection)	Omnipen-N, Polycillin-N, Totacillin-N, Principen-N
Aspirin with Codeine	Empirin with Cod
Bacitracin Ointment	Baciguent, Bacitracin
Bacitracin, Neomycin, Polymyxin, Ointment	Neosporin, Neo-polycin, Mycitracin
B-Complex with C	Allbee with C, Berocca, Becotin with C Surbex with C
Beclomethasone Inhaler	Beclovent, Vanceril
Bisacodyl tablets and suppositories	Dulcolax
Brompheniramine Maleate	Dimetane
Brompheniramine, Phenylephrine, and Phenylpropanolamine	Dimetapp
Cefadroxil	Duricef, Ultracef
Cefazolin Sodium	Ancef, Kefzol
Chloral hydrate	Noctec
Chlordiazepoxide	Librium

Generic and Trade Name Drugs
(arranged by Generic Name)

Generic Name	Trade Name
Chlordiazepoxide and Clidinium Br.	Librax
Clorpromazine tablets and injection	Thorazine, Promapar
Chlorthalidone	Hygroton, Ascot
Chlorpheniramine M. and Phenylpropanolamine	Ornade
Chlorpromazine	Thorazine
Chlorpropamide	Diabinese
Chlorzoxazone and Acetaminophen	Parafon Forte
Clofibrate	Atromid-S
Clotrimazole vaginal tablets and cream	Gyne-Lotrimin, Mycelex-G
Cloxacillin Sodium	Tegopen, Cloxapen
Conjugated estrogens	Premarin
Cyanocobalamine Injection	Rubramin and others
Cyclandelate	Cyclospasmol
Cyproheptadine	Periactin
Dexamethasone	Decadron, Hexadrol
Dexbrompheniramine and Pseudoephedrine	Drixoral
Diazepam	Valium
Dicyclomine	Bentyl
Dicloxacillin Sodium	Dycill, Pathocil, Dynapen
Digitoxin	Crystodigin
Digoxin	Lanoxin
Dimenhydrinate	Dramamine
Dioctyl Calcium Sulfosuccinate	Surfak
Dioctyl Sodium Sulfosuccinate (DSS)	Colace, Doxinate
Diphenhydramine	Benadryl
Diphenoxylate HCL with Atropine Sulfate	Lomotil

Generic and Trade Name Drugs
(arranged by Generic Name)

Generic Name	Trade Name
Diphenylhydantoin (phenytoin)	Dilantin
Dipyridamole	Persantine
Docusate Calcium	Surfak
Docusate Sodium (DSS)	Colace
Docusate sod. and casanthranol	Peri-Colace
Doxepin	Adapin, Sinequan
Ergoloid mesylates	Hydergine
Erythromycin Stearate	Bristomycin, Erypar, Ethril, Pfizer E, Erythrocin
Fat Emulsion	Intralipid, Liposyn
Ferrous Gluconate 320mg - 325mg tablets	Fergon, Ferralet
Ferrous Sulfate 65mg (iron)	Feosol, (Hematinic)
Flurazepam	Dalmane
Furosemide	Lasix
Gentamicin	Garamycin, Apogen, U-Gencin
Guaifenesin	Robitussin
Hydralazine	Apresoline
Hydrochlorothiazide	Esidrex, Oretic, Hydrodiuril
Hydrocortisone cream and ointments	Hytone, Cort-Dome
Hydroxyzine	Vistaril, Atarax
Ibuprofen	Motrin, Rufen
Imipramine	Tofranil
Isoxsuprine	Vasodilan
Isosorbide	Isordil
Kanamycin Injection	Kantrex, Klebcin
Lactulose	Cepohulac, Chronulac
Levothyroxine	Levothroid, Synthroid

Generic and Trade Name Drugs
(arranged by Generic Name)

Generic Name	Trade Name
Liotrix	Euthroid, Thyrolar
Meclizine	Antivert, Bonine
Methicillin	Azapen, Celbenin, Staphcillin
Methocarbamol	Robaxin
Methotrexate	Mexate, Methotrexate
Methyldopa	Aldomet
Methylprednisolone Sodium Succinate	Solu-Medrol, A-Metha Pred.
Metolazone	Diulo, Zaroxolyn
Metronidazole	Flagyl, Metryl
Miconazole Nitrate	Micatin, Monistat-Derm
Milk of Magnesia-Mineral Oil Emulsion	Haley's MO
Nafcillin	Nafcil, Unipen
Nitrofurantoin	Macrodantin, Furadantin
Nitroglycerin Ointment	Nitrobid, Nitrol
Nitroprusside	Nipride, Nitropress
Nystatin	Mycostatin, Nilstat
Oxacillin Sodium	Bactocil, Prostaphlin
Oxycodone and Acetaminophen	Percocet, Tylox
Oxycodone and aspirin	Percodan
Papaverine HCL	Pavabid, Vasocap, Thera-pav, PavaKey
Penicillin V Potassium	Pen-Vee K, Robicillin VK, V-Cillin K, Veetids
Phenylbutazone	Butazolidin, Azolid
Potassium Chloride 10 meq.	Kaon Cl 10, Klotrix, K-tab, Slow-K, Micro-K
Potassium 20 meq./15ml as gluconate and citrate	Bi-K, Twin-K
Prednisone	Deltasone, Drasone

Generic and Trade Name Drugs
(arranged by Generic Name)

Generic Name	Trade Name
Procainamide	Pronestyl
Procaine Penicillin G	Duracillin, Wycillin
Prochlorperazine	Compazine
Promethazine	Phenergan
Propoxyphene HCL	Darvon, Dolene, SK-Propoxyphene
Propoxyphene Napsylate	Darvon N
Pseudoephedrine	Sudafed
Spironolactone with Hydrochlorothiazide	Aldactazide
Spironolactone	Aldactone
Terbutaline (tablets and injection)	Brethine, Bricanyl
Tetracycline HCL	Archromycin V, Cyclopar, Robitet, Sumycin, Tetracyn
Thioridazine	Mellaril
Tolbutamide	Orinase
Triamcinolone Acetonide	Aristocort, Kenalog
Trimethoprim-Sulfamethoxazole	Bactrim, Septra

Generic and Trade Name Drugs
(arranged by Trade Name)

Courtesy of
P.F.V. Company
Pharmaceutical consultants

TRADE NAME	GENERIC NAME
Archromycin	Tetracycline
Actifed	Triprolidine and Pseudoephedrine
Adapin	Doxepin
Aldactazide	Spironolactone and Hydrochlorothiazide
Aldactone	Spironolactone
Allbee with C	B complex with C
Aminosyn	Amino Acids
Amoxil	Amoxicillin
Ancef	Cefazolin
Atromid-S	Clofibrate
Antivert	Meclizine
Aresoline	Hydralazine
Aristocort	Triamcinolone
Asendin	Amoxopine
Azolid	Phenylbutazone
Baciguent	Bacitracin
Bactocil	Oxacillin
Bactrim	Trimethoprim-Sulfamethoxazole
Beclovent	Beclomethasone
Benadryl	Diphenhydramine
Bentyl	Dicyclomine
Bi-K	Potassium as Gluconate & Citrate
Brethine	Terbutaline
Bricanyl	Terbutaline
Bumex	Bumetanide,
Butazolidin	Phenylbutazone
Butazolidin	Phenylbutazone

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Calan	Verapamil
Capoten	Captopril
Carafate	Sucralfate
Cardizem	Diltiazem
Cephulac	Lactulose
Chronulac	Lactulose
Cleocin	Clindamycin
Clinoril	Sulindac
Cloxapen	Cloxacillin
Colace	Docusate Sodium (Dioctyl Sodium Sulfosuccinate, DSS)
Compazine	Prochlorperazine,
Constant - T	Theophylline (Anhydrous)
Cort-Dome	Hydrocortisone
Crystodigin	Digitoxin
Cyclospasmol	Cyclandelate
Dalmane	Flurazepam
Darvon	Propoxyphene
Decadron	Dexamethasone
Deltasone	Prednisone
Demerol	Meperidine
Desyrel	Trazodone
Diabinese	Chlorpropamide
Dilantin	Diphenylhydantoin (Phenytoin)
Dimetane	Brompheniramine
Dimetapp	Brompheniramine & Phenylephrine, & Phenylpropanolamine
Dolene	Propoxyphene
Dramamine	Dimenhydrinate
Diulo	Metolazone
Drixoral	Dexbrompheniramine & Pseudoephedrine

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Dulcolax	Bisacodyl
Duracillin	Procaine Penicillin G
Duricef	Cefadroxil
Dynapen	Dicloxacillin
Elavil	Amitriptyline
Empirin with Codeine	Aspirin with Codeine
Endep	Amitriptyline
Erythrocin	Erythromycin Stearate
Esidrix	Hydrochlorothiazide
Euthroid	Liotrix
Feldene	Piroxicam
Feosol	Ferrous Sulfate
Fergon	Ferrous Gluconate
Fiorinal	Butalbital with ASA & Caffeine
Flagyl	Metronidazole
FreAmine	Amino Acids
Furadantin	Nitrofurantoin
Garamycin	Gentamicin
Gelusil	Aluminum Hydroxide, Magnesium Hydroxide, and Simethicone
Gyne-Lotrimin	Clotrimazole
Halcion	Triazolam
Haley's MO	Milk of Magnesia-Mineral oil; Emulsion
Hexadrol	Dexamethasone
Hydergine	Ergoloid mesylates
Hydrodiuril	Hydrochlorothiazide
Hygroton	Chlorthalidone
Hytone	Hydrocortisone
Inderal	Propranolol
Intralipid	Fat Emulsions

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Kantrex	Kanamycin
Kaochlor	Potassium Chloride
Kaon	Potassium Gluconate
Kaon-CL	Potassium Chloride
Kefzol	Cefazolin
Kenalog	Triamcinolone
Klebcin	Kanamycin
Klotrix	Potassium Chloride
K-Norm	Potassium Chloride
K-Tab	Potassium Chloride
Lanoxin	Digoxin
Larotid	Amoxicillin
Lasix	Furosemide
Levothroid	Levothyroxine
Librax	Chlordiazepoxide with Clidinium Br.
Librium	Chlordiazepoxide
Lioresal	Baclofen
Liposyn	Fat Emulsions
Lomotil	Diphenoxylate with Atropine
Lopressor	Metoprolol
Ludiomil	Maprotiline
Macrodantin	Nitrofurantoin
Mellaril	Thioridazine
Mexate	Methotrexate
micatin	Miconazole
Micro-K	Potassium Chloride
Minipress	Prazosin
Monistat-Derm	Miconazole
Motrin	Ibuprofen

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Mycelex-G	Clotrimazole
Mycitracin	Bacitracin, Neomycin, Polymyxin-B
Mycostatin	Nystatin
Mylanta	Aluminum Hydroxide, Magnesia, Hydroxide, and Simethicone
Mysoline	Primidone
Nafcil	Nafcillin
Navane	Thiothixene
Neosporin	Bacitracin, Neomycin, Polymyxin-B
Nilstat	Nystatin
Nipride	Nitroprusside
Nitrobid	Nitroglycerin
Nitrol	Nitroglycerin
Nitrostat	Nitroglycerin
Noctec	Chloral Hydrate
Omnipen	Ampicillin
Oretic	Hydrochlorothiazide
Orinase	Tolbutamide
Pamelor	Nortriptyline
Parafon Forte	Chlorzoxazone and Acetaminophen
Parlodel	Bromocriptine
Pavakey	Papaverine
Pavabid	Papaverine
Penbritin	Ampicillin
Pen Vee K	Penicillin V Potassium
Percocet	Oxycodone and Acetaminophen
Percodan	Oxycodone and Aspirin
Periactin	Cyproheptadine
Peri-Colace	Docusate with Casanthranol
Persantine	Dipyridamole

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Phenergan.	Promethazine
Polycillin	Ampicillin
Polymox	Amoxicillin
Principen	Ampicillin
Premarin	Conjugated estrogens
Procardia	Nifedipine
Pronestyl	Procainamide
Prostaphlin	Oxacillin
Proventil	Albuterol
Quinidex	Quinidine
Robaxin	Methocarbamol
Robitussin	Guaifenesin
Rufen	Ibuprofen
Septra	Trimethoprim-Sulfamethoxazole
Slow-K	Potassium Chloride
Solu-Medrol	Methylprednisolone Sodium Succinate
Staphcillin	Methicillin
Sudafed	Pseudoephedrine
Sumycin	Tetracycline
Surfak	Docusate Calcium (dioctyl calcium sulfosuccinate)
Synthroid	Levothyroxine
Tagamet	Cimetidine
Tegopen	Cloxacillin
Tegretol	Carbamazepine
Thorazine	Chlorpromazine
Thyrolar	Liotrix
Tofranil	Imipramine
Travasol	Amino Acids
Tridil	Nitroglycerin

Generic and Trade Name Drugs
(arranged by Trade Name)

TRADE NAME	GENERIC NAME
Trimox	Amoxicillin
Twin-K	Amoxicillin
Tylenol with Codeine	Acetaminophen with Codeine
Tylox	Oxycodone and Acetaminophen
Ultracef	Cefadroxil
Unipen	Nafcillin
V-Cillin K	Penicillin V Potassium
Valium	Diazepam
Vanceril	Beclomethasone
Vasocap	Papaverine
Vasodilan	Isoxsuprine
veetids	Penicillin V Potassium
ventolin	Albuterol
Vistaril	Hydroxyzine
Zaroxolyn	Metolazone
Zyloprim	Allopurinol

1. Absorption: passage of a substance into the bloodstream from the site of administration.
2. Aerosol: a solution that can be finely atomized and inhaled for local respiratory or systemic effect.
3. Analgesic: a drug to relieve pain by lessening the sensory function of the brain.
4. Antibiotic: an agent produced by a living organism and is effective against bacteria.
5. Antidote: substance used to counteract a poison or its effects.
6. Antiseptic: against poison, slows down bacterial growth.
7. Carminative: medication which relieves flatulence, aids in the expulsion of gas from the stomach and intestines.
8. Cathartic: agent that increases and hastens bowel evacuation (laxative).
9. Chemotherapeutic agent: chemical substance used to inhibit or kill micro-organisms that cause disease.
10. Coagulant: substances that cause blood to clot.
11. Compressed tablet: tablets that have a filler or binder ingredient in them with the medication having no coating.
12. Cumulative action: when a drug accumulates in the body.
13. Decongestant: drug that relieves local congestion.
14. Depressant: cause a decreased activity of the tissue.
15. Diaphoretic: drug used to induce or increase secretion of perspiration.
16. Digestant: drug that promotes progress of digestion.
17. Diluent: a substance added to a solid which reduces the strength of the mixture. It is a substance that dilutes.
18. Diuretic: drug that increases function of kidneys and stimulates the flow of urine.
19. Edema: build-up of excess fluid in the tissue of the body.
20. Emetic: drug used to induce vomiting.
21. Elixir: an aromatic, alcoholic, sweetened preparation usually employed as a vehicle for an active medicine. Elixirs differ from tinctures in that they are sweetened.
22. Emollient: a soothing and softening medicine.
23. Emulsion: an oily or resinous substance held in suspension in some liquid such as water or gum acacia.
24. Enteric-coated: a tablet that does not dissolve until it has reached the intestinal tract, the hard coating is insoluble in the stomach.
25. General actions: occur after absorption of a substance into the circulation, may affect the entire body.

26. Expectorant: drug used to increase the secretions and mucous from the bronchial tubes.
27. Hemostatic: drug used to check bleeding, blood coagulants.
28. Hypnotic: drug used to produce sleep and lessens the activity of the brain.
29. Idiosyncrasy: an unusual response to a drug.
30. Interaction: taking more than one drug at a time may cause them to react differently.
31. Irritant: an agent that produces warmth of the skin.
32. Keratolytic: agent that aids in the loosening of the dry, horny layer of skin such as dandruff or some fungal infections.
33. Miotic: any agent that causes the pupil of the eye to contract.
34. Meteria medica: pharmacology.
35. Mydriatic: agent used to dilate the pupil of the eye.
36. Ointment: a semisolid preparation of a drug in a base, to be applied externally.
37. Parenteral: a sterile solution of a medication prepared for injection.
38. Pharmacodynamics: the interaction between drugs and living things such as the human body.
    A. Drug action - the way drugs cause chemical changes in body cells, consists of depressing, stimulating, destroying and replacing.
    B. Drug effect - the physical changes that occur as a result of the drug action.
39. Placebo effect: a therapeutic effect that results from the patient believing in the benefit of a medication.
40. Relaxant: a drug used to reduce or relax muscular spasms, usually skeletal muscle.
41. Sedative: drug that reduces excitement, does not produce sleep.
42. Stimulant: an agent intended to increase the activity of a tissue.
43. Suppository: mixture of drugs formed into a small mass that is shaped to introduce into a body orifice. Such suppositories are usually formed of a material that melts at body temperature.
44. Suspension: the diffusion of fine particles of a solid through liquid.
45. Syrup: a solution of sugar and water, usually containing flavoring and medicinal substances, often used as a vehicle.
46. Tincture: an alcoholic preparation of a soluble drug or chemical substance such as iodine.
47. Tolerance: the ability to withstand a quantity of a drug.
48. Tranquilizer: a calming agent which reduces anxiety and tension without acting as a depressant.
49. Therapeutic drugs: drugs used to prevent, diagnose, and treat disease and to prevent pregnancy.

50. Vasoconstrictor: a drug that causes a blood vessel to constrict, narrows the lumen of a vessel, raises blood pressure, and causes the heart to beat more forcefully. Used to stop superficial bleeding, raise and sustain blood pressure, and relieve nasal congestion.
51. Vasodilator: a drug that dilates blood vessels, lowers blood pressure by making the vessels larger, causing the heart to pump less forcefully.
52. Vital signs: temperature, pulse, respiration, and blood pressure.

Medical Terminology by Function

In addition to the Medical Terminology listed previously, there are other medical terms which deal With more specific subjects or pertain to individual systems of the body. The following is an attempt to categorize these terms according to their general use in the administration of medications.

A. Introduction to Medication Administration:

1. Anatomy: the structure of body parts.
2. Assay: identifying and measuring the ingredients of a drug in a laboratory.
3. Bioassay: identifying the amount of a specific drug that is needed to produce a certain effect in a patient.
4. Chemical name: drug name given by the chemist which describes the drugs chemical structure.
5. Controlled substance: potentially dangerous drug, the sale and use of the drug is regulated by law.
6. DEA: Drug Enforcement Agency, they enforce the Controlled Substance Act of 1970.
7. FDA: Food and Drug Administration, they enforce the FDCA.
8. FDCA: Food, Drug and Cosmetic Act of 1938.
9. Generic name: name given to a new drug by the manufacturer which must be approved by the AMA and WHO. A drug may have only one generic name.
10. Legend drugs: those that require a prescription.
11. OTC: Over-the-counter drugs, available without an Rx, also called nonlegend drugs.
12. Pharmacology: the study of drugs.
13. Physiology: study of how the body functions.
14. Prescription: a physician's written or verbal order which permits the purchase of a drug from the pharmacy.
15. Psychology: study of the mind.
16. Side effects: effects other than the desired (beneficial) ones.
17. Therapeutic drugs: drugs used to prevent, diagnose and treat disease or to prevent pregnancy.
18. Trade name: (brand name or proprietary name) The licensed name under which a drug is Bold by a specific company.

B. Pharmacodynamics:

1. Absorption: passage of a substance into the bloodstream from the site of administration.
2. Adverse reaction: unexpected or dangerous effect of a drug.
3. Allergy: reaction of a cell to a substance to which it has developed antibodies.

4. Anaphylaxis: severe allergic reaction, sometimes produces shock.
5. Antagonism: two drugs, when given together, cause a lesser effect than one acting alone.
6. Antibody: a substance produced by the body which aids in the fighting off of germs or antigens.
7. Biotransformation: one of the four body processes in which a substance is chemically broken down into a form that can be excreted.
8. Capillaries: very thin walled blood vessels that allow certain substances to pass through them.
9. Cell: smallest unit in the body that can keep itself alive.
10. Cyanosis: blue color to the skin because of low oxygen in the blood.
11. Depress: slow down.
12. Distribution: movement of drugs into the cell and spaces between the cells.
13. Drug abuse: taking drugs to the point that they interfere with daily routine living.
14. Drug action: the chemical changes that take place in the cells caused by a drug.
15. Drug effect: the physical change that takes place in the body cells as a result of the drug.
16. Dysynea: difficult breathing.
17. Edema: swelling of body tissue due to excess fluid.
18. Excretion: the getting rid of waste products from the body.
19. Hypotension: low blood pressure.
20. Main effect: the therapeutic effect for which the drug is given.
21. Shock: severe reaction of the body in which blood f low is very slow and the tissue suffers from lack of oxygen.
22. Side effects: those that are not part of the treatment goal.
23. Stimulate: speed up.
24. Tolerance: a resistance to the effect of a drug.
25. Toxic: poisonous.

C. Forms and Routes of Medication:

1. Extract: drug made by removing and concentrating a substance from an animal or plant.
2. Insertion: placing an object into a body opening.
3. Instillation: placing drops into a body opening (such as eyes, etc.)

4. Mixture: suspension made with large particles.
5. Physician's Order Sheet: the form for writing orders which is found on the patient's chart.
6. Prescription: the physician's written order for an out patient.
7. Self-terminating order: drug order that stops automatically after a certain time or a specific number of doses.
8. Solution: a liquid into which a drug has been dissolved.
9. Suspension: a liquid containing undissolved drug particles.
10. Syrups: heavy solutions of water and sugar (and usually flavoring) into which a small amount of drug as been mixed.
11. Tinctures: solutions of alcohol or water and alcohol which contain only 10-20% of the active drug.
12. Routes of Administration: Buccal, placed in mouth next to the cheek. Topical, applied to skin or mucous membranes. Rectal, inserted into rectum. Vaginal, inserted into vagina. oral, given by mouth and swallowed. Sublingual, under tongue.
13. **Parenteral (drugs given by injection) are not given by medication aides.

D. Calculating Dosages:

1. Dram: 60 grains (a fluidram - 60 minims).
2. Grain: basic unit of weight in the apothecaries' system.
3. Gram: basic unit of weight in the metric system.
4. Liter: basic unit of volume in the metric system.
5. milligram: one-thousandth of a gram.
6. Milliliter: one-thousandth of a liter.
7. Minim: basic unit of volume in the apothecaries' system.

E. Infection:

1. Anti-infective: drug that kills or keeps germs from growing.
2. Aseptic: free of pathogens.
3. Benign: harmless.
4. Cyte: cell (Cytostatic, stops cell growth. Cytotoxic, poisonous to cell.).
5. Disinfectant: substance used to clean nonliving objects.
6. Infection: entering of the body of pathogens that cause symptoms.
7. Leukocytes: white blood cells which destroy germ cells.

8. Malignant: cancerous.
9. Pathogens: harmful microbes or germs.
10. Sulfonamide: anti-infective "sulfa-drug", synthetically made.

F. The Skin:

1. Antifungal: drug that kills or stops growth of fungi.
2. Anti-inflammatory: drug that reduces inflammation.
3. Antipruritic: drug given to relieve itching.
4. Antiseptic: drug that destroys germs on the skin.
5. Decubitus:. bedsore.
6. Dermatitis: inflammation of the skin.
7. Dermis: 2nd layer of skin.
8. Epidermis: Outer layer of skin.
9. Erythema: reddening of the skin.
10. Inflammation: body process which results in redness, heat, swelling and pain and which is a reaction to irritation.
11. Keratolytic: drug that promotes peeling of skin.
12. Pediculosis: infection caused by lice.
13. Scabies: infection caused by mites.
14. Sebaceous: gland that produces oil.
15. Sudoriferous: gland that produces sweat.
16. Ulceration: open sore.
17. Urticaria: raised, itchy patches (hives or welts).

G. The Cardiovascular System:

1. Anemia: low red bloodcells.
2. Angina pectoris: Chest pain (due to lack of Oxygen in heart tissue).
3. Anticoagulant: drug to prevent blood from clotting.
4. Antihypertensive: drug to lower blood pressure.
5. Arrhythmia: irregular heart beat.
6. Arteriosclerosis: hardening of the arteries.
7. Artery: blood vessels that carry blood away from the heart.

8. Atherosclerosis: fatty deposits in the blood vessels.
9. Cardiac: pertaining to the heart.
10. Coacrulant (hemostatic): drug that aids clotting.
11. Contraction: tightening of muscle.
12. Coronary: pertaining to the heart vessels.
13. Hematinic: drug that stimulates production of red blood cells.
14. Hemoptysis: coughing up blood.
15. Hypertension: high blood pressure.
16. Hypotension: low blood pressure.
17. Varicose veins: vessels in which blood has backed up causing them to be swollen.
18. Vasoconstrictor: drug that narrows vessel walls, raising B.P.
19. Vasodilator: drug that relaxes vessel walls, lowers B.P.
20. Vein: vessels that carry blood back to the heart.

H. Respiratory System:

1. Alveoli: tiny sacs in the lungs which contain capillary walls which allow the exchange of oxygen and carbon-dioxide.
2. Antihistamine: drug that relieves allergy symptoms by reducing the effect of histamine.
3. Antitussive: drug given to relieve coughing.
4. Asthma: condition in which bronchioles tighten due to allergy.
5. Decongestant: drug that relieves congestion in the respiratory system by drying up the mucous membranes.
6. Demulcent: drug that coats the respiratory tract and soothes it.
7. Expectorant: drug that thins mucous so that it can be coughed up.
8. IPPB: intermittent positive pressure breathing.
9. Larynx: voice box.
10. Pulmonary: refers to the lungs.
11. Respiration: breathing.
12. Trachea: connects larynx to bronchi.

I. Sensory and Nervous Systems:

1. Anticonvulsant: drug used to control or prevent seizures.

2. Cerebral: refers to brain.
3. Cerebrovascular accident: a stroke, bleeding or clot in the brain.
4. Cerumen: ear wax.
5. CNS: central nervous system, consists of brain and spinal cord.
6. Convulsion: a seizure in which there is uncontrolled muscle movement.
7. Depression: a feeling of hopelessness which can result in inability to carry on daily activities.
8. Eardrum: membrane that transmits sound from outer to middle ear.
9. Hynotic: drug given for sleep, it depresses CNS.
10. Hypoxia: reduced oxygen in the body tissues.
11. Lacrimal gland: one which produces tears.
12. Narcotics: a group of pain relieving drugs that can easily become addictive.
13. Neuron: a nerve cell.
14. Optic: refers to eyes or process of seeing.
15. Otic: refers to the ear or sense of hearing.
16. Psychosis: a psychological disease in which there is a loss of a person's touch with reality.
17. Sedative: a drug that calms the patient, it slow brain activity.
18. Senses: ability of sight, smell, hearing, taste and touch.
19. Spinal cord: part of CNS.
20. Tranquilizer: this type of drug produces a calmness without depressing the brain.
21. Tremor: trembling.
22. Vertigo: dizziness.

J. Endocrine System:

1. Adrenal glands: sit above kidneys, produce epinephrine and corticosteroids.
2. Diabetes mellitus: a disease in which the body cannot burn sugar (use it) due to the lack of insulin.
3. Glycosuria: sugar in the urine.
4. Hormone: a substance secreted by a gland which regulates many body functions.
5. Hypoglycemia: low blood sugar. Hyperglycemia: high blood sugar.

6. Insulin: a hormone produced by the pancreas which regulates the metabolism of sugar in the body.
7. Insulin shock: low blood sugar caused by too much insulin, the opposite of which is Diabetic coma.
8. Oral hypoglycemic: drugs used to stimulate the pancreas to produce more insulin. Insulin, itself, is obtained from animals and can be given by injection only.
9. Parathyroids: glands (4) which help to control the calcium level in the blood.
10. Pituitary: gland which produces many hormones, some of which stimulate other glands to produce their hormones.
11. Tetany: condition in which a low calcium in the blood results in severe muscle spasms.
12. Thyroid: gland located in the neck which produces thyroxine (this controls body metabolism).

K. Muscular System and Skeletal System:

1. Arthritis: disease of the joints (gout, osteoarthritis, rheumatoid arthritis).
2. Bursa: small sacs that prevent bones and muscles from rubbing together.
3. Ligaments: cord like tissue that connect bones.
4. Skeletal muscles: those which aid body movement.
5. Tendons: heavy bands of tissue that connect muscle to bone.
6. Uric acid: one of the waste products of cell metabolism, in Gout, there is an excess of this acid.
7. itis: a suffix (ending of a word) which means "inflammation".

L. Reproductive System:

1. Uterus: organ of female where fetus remains during pregnancy.
2. Cervix: entrance to the uterus.
3. Estrogen: female hormone.
4. Menopause: normal end of menstruation.
5. Ovaries: female organs which produce ovum, these are fertilized by sperm to produce pregnancy.
6. Progesterone: female hormone.
7. Prostrate: gland of male which surround the urethra.
8. Testes: male sex glands.
9. Testosterone: male hormone.

10. Vagina: part of the female anatomy which links the uterus with the outside, canal through which a baby is delivered.

B. Urinary System:

1. Acidifier: drug to make the body more acid; opposite of alkalizer.
2. Anuria: no production of urine by the kidneys.
3. Bladder: muscular pouch for the storage of urine.
4. Cystitis: inflammation of bladder.
5. Dehydration: too little water in the body tissue.
6. Diuretic: drug that increases urinary output.
7. Dysuria: painful urination.
8. Electrolytes: Substances such as sodium, potassium and calcium, which are absorbed into the kidneys from the blood and are important in the regulation of fluid in the body.
9. Hematuria: blood in the urine.
10. Hyper-Hypocalcemia: high or low calcium in the blood.
11. Hyper-Hypokalemia: high or low potassium in the blood.
12. Hyper-Hyponatremia: high or low sodium in the blood.
13. Neyhritis: inflammation of kidneys.
14. Pyelonelphritis: kidney infection.
15. Pyuria: pus in urine.
16. Retention: inability to urinate.
17. Ureters: the tubes, one from each kidney, that carry urine to the bladder.
18. Urethra: small tube that leads from the bladder to outside body.
19. Urination: the controlled release of urine from the body (voiding).
20. Urine: the liquid waste which is collected by the kidneys.

C. Gastrointestinal System:

1. Anal rectal ridge: ring of muscle which is located 3 to 4 inches inside anal opening. Rectal suppositories are inserted past it.
2. Antacid: drug used to neutralize stomach acid.
3. Anthelmintic: drug for ridding the body of parasites.
4. Antidiarrheal: drug that slows down intestinal motility.
5. Antiemetic: drug to relieve nausea and vomiting.

6. Anus: distal end of G.I. tract.
7. Bile: digestive juice that helps to digest fats. It is stored in the gallbladder after being produced by the liver.
8. Carminative: drug to relieve gas.
9. Digestant: drug to aid in digestion.
10. Emesis: vomiting.
11. Esophagus: muscular tube leading from mouth to stomach.
12. Feces: solid waste products.
13. Gastric: refers to stomach.
14. Intestinal motility: movement of smooth muscles lining G.I. tract.
15. Jaundice: yellow coloring to skin.
16. Liver: very important organ, located in abdominal cavity which filters blood, stores and releases nutrients, biotransforms many substances, including drugs.
17. Pancreas: organ that produces digestive enzymes and releases them into the odenum and secretes insulin into bloodstream.
18. Peristalsis: regular contractions of the muscular lining of G.I. tract, thus moving food and waste through the system.
19. Rectum: latter portion of the large intestine.
20. Saliva: digestive juice, secreted in the mouth, which aids in food digestion by breaking down some sugars, coats food.
21. Tarry stool: black colored feces which may indicate bleeding.
22. Villi: finger-like projections in the lining of the intestine which absorbs nutrients.

M. Gerontology:

1. Geriatrics: study of diseases of old age.
2. Gerontolocry: the study of the process of aging and the problems this process presents.