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MODEL CURRICULUM
CERTIFIED MEDICATION AIDE TRAINING PROGRAM

Ohio Board of Nursing
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CERTIFIED MEDICATION AIDE TRAINING PROGRAMS

Certified medication aide training programs must comply with the statutory and regulatory requirements specified in Sections 4723.32 through 4723.91 of the Ohio Revised Code and Chapter 4723-27 of the Ohio Administrative Code and be approved by the Ohio Board of Nursing (Board). Among other requirements, the regulations require certified medication aide training programs to provide a curriculum of a minimum of 120 hours, including 80 hours of didactic/laboratory experience and 40 hours of supervised clinical experience. For the didactic and laboratory experience, the rules set forth required curriculum content and hours.

This Model Curriculum complies with the curriculum requirements specified in Chapter 4723-27-08 of the Ohio Administrative Code (OAC). A certified medication aide training program may use the Model Curriculum, as written, use the Model Curriculum as a basis and expand upon the content and hours, or establish its own curriculum as long as it meets the requirements of OAC Chapter 4723-27-08.

Those interested in becoming an approved certified medication aide training program, should review the requirements of Sections 4723.32 through 4723.91 of the Ohio Revised Code and OAC Chapter 4723-27. Specifically, OAC rules 4723-27-11 through 4723-27-14 provide the requirements for Pilot Program and the training programs, but interested parties should review the entire applicable statute and rules to be familiar with all of the requirements for certified medication aides, the Pilot Program, and training programs.

The primary objectives for certified medication aides completing approved certified medication aide training programs are to:

1. Describe the role and functions of a certified medication aide.
2. Describe the six rights of medication administration and their application to safe medication administration.
3. Relate the function of administering medications to the promotion of resident's rights.
4. Administer medications accurately, safely and document appropriately.
5. Maintain the dignity of the residents.
6. Successfully complete the written and clinical examinations approved by the Ohio Board of Nursing.

The complete nursing law and rules adopted thereunder can be found on the Board website at www.nursing.ohio.gov. This publication is not intended to provide legal advice. Please refer to Ohio Revised Code Chapter 4723. and Ohio Administrative Code Chapter 4723-27 for a statement of current Ohio law governing certified medication aides and training programs.

CERTIFIED MEDICATION AIDE TRAINING PROGRAMS

The following chart shows the content requirements and the hours as set forth in OAC Rule 4723-27-08 for Medication Aide Training Programs. Training programs may have more than the required hours but not fewer than specified in OAC Rule 4723-27-08.

SECTION	TOPIC AREA	HOURS
I	Introduction to the role of the Medication Aide	3 hours (see section XII)*
II	Communication and Interpersonal Skills	4 hours
III	Medical terminology, Symbols, Accepted Abbreviations, Dosage Preparations and Reference Sources Proper Storage and Disposal of Drugs	4 hours
IV	Standard precautions and Infection Control	2 hours
V	Six rights of Medication Administration Residents' Rights related to Medication Administration	4 hours
VI	Basic Overview: Anatomy and Physiology Proper Positioning and Body Mechanics	2 hours**
VII	Fundamentals of Body Systems	Hours listed per system**
VII-A	Gastrointestinal system	3 hours
VII-B	Musculoskeletal /Integumentary system	3 hours
VII-C	Nervous and sensory system	3 hours
VII-D	Genitourinary/Renal system	3 hours
VII-E	Cardiovascular/Respiratory system	3 hours
VII-F	Endocrine System	3 hours
VIII	Basic Pharmacology	Hours listed per system**
VIII-A	Drug Classifications/Medications Affecting Body Systems	12 hours

VIII-B	Safe Administration of Oral, Sublingual Medications Safe Administration of Topical Medications Safe Administration of Ophthalmic, Otic and Nasal Medications Safe Administration of Inhalants Safe Administration of Rectal Medications Safe Administration of Vaginal Medications Measuring Pulse and Blood Pressure related to Medication Administration	20 hours
IX	Appropriate Documentation in Clinical Record	2 hours
X	Circumstances for reporting to a nurse concerning changes in a resident's behavior or physical condition	4 hours
XI	Medication Error Identification, Reporting and Documentation	4 hours
XII	Becoming a Certified Medication Aide Ohio Law and Ohio Administrative Code Chapter 27	1 hour (see section I)*

*Total of 4 hours as specified in paragraph (C)(12) of OAC rule 4723-27-08
**For sections VI and VII a total of 20 hours is required as specified in paragraph (C)(5) of OAC rule 4723-27-08; hours for each system may be determined by the training program as long as there is a total of 20 hours

SAMPLE CLASS SCHEDULE

Medication Aides Training Program

Week #1

Monday	Tuesday	Wednesday	Thursday	Friday
Introduction: Introduction of Class and Instructor(s) Introduction to Role of Certified Medication Aide	Medical Terminology/ Symbols Safe Storage and disposal of Medications Abbreviations Dosage Preparations Reference sources (Quiz – consider daily or frequent quizzes)	Six Rights (con't) (Quiz: Role and Rights) Resident's Rights Related to Medication Administration Review of Body Mechanics and Proper Positioning	Fundamentals of Body Systems: Musculo-skeletal/ Integumentary con't Lab: Musculo-skeletal/ Body Mechanics and Proper Positioning	Fundamentals of Body Systems: Genito-urinary/ Renal/ Reproductive System
Break	Break	Break	Break	Break
Effective Communication Communication Laboratory	Principles of Infection Control/Standard Precautions Six Rights of Medication Administration	Fundamentals of Body Systems: Gastro-intestinal Musculo-skeletal/ Integumentary	Fundamentals of Body Systems: Nervous and Sensory System Lab: Sensory Systems	Fundamentals of Body Systems: Endocrine System (Quiz: Systems so far)

SAMPLE CLASS SCHEDULE

Medication Aides Training Program

Week #2

Monday	Tuesday	Wednesday	Thursday	Friday
Review: Fundamentals of Body Systems Quiz Fundamentals of Body Systems: Cardio-vascular/ Respiratory System	Basic Pharmacology/ Drug Classifications (Connect with Body Systems as previously learned)	Safe Administration of Medications	Safe Administration of Medications	Prevention of Medication Errors/ Proper Reporting of Medication Errors Questions from the week
Break	Break	Break	Break	Break
Documentation Basic Pharmacology/ Drug Classifications (Connect with Body Systems as previously learned)	Basic Pharmacology/ Drug Classifications (Connect with Body Systems as previously learned) Begin: Safe Administration of Medications	Safe Administration of Medications	Safe Administration of Medications	Review Delegation and Reporting to a Nurse: All Circumstances Review Documentation Lab Demonstration: Positioning, Administering Medications, Documentation

Certified Medication Aide Model Curriculum
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Section I: Introduction to the Role of the Medication Aide

The role of the medication aide in nursing homes and residential care facilities is clearly delineated and expects behaviors on the part of the medication aide that are specific to the safety and well-being of the residents. The medication aide must maintain a professional relationship with the residents and their families in order to maintain objectivity and be able to function in the job in a safe and caring manner. The medication aide is part of the health care delivery team whose role and functions are at the delegation of a licensed nurse.

Section I: Introduction to the Role of the Medication Aide		
Objective	Content Curriculum Outline **(3 Class Hours)**	Teaching Method
A. Describe the role and functions of a medication aide.	A. Role and Functions of a Medication Aide 1. Role of the CMA when administering medications a. Primary role is to deliver medicines b. Will not have a patient care assignment which conflicts or distracts from primary role 2. Describe what the students are learning will be the safest way to administer medications to avoid errors. 3. Describe what the students will be learning over next two weeks.	Lecture and Discussion.
B. Describe professional relationship with residents and families	B. "Professional" Relationships 1. "Healthy" caring 2. Empathy versus sympathy 3. Maintaining professional boundaries	*Teaching alert* *"Boundaries" is a difficult concept to understand. Will need a explanation, examples, and discussion* *Role Play*
C. Define delegation from a nurse.	C. Role is dependent upon the delegation from a nurse. 1. Cannot function without delegation from the nurse. 2. Must know when to give information to the nurse. 3. Will be a vital member of the residents' care team with sharing information to the nurse. 4. Will have an understanding of the high cost of drugs	*Teaching Alert* Talk a bit about the difference between a "professional" relationship and a friendship.

Section I: Introduction to the Role of the Medication Aide		
Objective	Content Curriculum Outline **(3 Class Hours)**	Teaching Method
	and care with not wasting them.	
D. Successful completion of the training course.	D. Program consists of successful completion of four aspects of evaluation. 1. Passing the written portion of the examination by a minimum of 80%. 2. Successful completion of all aspects of the laboratory skills. 3. Successful completion of the clinical rotation and skills check list.	*Teaching Alert* Delegation is also a hard concept. May want to describe it as "clearance" from the nurse.
E. Describe the successful behaviors of a Medication Aide	E. Successful Behaviors of a Certified Medication Aide a. Dependability b. Accuracy c. Cooperation with peers, supervisors, residents, and families d. Honesty e. Communication with nursing staff all concerns about a resident f. Professional grooming and appearance g. Name tag visible	*Teaching Alert* Briefly describe the Nursing Process: Assessment with Analysis Planning Implementation Evaluation
F. Describe prohibitions to the role of a CMA	F. Prohibitions in the Role of a certified medication aide: 1. "Assessing" and making decisions about the resident's condition. 2. Calling a physician 3. Taking an order from a physician or other prescriber. 4. Administering any medication by any route other than what is taught in this program. 5. Administering the first dose of a newly ordered medication. 6. Making the decision to give an "as needed" medication without first consulting (delegation) with the nurse. 7. Making the decision to withhold a medication without	CMA role is to assist with all of these aspects and to "implement" (or administer the medications as taught)

Section I: Introduction to the Role of the Medication Aide		
Objective	Content Curriculum Outline **(3 Class Hours)**	Teaching Method
	the permission (delegation) of the nurse.	
G. Describe "Chain of Command"	G. "Chain of Command" helps describe responsibility and is supported with job descriptions. 1. Chain of command may vary from facility to facility. 2. Nurse always is the person responsible for the delegation of medication administration. 3. CMA needs to know how to handle concerns.	Decision making is left to the nurse Begin to explain delegation here (May also want to have a briefing with the nurses about the concepts of delegation early on.) May want to describe difference in the presence or absence of a nurse on site.

Section II: Communication and Interpersonal Skills

Communication skills and good interpersonal relationships are essential in all aspects of our lives. Good communication skills and positive relationships working in this field promote pleasant living conditions for the residents and good working conditions for the staff.

Section II: Communication and Interpersonal Skills		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
A. Describe the four elements to effective communication	A. Effective Communication 1. Forming the message 2. Sending the message 3. Receiving the message 4. Observing the feedback	Lecture and Discussion Role Play *Teaching Alert* Use the Communication/ Understanding feedback loop model for visual learning
B. Describe the steps to effective communication	B. Steps to Effective Verbal Communication 1. Speak clearly and slowly using kindness 2. Be at eye level 3. Watch your own non-verbal communication 4. Use language with which the listener is familiar 5. Allow time for the listener to process the information 6. Give facts, not opinions or judgements unless asked directly 7. Repeat the message if necessary, using the same words. 8. Exercise patience, behave as if this is the only person you need to care for.	*Teaching Alert* This material is best handled by discussion and most of all role-play experiences

Section II: Communication and Interpersonal Skills		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
C. Describe forms of communication	C. Verbal and Non-verbal Communication 1. All behaviors are some sort of communication a. Perhaps not as obvious as verbal b. Just as meaningful 2. It is best to be sure resident has all communication aids available when trying to explain medications. a. Glasses b. Hearing aids c. Minimizing extraneous noise (example: TV)	Give examples here: i.e. Grimacing may mean pain.
D. Describe the need for Active Listening	D. Active listening is essential to good communication and building positive relationships with residents and co-workers. 1. Use body language that demonstrates interest in the person. 2. Avoid interrupting the speaker. 3. Give the speaker verbal and non-verbal feedback of your understanding. 4. Avoid judgments based on your own personal beliefs and/or biases.	*Teaching Alert* Use an active listening exercise Talk here about the power of "body language" Give examples of common biases – good place for group discussion

Section II: Communication and Interpersonal Skills		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
E. Describe Factors that Hinder Effective Communication	E. Factors that Hinder Effective Communication 1. Cultural differences – race, religion, social background, ethnic background. 2. Age differences related to values, beliefs. 3. Visual, hearing and mental abilities/disabilities 4. Biases about aging on the part of the younger person	*Teaching Alert* Expect participants to help describe some things that effect good communiction, be receptive to all suggestions. Talk about how to overcome some of those factors.
F. Describe interper-sonal skills essential for the success of the CMA	F. Interpersonal Skills Needed for success with Residents and Co-workers 1. Patience – the capacity to be even-tempered and calm and "wait with" 2. Courtesy – the capacity to demonstrate respect and consideration 3. Tact - the ability to choose the right words for the right time so as not to hurt or embarrass the other person. 4. Empathy – the ability to listen, understand the person's point of view and feelings.	*Teaching Alert* Describe the difference between sympathy and empathy. Help the learner realize how to be sensitive to feelings but not take them on as their own.

Section III: Medical Terminology, Symbols, Accepted Abbreviations, Dosage Preparations Reference Sources Proper Storage and Disposal of Drugs

Section III: Medical Terminology, Symbols, Accepted Abbreviations, Dosage Preparations, Reference Sources, Proper Storage and Disposal of Drugs		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
A. Define common terms used with medication admini-stration	A. Define and describe the terms generally used with the function of administering medications: 1. Oral 2. Gastrointestinal 3. Genitourinary 4. Musculoskeletal 5. Topical/dermatomucosal 6. Ophthalmic 7. Otic 8. Buccal 9. Mucous membrane 10. Parenteral (IV, IM, SQ) 11. Rectal 12. Vaginal	Lecture Good topic for a quiz prior to final written examination Add other definitions that are appropriate.
B. Define abbrevi-ations and symbols used in medication orders and on the MAR	B. Define and describe the use of abbreviations in medication administration. (See Handout – Attachment 1)	Avoid the unacceptable abbreviations from the IOM report. Talk about IOM report

Section III: Medical Terminology, Symbols, Accepted Abbreviations, Dosage Preparations, Reference Sources, Proper Storage and Disposal of Drugs		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
C. Identify various dosage preparations	C. Dosage preparations come in a variety of ways depending upon the best absorption of the medication. 1. Tablet 2. Enteric coated tablet 3. Capsule 4. Spansule 5. Caplet 6. Lozenge 7. Suppository (vaginal or rectal) 8. Drops 9. Ointments/creams 10. Liquid 11. Powder to be dissolved 12. Tablet to be dissolved 13. Inhalant	Good place to have examples to show the difference, *Teaching alert* Never alter the preparation unless instructed to do so by the nurse.

Section III: Medical Terminology, Symbols, Accepted Abbreviations, Dosage Preparations, Reference Sources, Proper Storage and Disposal of Drugs		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
D. Describe the routes of medication administration	D. Describe the routes of medication administration and differentiate those the CMA may administer. 1. Oral 2. Topical to intact skin 3. Rectal suppositories 4. Vaginal suppositories 5. Others for nurse to administer a. Intramuscular b. Intravenous c. Subcutaneous d. Topical to open skin e. Intradermal f. Via gastrostomy, jejunostomy, naso-gastric, or oral-gastric tubes.	Provide some visuals here
E. Identify reference sources	E. Primary Reference sources for the CMA 1. Primary source is the nurse! 2. For additional information on drugs use drug reference manuals in the facility.	Remind the students of the importance of relying on the nurse for information.

Section III: Medical Terminology, Symbols, Accepted Abbreviations, Dosage Preparations, Reference Sources, Proper Storage and Disposal of Drugs		
Objective	Course Curriculum Outline **(4 Class Hours)**	Teaching Method
F. Describe mechanisms for proper storage and maintaining security of medications.	F. Proper storage 1. All medications must be kept in a secure place at all times (locked) 2. Will be dependent on type of medication. 3. May need to be refrigerated. 4. Must be labeled with resident's full name. 5. If using medication cart – all medicationss (except refrigerated medications) must remain locked in the cart when not being administered. 6. If using prescription bottles – must have resident name, medication name and dosage, prescriber's name, instructions and expiration date. 7. All "scheduled" medications are locked at all times, they will need to be accounted for each shift by the nurse.	Describe the various ways medications are kept locked depending on facility. Mention medications that will not be labeled with resident's name, e.g., "e-box" medications that must be withdrawn/provided by nurse. Define a "scheduled" drug
G. Describe how to dispose of a medication	G. Proper disposal of any drug is important. 1. Giving unused (actually, any) medications of any kind to anyone other that the resident for whom it was ordered is not permitted and may result in termination of employee and discipline by the Ohio Board of Nursing. 2. Follow facility policy for the disposal of any medication that is contaminated. 3. Taking medications for personal use may result in a felony and is reportable to the Ohio Board of Nursing. 4. The label will have an expiration date. All expired medications are disposed of as to facility policy.	Explain that giving or taking any medication for any reason is tantamount to stealing and subject to Board discipline Define: "contaminated" Disposal of any medication involves reporting to the nurse. Some facilities may expect the nurse to be responsible for this function

Section IV: Standard Precautions and Infection Control

Standard Precautions are essential to avoid the transfer of communicable or potentially communicable diseases from one resident to another or from resident to employee. A review of the Standard Precautions learned in the basic STNA program has the focus of relating the material to medication administration. Infection Control practices are especially important where there is aggregate living arrangements.

Section IV: Standard Precautions and Infection Control		
Objective	Content Curriculum Outline **(2 Class Hours)**	Teaching Method
A. Describe the way infections are spread	A. Definition of Infection Control – preventing the spread of micro-organisms by specific practices 1. Micro-organisms include: a. bacteria b. viruses c. fungi d. protozoa 2. Infections are spread by many ways: a. Droplets (airborne) – sneezing, coughing b. Contact with infected secretions including the linen or other personal care items of infected people. c. Contact with blood and other body fluids d. By insects (example: mosquitoes) 3. Standard Precautions involves treating all secretions as though they are infected since often we may not know someone has an infection until after the fact.	Lecture and Laboratory May want to identify bacteria/viruses as "germs" Talk a bit about the CDC as the standard.

Section IV: Standard Precautions and Infection Control		
Objective	Content Curriculum Outline **(2 Class Hours)**	Teaching Method
B. Identify ways to avoid the spread of infections	B. Standard Precautions – guidelines developed by the CDC (Center for Disease Control) to reduce the risk of transmission of pathogens from known and unknown sources of infection. 1. Treats every resident as though they might be infectious. 2. Standard Precautions include: a. Good handwashing at all times before and after working with each resident. b. Never taking equipment from one room to the other without cleaning it. c. Wearing protective clothing when indicated by isolation procedures. 3. Handwashing procedure with soap and water a. Stand away from the sink as the sink is considered contaminated. b. Turn on tap and adjust water to comfortable c. Wet hands with hands lower than elbows. d. Lather with soap and scrub hands, wrists, between fingers and finger tips for a minimum of 10-15 seconds. e. Rinse, allowing water to run down from wrist to fingers. f. Dry with clean paper towel and turn off tap with paper towel 4. Handwashing (Alcohol-Based Hand Rub) a. Apply the manufacturer's instructed amount of solution to the palm of one hand. b. Rub hands together vigorously being certain to cover all surfaces and between fingers c. Rub hands together until solution has evaporated and hands are dry	*Teaching Alert* Demonstration and return demonstration valuable here. Water should be comfortable to avoid shortcutting the time. May use non-soap and water antiseptic products following product directions May want to use hand lotion if skin becomes chafed. Skin breaks of the caregiver are potential portals of entry for microbes.

Section V: Six Rights of Medication Administration

Residents' Rights related to Medication Administration

The five rights of medication administration have been a longstanding standard for schools of nursing. The sixth right was added within the last several years as another safeguard to avoid errors. Following the six rights and the steps for safe administration of medications will result in minimal medication errors.

Section V: Six Rights of Medication Administration *Residents' Rights related to Medication Administration*		
Objective	Content Curriculum Outline **(4 Class Hours)**	Teaching Method
A. Identify the 6 Rights of Medication Administration	A. Six Rights of Medication Administration 1. Right Person – be certain person is properly identied. 2. Right Drug (Medicine) – compare the medication package to the Medication Administration Record (MAR) 3. Right Dose – compare the dose on the package to the MAR, do not assume the dose is correct in the pre-pack, do not alter the form 4. Right Route – give only as indicated 5. Right Time – If the time is more than 1 hour off from the scheduled time, contact the nurse. 6. Right Documentation – Document the drug **immediately after** the resident takes the medication.	Lecture and Discussion *Teaching Alert* **Never** chart the medication before the resident takes it. Never wait till the end of the med pass to chart all doses given.

Section V: Six Rights of Medication Administration *Residents' Rights related to Medication Administration*		
Objective	Content Curriculum Outline **(4 Class Hours)**	Teaching Method
B. Describe why the 6 rights are taught.	B. Why so important? The Institute of Medicine Report, "To Err is Human, Building a Safer Health System" (2000) tells the story of the number of deaths each year related to medical errors, including those related to medication administration. Other than an unknown allergic reaction or unforeseen side effect of a medication, the vast majority are the patient/resident having one of the six rights violated.	Report to and involve the nurse if problem with giving the medication.
C. Explain a resident's rights related to medication administration.	C. Resident's rights 1. To know about the medication 2. To know what it is for 3. To refuse – never force a medication on a resident 4. To be treated as an individual	*Teaching Alert* This is a good place to have a review on Resident's rights. Applicable to **all** medications
D. Describe a solution to a problem with administering a medication.	D. Problems encountered when administering a medication 1. Medication not available 2. Medication not in correct dose 3. Resident not in the room 4. Resident asleep 5. Unable to arouse the resident 6. Attitudes towards medications –fear of addiction, fear it is costing too much money 7. Adverse reactions to medication 8. Resident refusal	Reiterate the nurse's role here. Reiterate care with the medications here due to high cost of wastage.

Section VI: Overview Anatomy and Physiology
PROPER POSITIONING AND BODY MECHANICS

A basic knowledge of the body systems (anatomy) and how they function (physiology) is essential to understanding the aging process and disorders of the elderly. Understanding the normal way the body is constructed and the way it works normally will help the learner understand what is occurring when the body is not functioning to its fullest. Proper positioning and good body mechanics on the part of the medication aide will protect both the resident and the aide.

Section VI: Overview Anatomy and Physiology PROPER POSITIONING AND BODY MECHANICS		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
A. Describe the reasons for understanding basic anatomy and physiology	A. Basic Anatomy and Physiology 1. Understand the importance of administering the right medication at the right time 2. Understand the support certain medications have to enhancing the physiology of the body systems 3. Body, mind and spirit are interrelated far beyond our ability to recognize, but supporting one aspect will support them all. 4. Aging is not a disease. 5. Body is divided (for study purposes) into systems- each system is comprised of millions of cells which are the building blocks of the body.	Lecture, Visuals and Laboratory *Teaching Alert* Talk a bit about the resident as an integrated whole person. May want to talk about some basic theories of aging: genetics, lifestyle, weight, exercise, attitude.

Section VI: Overview Anatomy and Physiology PROPER POSITIONING AND BODY MECHANICS		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
B. Discuss the value of proper positioning of resident for various medication administration	B. Ideal positions 1. For oral medications is sitting up in bed or chair so as to allow gravity to assist in the flow of the tablets and liquids. 2. For rectal medication (suppository) is with the resident lying flat on their side with the upper leg flexed. 3. For inserting a vaginal suppository is with the woman flat on her back with knees flexed and feet flat on the bed.	*Teaching Alert* Emphasize importance of properly positioning a resident (moving patient to head of bed) in the bed before cranking up the head of the bed. Emphasize the importance of resident privacy and draping here.

Section VI: Overview Anatomy and Physiology PROPER POSITIONING AND BODY MECHANICS		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
C. Discuss and demonstrate the use of good body mechanics on the part of the CMA	C. Review of Good Body Mechanics/Ergonomics 1. Definition: Ergonomics – Adapting the environment by using equipment and techniques that prevent injury to the helper and the resident. 2. Definition: Body Mechanics – good use of body alignment and movements that protect the vulnerable parts of our bodies. Allows for the best use of strength and minimizing fatigue and injury. 3. General rules of Good Body Mechanics a. Stand erect, remember good posture is the beginning of good body mechanics. b. Use large muscles and muscle groups when possible particularly for lifting. c. Place feet flat on floor, 12 inches apart and bend at the knees when lifting. Keep the back straight. d. Use your arms to support the object or person, allow the large muscles of the buttocks and legs to do the actual lifting. e. Beware of strain on your lower back f. Push or pull a heavy object rather than lifting it if possible. g. Stand as close to a person or object rather than reaching out to lift or pull. h. Ask for help in lifting, it is always safer to use two people to lift even a smaller resident. i. Use a mechanical lift when appropriate.	*Teaching Alert* Great place for audio-visual aides and student participation in practicing good body mechanics and lifting. *Teaching Alert* Avoiding back injuries The muscles of the legs actually do the job of lifting properly, not the muscles of the baclk.

Section VI: Overview Anatomy and Physiology PROPER POSITIONING AND BODY MECHANICS		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
D. Explain the value of good body alignment prior to and after medication administration	D. Describe the value in leaving the resident who has mobility problems in good body alignment after medication administration.	Demonstrate and practice good body alignment. Mobility supports, i.e. use of a lift will be a part of the resident's care plan.

Section VII: Basic Overview: Body Systems
A. Gastro-intestinal

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The gastrointestinal system is comprised of the entire alimentary canal from mouth through the anal canal as well as related accessory organs responsible primarily for digestion and nutrition of the body. The gastrointestinal system (GI tract) is a system often affected by the process of aging and the effects of immobility.

Section VII: Basic Overview: Body Systems A. Gastro-intestinal		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the function of the gastro-intestinal system	A. Gastro-intestinal System (GI tract) 1. Has two major distinct parts: a. The alimentary or digestive tract that includes the mouth through the rectum. b. The organs that support digestion and connect at some strategic places along the alimentary tract. 2. Structure and function of the digestive tract: a. Mouth – oral cavity (1) chews food and mixes with saliva (2) chewing requires teeth (3) saliva has enzymes that begin the digestive process b. Esophagus – tube from mouth to the stomach – moves by swallowing and peristalsis	Lecture and Visuals *Teaching Alert* Strongly suggest using a pictorial for viewing the various body systems

Section VII: Basic Overview: Body Systems A. Gastro-intestinal		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the function of the gastro-intestinal system (cont'd)	c. Stomach – Pouch between the esophagus and the small intestine that holds the food and mixes with some digestive enzymes (1) Food stays in stomach for 3-4 hours. (2) Peristalsis mixes food (and medicines) with enzymes and hydrochloric acid beginning the breakdown for absorption in the small intestine. (3) Stomach empties into the small intestine through a valve called the pyloric sphincter. d. Small intestine: is about 20 feet in length and comprised of three major parts. (Peristalsis moves the food through the small intestine.) (1) duodenum- food comes from stomach as an acidic liquefied mass and mixes with bile for further digestion (2) jejunum – mid-section of small intestine where most absorption occurs (3) ileum – end of the small bowel – still some absorption but moving the non-absorbable food into the large bowel. e. Large intestine: comprised of the cecum and the rectum; largely responsible for absorbing water. f. Anus: final opening by which the by-products of digestion are eliminated.	Define "peristalsis": wave-like muscle contractions within the mucous membrane that moves food through the tract. Define "absorption": Process by which digested food passes over the intestinal wall so that the blood stream may carry the nutrients to the cells of the body

Section VII: Basic Overview: Body Systems A. Gastro-intestinal		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the function of the gastro-intestinal system (cont'd)	3. Organs supporting digestion a. Teeth, tongue, salivary gland b. Pancreas (1) Secretes enzymes for digestion (2) Secretes Insulin for breaking down sugar for cells to use. c. Liver (1) Called the body's "detoxifier" (2) Takes nutrients from the blood stream and makes them chemicals the cells can use for energy (3) Also produces bile – which aides in the digestion of fats and some proteins (4) Sends bile to the gall bladder for storage (5) Many medications are broken down and destoyed by the liver. d. Gall Bladder – a reservoir for storing bile until needed for digestion.	
B. Describe at least one common disorder of the GI System	B. Common disorders of the Gastrointestinal System 1. Pyorrhea – inflamed gums resulting in difficulty in chewing 2. Dyspepsia – indigestion, difficulty in digesting certain foods 3. Diverticula – out-pouching of the tubes of the GI tract, can occur all the way from the esophagus through the large intestine. 4. Diverticulitis – inflammation of the diverticula. 5. Gastritis – inflammation of the stomach causing pain, indigestion symptoms 6. Reflux disease – Valve between stomach and esophagus allows for backflow into esophagus.	*Teaching Alert* Report any signs and symptoms of changes or abnormalities to the nurse. i.e. diarrhea, pain

Section VII: Basic Overview: Body Systems A. Gastro-intestinal		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe at least one common disorder of the GI System (cont'd)	7. Ulcer – most common in the duodenum or the stomach but may be all along the GI tract. 8. Hepatitis – inflammation of the liver impeding its ability to turn nutrients into usable fuel or to detoxify. 9. Cirrhosis – chronic disease of the liver usually caused by chronic hepatitis, alcohol abuse or severe nutritional deficiencies, not reversible. 10. Pancreatitis – inflammation of the pancreas causing severe pain and interference with the production of insulin and digestive enzymes. 11. Constipation – inability to expel end results of digestion 12. Diarrhea – frequent loose bowel movements	Ulcers often believed to be from stress. Much more likely caused by bacteria/viruses or medication irritation.
C. Describe an effect of aging on the GI system.	C. Effects of aging and or immobility on the Gastrointestinal System 1. Decreasing elasticity causing slowing of peristalsis all along the GI tract 2. Decreasing physical mobility 3. Decrease in enzyme production 4. All results in decreased absorption, sometimes lack of appetite and constipation	Remember: Aging itself is NOT a disease.

Section VII: Basic Overview: Body Systems
B. Musculoskeletal/ Integumentary

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The Musculoskeletal System provides the framework and stability for the body. It allows the body to move and provides protection for vital organs. Many symptoms related to this system are related to the aging of the body particularly when it is accompanied by a lack of exercise.

The Integumentary System consists of the various layers of the skin that provides the outer most covering of the body. Intact skin is a protector from infectious material entering the body.

Section VII: Basic Overview: Body Systems B. Musculoskeletal/ Integumentary		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the function of the musculoskeletal system	A. The Musculoskeletal system consists of two distinct parts: 1. The skeleton or bones a. Bones provide the framework of protection and mobility for the body b. Bones have additional functions (1) Living organisms with calcification to provide strength (2) Bone marrow produces red and white blood cells (3) Cartilage is soft skeletal tissue connected to bone (4) Tendons and ligaments 2. The muscles – three types a. Skeletal muscles –attach to bones and provide for movement, also called voluntary muscles. b. Smooth muscles – part of organs to help function, also called involuntary muscles. c. Cardiac muscles – only found in the heart, another form of involuntary muscle.	Lecture and Visuals *Teaching Alert* Strongly suggest using a pictorial for viewing the various body systems. Describe the difference between voluntary and involuntary muscles. Example of involuntary muscle: peristalsis in the GI tract

Section VII: Basic Overview: Body Systems B. Musculoskeletal/ Integumentary		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe the structure and function of the musculoskeletal system	B. Structure and function of the musculoskeletal system 1. Bones a. Cranium and facial bones – provide frame and protect brain b. Vertebrae, ribs, sternum – provides for humankind to be erect and walk. Supports rest of organs and allows them to stay in place c. Long bones with shoulder and pelvic bones – allows for mobility 2. Muscles a. Skeletal muscles attach to the bones, primarily the long bones to allow us to use them for movement. Includes facial muscles that allow for expression and chewing. b. Smooth muscles allow the organs to operate but without our conscious knowledge. c. Cardiac muscle allow the heart to beat without people having to think about it. 3. Bones and muscles must work together for mobility and communication.	Demonstrate use of voluntary muscles Can be aware of these involuntary muscles but do not need to consciously think of them for them to work.

Section VII: Basic Overview: Body Systems B. Musculoskeletal/ Integumentary		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
C. Describe some common disorders of the musculoskeletal system	C. Common disorders of the Musculoskeletal System 1. Arthritis – Inflammation of joints a. Rheumatoid – noticeably crippling arthritis b. Osteoarthritis- more common among the elderly c. Causes generalized and joint pain particularly when first moving after sleep. 2. Osteoporosis – decrease in the calcium in the bone that causes the bone to become less dense or solid a. More common in women b. Makes the elderly very prone to fractures 3. Fractures a. May be caused by injury or disease b. Usually of long bones, pelvis or vertebrae 4. Muscle sprains or strains – often when muscles have not been used regularly or with falls. 5. Gouty arthritis – Single joint usually the large toe, ankle or knee. Very red, swollen and painful.	Talk a bit about fractured hips elderly population.
D. Describe the normal effects of aging on the musculoskeletal system	D. Effects of aging on the Musculoskeletal System 1. Thinning and fragility of bones – often exaggerated by lack of activity and/or lack of weight bearing 2. Diminished muscle mass – often exaggerated by lack of activity 3. Curvature of the spine – usually from Osteoporosis	

Section VII: Basic Overview: Body Systems B. Musculoskeletal/ Integumentary		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
E. Define the Integumentary System	E. Integumentary System – structure and function 1. Consists of the dermis and epidermis- layers of the skin 2. Provides for protection of the organs and underlying tissues 3. Discards waste – through sweating 4. Absorbs medications	
F. Describe a common disorder of the integumentary system in the elderly	F. Disorders of the Integumentary system 1. Dermatitis – inflammation of the skin 2. Psoriasis – red patchy dry areas from genetic or environmental causes. Skin tends to shed. 3. Eczema – chronic inflammatory process of the skin 4. Scabies, lice other parasites 5. Burns 6. Ulcers often caused by poor circulation on the lower extremities 7. Decubitus or pressure ulcers – a. usually caused by immobility and pressure on any part of the skin b. often on elbows, hips, lower back, heels, any bony prominences	Remind the students about what they learned in STNA curriculum about prevention of pressure ulcers.
G. Describe one normal effect of aging on the integumentary system	G. Effects of Aging on Integumentary system 1. Normal aging causes thinning of skin, easily torn 2. Dryness of skin, lack of oils 3. Lack of elasticity increasing wrinkles	

Section VII: Basic Overview: Body Systems
C. Nervous and Sensory Systems

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The Nervous System is the intricate network that allows for the brain to send messages to the entire body in order for it to function. Some of those messages are sent from the conscious thought processes we have (for example: our brain sends a complex set of messages through many nerves when we decide to walk), resulting in activation of the Voluntary Nervous System. Many messages are conveyed without conscious thought (for example: the nerves that connect with the heart allows the signals for it to beat without our thinking about it), resulting in activation of the Autonomic Nervous system.

The Sensory system is so interrelated to the nervous system that it is difficult to separate it from the Nervous system. It consists of all those organs and functions that allow for our senses of seeing, hearing, tasting, smelling and touch (sensation).

Aging of the body will almost always affect the nervous system and we will be able to see signs of aging in the decrease of functioning of the sensory organs.

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the function of the nervous system as a whole.	A. The Nervous and sensory systems are interrelated 1. Intricate web that allows for messages to be sent from the brain to various parts of the body 2. Voluntary nervous system – person's brain consciously sends the message to take an action 3. Autonomic nervous system – person's brain is sending messages, but the person need not be consciously aware to have the message to be sent	Lectures and Visuals *Teaching Alert* Strongly suggest using a pictorial for viewing the various body systems Give and show example of voluntary nervous system

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe the parts of the nervous system	B. Structure and function of the Nervous system 1. Brain a. Located within the skull for protection b. Primary center for the regulation and coordination of the body systems c. Often referred to as the "Control Center" with areas for: (1) Reasoning, thinking (2) Mood (3) Memory (4) Movement (5) Regulation of breathing, heartbeat, body temperature (6) Senses d. Two sides (hemispheres) of brain (1) Right side controls left side of body (2) Left side controls right side of body (3) Side of "handiness" – can determine dominant side of brain (a) Whether you are right handed or left handed (b) Which side affects your speech	Give example of autonomic nervous system and how these affect primary life sustaining systems Talk here a bit about strokes affecting one side of the brain Left sided paralysis = right sided damage

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe the parts of the nervous system (cont'd)	2. Spinal Cord a. Connecting "rod" of the brain to the nerves b. Protected by the vertebra, called the spinal canal 3. Nerves a. Start centrally and network out (distally) branching off as they go further and further from the spinal cord. b. Nerves carry all of the impulses to and from all parts of body. (1) Voluntary nerves (2) Autonomic nerves c. Every organ has nerves connecting to it d. Some nerves have the possibility to regenerate (heal and function again) and some do not.	

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
C. Describe one common disorder of the nervous system	C. Common Disorders of the Nervous System 1. Brain or nerve trauma a. May be temporary change in functioning b. May be permanent destruction of part of brain or specific nerve 2. Encephalitis or Meningitis a. Encephalitis – inflammation of the brain b. Meningitis – inflammation of the thick fibrous covering of the brain and spinal cord. c. Caused by bacteria, viruses or chemicals 3. Multiple Sclerosis (MS) a. "Plaques" along peripheral nerves b. Progressive disease but periods of remission and exacerbation 4. Amyotrophic lateral Sclerosis (ALS) a. Progressive muscular shrinking (atrophy) due to degeneration of the nerves b. Generally rapidly progressive and always fatal 5. Dementia a. Vascular dementia – decrease in blood flow b. Alzheimer's dementia (1) Most commonly known but often misdiagnosed (2) NOT normal aging (3) Progressive, predictable course (4) No cure, but progress can be delayed 6. Others – including: a. Epilepsy b. Parkinson's disease c. Peripheral neuritis d. Huntington's Chorea	Again, visual aids essential here to understanding. *Teaching Alert* Give example here: Voluntary nervous system sends the message from the brain for the person to pick up the cup of coffee. Autonomic nervous system sends the message back to the brain that the cup was too hot and person dropped it without thinking about it first. Message back is pain. Some conditions will affect the ability to swallow Describe "remission" and "exacerbation" Many older people with sensory deprivation will be "mis-labeled" as Alzheimer's

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
D. Describe the effects of aging on the nervous system	D. Effects of Aging on the Nervous System 1. Brain a. Some atrophy of the actual brain occurs with aging b. Blood supply may be reduced therefore the functions slow down c. Some "tangles" of nerves may slow nerve messages. 2. Nerves a. Some atrophy, often with lack of muscle use b. Slowing of messages both from the brain and back to the brain – will appear that the person is not responding quickly enough.	
E. Describe sensory system	E. Sensory System – Organs intricately connected to nervous system to allow for the senses 1. Eyes: Sight, major nerve is Optic nerve 2. Ears: Hearing 3. Tongue: Tasting 4. Nose: Smelling 5. Skin: Feeling	

Section VII: Basic Overview: Body Systems C. Nervous and Sensory Systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
F. Describe the effects of aging on the sensory system	F. Effects of Aging on the Sensory System 1. Normal aging of the nerves of the sensory organs results in the slowing down of all of the impulses. 2. Sight: a. Normal aging results in "far-sightedness" and lack of "accommodation" b. Decrease in visual acuity, trouble seeing at night 3. Hearing – Gradual hearing loss from bone or nerve degeneration 4. Taste and smell – Normal aging produces decrease in taste and smell 5. Decreased and/or slowed response to touch and pain. May result in damage to skin or lack of recognized other illness because symptoms of disease are masked. 6. Sense of balance is lessened, more prone to falling, often cannot change positions quickly without losing balance 7. Decrease in the amount of deep sleep, often results in catnaps and night wakefulness. 8. Reduced enervation to various organs resulting in: a. Incontinence/urinary retention b. Decrease in GI mobility c. Temperature regulation d. Blood pressure regulation e. Others 9. Decreased sensory, feeling - particularly of temperature changes.	Note the connectedness between the cardiovascular system and the nervous system Often the elderly cannot read without glasses Affects appetite, "sweet taste" seems to remain after others. Note: connection to GI system here While incontinence is not uncommon in the frail elderly, it is often the result of a bladder infection or simply not emptying the bladder. Incontinence is **NOT** a normal process of aging. It is usually associated with some disorder.

Section VII: Basic Overview: Body Systems
D. Genitourinary/ Renal systems

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The Genitourinary and Renal systems include the organs of reproduction as well as the kidneys which act to filter and eliminate excess fluid and unwanted substances from the blood.

Section VII: Basic Overview: Body Systems D. Genitourinary/ Renal systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Describe the major function of the Renal/ Urinary System	A. The Renal and Urinary systems (Kidneys and urinary tract) have three primary functions: 1. Filtration of blood for unusable substances 2. Elimination of these substances and extra water 3. Regulation of blood pressure	Lecture and Visuals *Teaching Alert* Imperative to use visuals to help understanding.
B. Describe two structures which comprise the Renal/Unirary Systems	B. Structure and Function of the Renal/Urinary Systems 1. Renal, also known as the kidney: a. Comprised of Nephrons and multiple blood vessels including glomeruli. b. Shaped like a kidney bean with a reservoir known as the kidney pelvis c. Responsible for filtering the blood and removing unusable products and liquid. d. Kidneys also produce hormone which regulates blood pressure. 2. Urinary system a. Consists of ureters, bladder and urethra. b. Ureters connect to the kidney pelvis providing	Define glomeruli Many drugs are excreted through the urine.

Section VII: Basic Overview: Body Systems D. Genitourinary/ Renal systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
	pathways for urine to the bladder and exit through the urethra.	
C. Describe a common disorder of the Renal/ Urinary system	C. Common Disorders of the Renal/ Urinary Systems 1. Pyelonephritis: Inflammation of the kidney primarily in the kidney pelvis usually from a bacterial infection. 2. Glomerulonephritis: Inflammation of the glomeruli (or the major filtration component) of the kidney. 3. Renal failure: Decreasing functioning of the kidneys, sometimes sudden, sometimes gradual. 4. Cystitis: Inflammation of the bladder, causing pain and frequency of urination. 5. Urinary incontinence: Caused by a weakness in the bladder sphincter, often associated with cystitis.	
D. Describe a normal sign of aging on the renal/urinary system.	D. Affects of Aging on the Renal/Urinary System 1. Gradual slowing of the normal processes of filtration and excretion of unwanted substances. a. Reduction in number of nephrons b. Decrease in kidney size 2. Inability to filter extra salt intake. 3. Loss of elasticity of bladder 4. Weakening bladder sphincter causing dribbling of urine incontinence	

Section VII: Basic Overview: Body Systems D. Genitourinary/ Renal systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
E. Describe the Reproductive System	E. The Reproductive System 1. Male – designed to manufacture, store and transfer the male sex cells (sperm) for fertilization of ovum (eggs) 2. Female – designed to manufacture ovum (eggs), provide a place for the products of conception to grow (uterus) and be delivered. 3. Structure and Function of the Reproductive System a. Male (1) Testes, also known as testicles- produces male sex hormones (testosterone) and sperm (2) Scrotum – sac that covers and protects the testes. (3) Prostate gland – small donut shaped gland that surrounds the urethra close to the bladder floor, secretes fluid to keep seminal fluid the correct acid/base balance for sperm to live. (4) Penis – external organ of the male that surrounds the urethra. b. Female (1) Ovaries – Small internal glands in the pelvis of a woman which produce ova (eggs) and hormones (2) Fallopian tubes – tubes connecting the ovaries to the uterus (3) Uterus – Small muscular organ which provides the place and nutrition for a fertilized ovum to grow. Capable of expanding to many times its original size. (4) Vagina – tube like structure known as the birth canal. (5) Breasts – organs with milk glands designed for feeding an infant.	

Section VII: Basic Overview: Body Systems D. Genitourinary/ Renal systems		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
F. Describe disorders of the Reproductive Systems	F. Disorders of the Reproductive System 1. Male a. BPH – Benign Prostatic Hypertrophy, most common in older men, enlargement of the prostate gland, causes difficulty urinating, sometimes suddenly. b. Prostate cancer c. Testicular cancer – more common in younger men 2. Female a. Ovarian Cancer b. Uterine/cervical cancer c. Prolapse of the uterus (1) Caused by muscular weakness of pelvic floor (2) Increases urinary incontinence d. Breast cancer e. Vaginitis: inflammation of the vaginal wall	
G. Describe a normal sign of aging in the male reproductive system.	G. Effects of Aging on Reproductive System in the Male 1. Benign Prostatic Hypertrophy (frequent occurrence) 2. Decrease in testosterone causing decreased sexual ability	
H. Describe a normal sign of aging in the female reproductive system.	H. Effects of Aging on Reproductive System in the Female 1. Menopause – normal aging a. cessation of menstruation and the production of ova b. decrease in hormones 2. Vaginal dryness – irritation which may lead to vaginitis 3. Loss of tissue elasticity 4. Decrease in breast size and glands.	*Teaching Alert* Explain the difference between normal aging and diseases of these systems. (Menopause is not a disorder.)

Section VII: Basic Overview: Body Systems
E. Cardiovascular/Respiratory System

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The Cardiovascular system provides the blood flow throughout the body that carries oxygen and nutrients to the cells of organs and wastes away from those cells.

The Respiratory System provides the oxygen to the cardiovascular system and is so inter-related that they nearly function as one.

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Describe two major components of the cardio-vascular system	A. The Cardiovascular System provides the nutrition and oxygen to the smallest building blocks of the body: the cells. 1. It is a vital system whose failure causes sudden death. 2. Its structure infiltrates and feeds the entire body.	Lecture, Visuals and Discussion *Teaching Alert* Visuals of the cardiovascular system are essential here.

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Describe two major components of the cardio-vascular system (cont'd)	A. Structure and Function of the Cardiovascular system 1. Heart a. Located in the center of the chest, tilted left, under the sternum b. Consists of four chambers (1) Two atria (2) Two ventricles (3) Valves that separate the atria from the ventricles c. Has its own blood vessels to feed the heart itself. d. Supplied by the autonomic nervous system – causing it to beat regularly without conscious thought e. Contraction of the heart muscle forces blood out through the aorta and arteries. 2. Arteries a. Aorta is the largest artery coming directly from the heart b. Arteries branch out to become arterioles then capillaries to allow for the blood cells to flow through to the other cells of the body providing oxygen and nutrients. 3. Veins a. Capillaries connect the venules to veins b. Veins take blood back through the Vena Cava (largest 2 veins) to the heart for re-oxygenation.	Relate to the Nervous system from previous learning. *Teaching Alert* Show visual of how arterioles become capillaries then on to venules. Arterioles – smallest branches of arteries connecting to capillaries. Venules – smallest branches of veins connecting to end of capillaries.

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe the purpose of blood and its components	B. The purpose of blood and its components 1. Blood Consists of: a. Red Blood Cells – carries nutrients and oxygen attached to hemoglobin to cells b. White Blood Cells –fights infections c. Platelets- vital for clotting d. Plasma – liquid that carries the cells 2. Circulates to all parts of the body	

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
C. Describe a common disorder of the cardio-vascular system	C. Common Disorders of the Cardiovascular system 1. Myocardial infarction, also known as heart attack. a. Obviously very serious b. Usually has severe chest pain, but symptoms may be heaviness in the chest, pain in the jaw, extreme fatigue nausea or indigestion. 2. Cerebral Vascular Accident, also known as stroke a. Often has paralysis on one side of body b. Frequently has memory loss, loss of specific words. c. May have speech, swallowing difficulties. 3. Congestive Heart Failure, also known as CHF a. Heart loses strength needed to move the blood throughout the body. b. Major symptoms are swelling of the legs (edema) and shortness of breath. 4. Hypertension, also known as high blood pressure a. May result in heart attacks and strokes unless controlled. b. Few, if any, symptoms are associated with hypertension. 5. Angina Pectoris, more frequently called "angina" a. Blood flow is restricted to the vessels supplying the heart itself. b. Chest pain results, but is usually readily relieved with medication and/or rest. 6. Thrombo-phlebitis a. Inflammation of vessels, usually of the legs. b. Associated with abnormal clot formation within the veins c. Often related to immobility d. Symptoms include swelling, pain, redness, and heat in the affected limb.	Disorders tend to be very serious or can lead to very serious consequences. Extreme fatique, back pain and nausea often the signs of myocardial infection for women.

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
D. Describe a normal affect of aging on the cardio-vascular system.	D. Affects of Aging on the Cardiovascular System 1. Loss of heart muscle contractility. 2. Loss of elasticity of lower leg veins causing reduced circulation. 3. Heart rate takes longer to return to normal after exercise. 4. Increased Cholesterol and Triglycerides depending upon lifestyle and genetic make-up.	Discuss a bit about how exercise and diet can lead to delayed signs of aging of the Cardiovascular system.
E. Describe the relationship between the cardiovascular and respiratory systems.	E. Respiratory System 1. So interrelated with the cardiovascular system that interruption of either system for more than 3-4 minutes can result in sudden death. 2. Allows for the intake of oxygen and the exit of carbon dioxide from the body.	

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
F. Describe the structure and function of the Respiratory System.	F. Structure and Function of the Respiratory System 1. Nose and naso-pharynx – passageway for air 2. Larynx – voice box 3. Trachea – fibrous portion also known as the "windpipe". 4. Bronchial tree- progressively smaller branches of the airway within the lungs. 5. Lungs – contains the bronchial tree and alveoli where lung cells meet with blood cells: a. Oxygen passes to the blood stream on "inspiration". b. Carbon dioxide and other waste products pass from the blood stream on "expiration". c. Covered with a thick protective membrane called the pleura. 6. Diaphragm- Thick fibrous muscle below the lungs a. Separates the chest cavity from the abdominal cavity. b. Contraction and relaxation of diaphragm causes breathing c. Innervated by the autonomic nervous system	Relate to previous learning about Nervous system

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
G. Describe a common disorder of the Respiratory system.	G. Common disorders of the Respiratory System 1. Asthma – most common chronic ailment of respiratory system a. Periodic acute attacks of dyspnea which are relieved by medication or removing the cause of the attack. b. Causes include allergic reactions, infections, stress c. Respiratory distress while exhaling, often with wheezing. 2. Pneumonia – Inflammation/infection of the lungs a. Often bacterial or viral b. Often seasonal c. Can occur because of inactivity 3. Bronchitis – inflammation/infection of the Bronchial tree a. Usually bacterial or viral b. May be due to environmental irritants c. Difficult to differentiate from pneumonia without an x-ray. 4. Emphysema – chronic dilation and loss of function of the alveoli that interferes with the transfer of oxygen to the blood stream and carbon dioxide from the blood stream. 5. COPD- Chronic Obstructive Pulmonary Disease a. May be chronic asthma, chronic bronchitis, emphysema or a combination. b. Results in difficulty breathing, fatigue, weakness, loss of appetite, lack of energy c. Frequent complications are acute infections.	Define dyspnea: Difficulty breathing, especially with exhaling with asthma. Inactivity raises the risk of pneumonia <u>*Special Teaching Moment*</u> Talk about the major cause of emphysema - smoking

Section VII: Basic Overview: Body Systems E. Cardiovascular/Respiratory System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
H. Describe an affect of aging on the respiratory	H. Effects of Aging on the Respiratory System 1. Decreased elasticity of alveoli results in decreased lung capacity. 2. Decreased lung volume with musculoskeletal disorders, especially spinal deformities. 3. Healthy lifestyle practices delay decreased lung capacity.	Another *Special Teaching Moment* Talk a bit about: Healthy lifestyle Practices 1. Maintain healthy weight 2. No smoking 3. Exercise/Activity 4. Positive Outlook

Section VII: Basic Overview: Body Systems
F. Endocrine System

The various body systems are distinct for study purposes, but are definitely inter-related in their functioning. It is nearly impossible to study one system without having some understanding of another. Be aware that medications designed to aide the function of one system may have an unwanted effect on another.

The Endocrine System is comprised of a vast system of glands and ducts which secrete a variety of hormones and in some cases enzymes to regulate the various functions of the body. An interference with one part of the endocrine system may have effects on one or all parts of the body that are seemingly unrelated to that part of the endocrine system.

Section VII: Basic Overview: Body Systems F. Endocrine System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the basic function of the Endocrine system	A. Endocrine System has multiple glands and ducts connecting these glands to various parts of the body 1. System basics a. The pituitary gland is located at the base of the brain (1) Called the "Master Gland" (2) Regulates growth (3) Supports metabolism (4) Supports reproduction b. The thyroid gland is located at the base of the throat outside of the trachea and primarily regulates metabolism. c. The pancreas is located in the upper abdomen nestled close to the duodenum. (1) Produces insulin, a hormone for regulating blood glucose (sugar) (2) Produces digestive enzymes for the gastrointestinal tract to use for breaking down food to absorbable substances.	Lecture and Visuals *Teaching Alert* Strongly suggest visuals for better understanding of the system

Section VII: Basic Overview: Body Systems F. Endocrine System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
A. Explain the basic function of the Endocrine system (cont'd)	d. Gonads are the sex glands producing hormones and secretions allowing for reproduction. (1) Testes – male sex glands produce sperm and testosterone (2) Ovaries – female sex glands produces ova (eggs) and estrogen and progesterone. 2. Structure and function of the Endocrine system – system is not formally linked from one gland to another but are located in various parts of the body. Functions as the "chemical" regulator of all body systems a. Pituitary gland – Master Gland b. Thyroid gland c. Parathyroid glands – nestled in the thyroid gland, regulates the metabolism of calcium and phosphorous d. Thymus gland – Located in the chest, noticeable in a baby and child, responsible for growth of children to about age 12, shrinks as we age. e. Adrenal glands- Located on top of kidneys, secretes epinephrine and norepinephrine along with cortico-steriods: all essential for life. f. Pancreas g. Gonads: Ovaries, testes	

Section VII: Basic Overview: Body Systems F. Endocrine System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe most common disorder of the Endocrine system	B. Common disorders of the Endocrine System 1. Diabetes Mellitus – most common a. Cause: Failure of a part of the pancreas to produce any or an adequate amount of insulin for the use of carbohydrates in the blood stream by the cells. b. Types: (1) Type I: Insulin dependant, usually occurs before adulthood (2) Type II: Usually occurs in adulthood, often can be regulated with diet or oral hypoglycemics c. Common symptoms (1) Thirst (2) Frequent and increased amounts of urination (3) Increased appetite (4) Weight loss (5) Ultimately keto-acidosis d. Common problems with Diabetes (1) Hypo-glycemia- blood sugar too low (2) Hyper-glycemia – blood sugar too high (3) Visual problems (4) Circulation problems (5) Peripheral nerve problems 2. Hypothyroidism a. Cause: insufficient production of the thyroid hormone b. Symptoms: fatigue, weight gain, dry skin, sensitivity to cold. 3. Hyperthyroidism a. Cause: Production of an excess of thyroid hormone b. Symptoms: rapid heart rate, anxiety, hyperactivity, weight loss, restlessness. Extreme excess can be very serious and even fatal.	Diabetes is a complex problem: Even with more food, cannot breakdown and use the food Ketoacidosis – too much glucose and ketones in the blood stream

Section VII: Basic Overview: Body Systems F. Endocrine System		
Objective	Content Course Outline **(3 Class Hours)**	Teaching Method
B. Describe most common disorder of the Endocrine system (cont'd)	4. Cushing's Syndrome – overproduction of adrenal hormones a. Cause: unknown or could be tumor b. Symptoms: Moon face, protruding abdomen, some signs of diabetes 5. Addison's Disease – underproduction of the adrenal hormones a. Cause: often unknown b. Symptoms: Weight loss, thinning of hair and skin, dehydration, nausea and vomiting, unusual skin pigmentation, weakness 6. Hypopituitarism- Insufficient production of pituitary hormone a. Cause: usually genetic b. Symptoms: stunted growth, dwarfism, delay in puberty 7. Hyperpituitarism – Overproduction of pituitary hormone a. Cause: usually genetic, can be tumor b. Symptoms: Gigantism, Acromegaly 8. Ovarian cancer 9. Testicular cancer	Acromegaly – overgrowth of bone later in life Some theory says that we would all develop diabetes if we lived long enough These diseases are not "normal" aging simply common with aging.
C. Describe a common effect of aging on the endocrine system.	C. Effects of aging on the Endocrine System 1. Diabetes Mellitus - Type II diabetes is common as people age particularly with family history 2. Hypothyroidism – common with elderly woman especially	

Section VIII: Basic Pharmacology
A. Drug Classifications
Relationships to Body Systems

A basic understanding of pharmacology and major drug classifications is essential to understand the importance of the safe administration of medications. Certain categories of medications impact specific body systems and are designed to support the body or to relieve discomfort. It is important to understand at a basic level what is occurring with the body and the effects of medications being administered.

Each drug goes through four cycles: absorption, distribution, metabolism and excretion. There is the potential for drug interactions with one another or with food, adverse drug reactions and toxic reactions. Each drug is a foreign substance to the body and has potential danger; even more danger if not administered correctly.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
A. Define the term pharmacology	A. Basic Pharmacology 1. Definition: pharmacology – Study of medications and their effects on the body 2. Names: a. Generic name/chemical name- basic name given a substance that functions as a drug or medication b. Brand name- name given to the generic substance by a manufacturer 3. Uses: May prevent or treat diseases or disorders	Lecture , Visuals and Laboratory New medicatons have a time frame where only Brand name medications may be purchased due to patent laws.
B. Describe a medication classification	B. Classifications – Medications divided into classifications depending on the body system they affect or the action they produce.	<u>Examples:</u> Cardiac medications work on the heart Anti-infectives affect the entire body by killing or weakening microorganisms

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
C. Describe one other effect of a medication other than the intended effect.	C. Other effects of medications 1. Adverse drug reaction – any reaction that was not intended when the medication was given; could be a mild side effect or severe life-threatening reaction. 2. Drug interactions – the combination of any medication with another medication may cause an adverse effect or interfere with the absorption of one or both of the medications. 3. Toxic reactions – the reaction which occurs with too much of a medication; may be from the cumulative effect or the wrong dose for that resident.	Differentiate: "Drug" – one chemical substance "Medication" – preparation that may contain one or more drugs.
D. Describe the cycle of a drug in the body.	D. Cycle of drugs in the body 1. Absorption – Drug is absorbed from gastro-intestinal system or mucous membranes into the blood stream. 2. Distribution – Drug is circulated throughout the body by the blood stream and targets the organs or system intended. 3. Metabolism – Drug is broken down and used by the target cells of the intended organ or system. 4. Excretion – Drug or its by-products are excreted from the body, usually by the liver or the kidneys.	*Teaching Alert* Tie learning about the medications back to the systems information of Section VII.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
E. Describe what is meant by classification of medications.	E. Common Classifications of Medications: 1. Antihistamines a. Uses: allergies, motion sickness, sedation in the elderly; b. Common medications: (see Attachment 2); c. Side effects: sleepiness, dryness of mouth, sometimes constipation. 2. Anti-anemia Medications: a. Uses: combat anemia; b. Common medications: (see Attachment 2); c. Side effects: often gastro-intestinal irritation. 3. Anti-coagulants: a. Uses: To prevent clotting particularly where there has been unwanted clot formation; (1) Myocardial Infarction (2) Thrombophlebitis (3) Strokes 4. Antacids and Adsorbents: a. Uses: Dyspepsia and ulcer disease; b. Common medications: (see Attachment 2); c. Side effects: constipation and/or diarrhea. 5. Anti-Diarrheal Medications: a. Uses-Combat diarrhea; b. Uses- Combat constipation; c. Common medications: (see Attachment 2); d. Side effects: constipation.	Buising is a potential side effect of anti-coagulants, report bruising to the nurse Ask for the definition of dyspepsia (ties to earlier learning). Often the lack of mobility and lack of fresh fruits and vegetables in the diet of the elderly require the use of cathartics.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
E. Describe what is meant by classification of medications. (cont'd)	6. Anti-Emetics: a. Uses-Combat nausea and vomiting from a variety of sources; b. Common medications: (see Attachment 2); c. Side effects: liver damage if used to excess. 7. Vitamins: a. Uses-Supplement the diet for nutritional reasons; b. Common names (see Attachment 2); c. Side effects-some damage to various organs with an excess of fat-soluble vitamins. 8. Urinary Germicides: a. Uses-Urinary tract infections; b. Common medications (see Attachment 2); c. Side effects-nausea and vomiting. 9. Sulfonamides: a. Uses-Some bacterial infections; b. Common medications (see Attachment 2); c. Side effects-allergic reaction not uncommon, crystallization in kidneys. 10. Anti-infectives: a. Uses-Treat infections; b. Common medications (see Attachment 2); c. Side effects-allergic reaction not uncommon, sensitivity to certain medications with overuse, gastro-intestinal irritation. 11. Cardiac agents: a. Uses-Treat heart arrythmias or heart weakness (CHF); b. Common medications (see Attachment 2); c. Side effects-Hypotension.	There are a variety of types of anti-infectives: most commonly known to most are antibiotics. Also included are antifungals and other agents combating pathogens. Define pathogen: a microorganism or substance causing disease.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
E. Describe what is meant by classification of medications. (cont'd)	12. Antihypertensives: a. Uses-Lower high blood pressure; b. Common medications (see Attachment 2); c. Side effects-drug-specific- dizziness, hypotension, gastro-intestinal disturbances. 13. Anti-anginals: a. Uses-Angina pain, sometimes with a myocardial infarction; b. Common medications (see Attachment 2); c. Side effects-headache, fainting, dizziness. 14. Antilipemics: a. Uses-reduce cholesterol and triglycerides in blood; b. Common medications (see Attachment 2); c. Side effects-headaches, weakness, leg pain. 15. Hormones: a. Uses-supplement or replace the missing hormones occurring naturally in the body; b. Common medications (see Attachment 2); c. Side effects-related to drug. 16. Antineoplastics a. Uses-combat malignancies (cancer cells) b. Common medications (see Attachment 2); c. Side effects-weakness, nausea and vomiting, loss of hair. 17. Respiratory Tract Drugs: a. Uses-aids in breathing; b. Common medications (see Attachment 2); c. Side effects-nausea and vomiting, flushing	Most often given by IV, however many long term maintenance antineoplastics are given orally.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
E. Describe what is meant by classification of medications. (cont'd)	18. Central Nervous System drugs- Analgesics: a. Uses-pain relief; b. Common medications (see Attachment 2) c. Side effects-nausea, vomiting, dependence, often gastrointestinal symptoms. 19. Central Nervous System drugs – Other: a. Sub-classification-antidepressants, sedative/hypnotics, anti-psychotics, anticonvulsants, other drugs for specific neurological disorders; b. Common medications (see Attachment 2); c. Side effects are drug specific. 20. Ophthalmic, Otic and Nasal drugs: a. Uses-treat diseases or relieve symptoms of the eye, the ear and the nasal passages; b. Common medications (see Attachment 2); c. Side effects-irritation or allergic reaction. 21. Topical drugs: a. Uses-usually relief of symptoms of the skin, may be medication that is absorbed by the skin; b. Common medications (see Attachment 2); c. Side effects-local reaction. 22. Rectal suppositories: a. Uses-Usually for constipation relief, may be route if unable to take orally, or for local pain relief; b. Common medications (see Attachment 2); c. Side effects-local irritation, diarrhea. 23. Vaginal Suppositories: a. Uses-usually for symptom relief b. Common medications (see Attachment 2); c. Side effects-local irritation, drainage 24. Miscellaneous – many other medications which do not fit easily into another classification	Reiterate: Ophthalmic/ Optic – eye Otic – ear Nasal – nose Nitropaste is commonly used topically for a systemic effect.

Section VIII: Basic Pharmacology A. Drug Classifications Relationships to Body Systems		
Objective	Content Course Outline **(12 Class Hours)**	Teaching Methods
F. Describe what is meant by a "Controlled Drug" and how administration of such drugs differ.	F. Scheduled (controlled) Drugs: 1. Federal DEA (Drug Enforcement Agency) founded in 1970; a. Designed to have more control over drugs with "street abuse" potential; 2. Schedule I; a. Drugs with high potential for abuse and no medical use in the US b. Will not see ordered c. Examples: Heroin, LSD 3. Schedule II; 4. Medications with high potential for abuse with significant likelihood to cause a drug dependence, 5. Only nurse may administer, 6. Examples: (Most narcotics) Morphine, Hydromorphone, 7. Schedule III, IV and V; 8. Medications with moderate to low potential for abuse but still has the possibility for drug dependence, 9. Will need to be "signed out," 10. May only be administered as a prn with a nurse on site, 11. Will be administered by a nurse who comes in on call in facilities where a nurse is not on site 24 hours per day, 12. Examples: Acetaminophen with Codeine, Valium, Cough syrups with narcotics, sleeping pills, 13. DEA requirements for Controlled Drugs; a. Each dose must be recorded on MAR, b. Each dose must be recorded on Inventory Control Log, c. Must be more secured than routine medications (all must be locked), usually double locked, d. Wasting" controlled medications must be witnessed by a nurse.	*Teaching Alert* No Schedule II's are given by medication aides, must be administered by the nurse. Essential to show visuals of an Inventory control log. Describe various ways of "double locking"

Section VIII: Basic Pharmacology
B. Safe Administration of Medications

A basic understanding of pharmacology and major drug classifications is essential to understand the importance of the safe administration of medications. Certain categories of medications impact body systems and are designed to support the body or to relieve discomfort. It is important to understand at a basic level what is occurring with the body and the medications we are administering. It is as important to administer each medication/drug as prescribed for the best possible effect and for the safety of the resident.

The procedures and skills for administering medications are vital for the proper absorption of the drug. Drugs are not to be left at the bedside unless specifically ordered by the physician to do so and if in compliance with the institution's policy.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
A. Describe the six "rights" of medication administration	A. Review of Six Rights of Drug Administration: 1. Right Person – two methods of identification; 2. Right Drug (Medicine) – compare the drug package to the Medication Administration Record (MAR); 3. Right Dose – compare the dose on the package to the MAR, do not assume the dose in the pre-pack is correct, do not alter the form; 4. Right Route – give only as indicated; 5. Right Time – if the time is more than 1 hour off from the scheduled time, contact the nurse; 6. Right Documentation – Document the drug **immediately after** the resident takes the medication.	Lecture and Laboratory *Teaching Alert* Refer back to the sections on Patient's Rights and proper positioning when talking about the actual administration of any medication.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
B. Describe and demonstrate the safe administration of oral and sublingual medications.	B. Procedure for obtaining medication prior to and after administration: 1. Identify resident; 2. Determine drugs to be given; 3. As needed (prn) medications must be given at the instruction of the nurse; 4. Compare package label and dosage to Medication Administration Record (MAR) 5. Provide for privacy; 6. Assure proper positioning of resident; 7. Administer medication, watching resident swallow if self administered; 1. Return resident to comfortable position; 8. Document administration on MAR **immediately;** 9. Document any other pertinent information.	This entire section is best learned in the laboratory setting with practice. Talk here again about the delegation process. Nurse must make the determination of need before delegating the task of administering a prn medication to the medication aide. Such as B/P or apical pulse or inability to take drug for any reason.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
C. Describe the difference between sublingual medication and a lozenge	C. Administration of Oral and Sublingual Medications 1. Oral Medication forms; a. Tablet, b. Capsule or spansule, c. Liquid, d. Lozenge, 2. Vehicles for ingestion; a. Some medications must be given with food or antacids, b. Some medications must be given diluted, c. Some medications must be given intact, d. Some medications may be crushed if needed by the resident. 3. Proper positioning of the resident; a. To allow for swallowing, b. To prevent choking, c. May need another person for support. 4. Sublingual Medications; a. Administered under the tongue, b. Absorbed for systemic effect, c. Instruct resident to allow it to dissolve, not to swallow, d. Report to nurse if resident swallows sublingual medication. 5. Lozenges; a. Benefit is local contact, b. Instruct the resident to suck on lozenge not to chew it, c. Report to nurse if resident chews or swallows lozenge rather than allowing it to dissolve in mouth.	**All changes** in the form of an oral medication will be determined by the nurse. Give examples here Explain that altering the fomr of many drugs will interfere with their effectiveness. A nurse will instruct if it is permissable to "crush" a pill, open a capsule or mix a medication with certain foods.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
D. Describe reasons for use of standard precautions when adminis-tering a topical medication.	D. Safe Administration of Topical Medications: 1. Forms of Topical Medications; a. Usually in the form of an ointment or paste, b. May be measured or amount, designed to cover a surface area. 2. Follow standard precautions; a. Use protective gloves if direct contact with the skin is necessary, b. Avoids absorption by aide's skin as well, c. Dispose of gloves appropriately d. Wash hands. 3. Provide for resident's privacy; 4. Apply topical medications only to intact skin; 5. Report any unusual skin appearance to the nurse. 6. Transdermal Patches; a. Patches with pre-measured dose of medication, b. Absorbed by the skin for systemic circulation, c. Usually a sustained release over several hours, d. Often will be for pain relief or prevention of chest pain, e. Remove old patch, f. Apply to clean surface of skin with little hair, g. Rotate administration sites, h. Document administration sites, i. Dispose of used patch per facility policy.	***Teaching Alert*** Most effective teaching is with lecture and demonstration at the same time. Date and initial patch Report when the patch is not on the resident. Use visuals as well May want to use non-water antiseptic gel or foam.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
E. Describe and demonstrate the safe instillation of ophthalmic drops and ointments.	E. Safe Administration of Ophthalmic Medications: 1. Forms of Ophthalmic drugs; a. drops (gtts), b. ointment, 2. Used for treating; a. dryness – artificial tears, b. infections –local eye or surrounding tissue, c. glaucoma. 3. Procedure for instilling Ophthalmic drops; a. Check medication label with MAR, b. Provide for privacy, c. Properly position resident with head tilted back and chin up, d. Wash hands, e. Ask resident to open eyes and look up, f. Pull down on lower lid (never pull up on upper lid or apply any pressure to the eye globe), g. Hold dropper about 1/2 inch from the lower lid and instill drops (do not touch the eye itself), h. Use tissue to remove excess, which may drip onto the resident's face after blinking, i. If more than one type of eye drop is ordered, they must be administered at least 5 minutes apart to allow for the effect of each to work, j. Return resident to comfortable position, k. Document medication on MAR **immediately**.	*Teaching Alert* Emphasize never putting pressure on globe or prying upper lid open Be certain all ophthalmic drugs state on label: **"for ophthalmic use"**

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
E. Describe and demonstrate the safe instillation of ophthalmic drops and ointments. (cont'd)	4. Procedure for instilling Ophthalmic Ointment; a. Check medication label with MAR, b. Provide for privacy, c. Properly position resident with head tilted back, d. Wash hands, e. Pull down on lower lid (never pull up on upper lid or apply any pressure to the eye globe), f. Hold tube about 1/2 inch from the lower lid and instill the ointment from the nose side to the outside, g. Instruct the resident to close his/her eyes and that vision may be blurry for a short while, h. Use tissue to remove excess, which may ooze onto the resident's face after blinking, i. Return resident to comfortable position, j. Document medication on MAR **immediately**.	Never use drops or ointment in the eye unless it is labeled: "for ophthalmic use**"**

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
F. Describe and demonstrate the safe adminis-tration of ear drops.	F. Safe Administration of Otic Medications: 1. Will be in the form of drops; 2. Used for treating; a. Removal of cerumen (ear wax), b. Local infections, 3. Procedure for instilling ear drops; a. Check medication label with MAR, b. Provide for privacy, c. Properly position resident with head tilted away from affected ear, d. Wash hands, e. Straighten ear canal by holding the external flap of the ear upward and backward, f. Instill the prescribed number of drops taking care not to touch the inside of the ear canal with the dropper, g. Instruct resident to remain in this position for a few minutes to allow the drug to totally coat the ear canal, h. Insert cotton into opening of the outer ear only if prescribed, i. Leave resident in a comfortable position, j. Document medication on MAR **immediately.**	Instruct aide to never clean the ear canal with a cotton swab.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
G. Describe and demonstrate the safe adminis-tration of nose drops.	G. Safe Administration of Nose Drops: 1. Will be in the form of drops or sprays, 2. Used for treating; a. Nasal congestion, b. Some systemic disorders, 3. Procedure for instilling nose drops; a. Check medication label with MAR, b. Provide for privacy, c. Position resident with head tilted back, d. Instruct resident to breathe through his/her mouth while instilling drops, e. Stabilize your hand on side of face with dropper tip close to the end of the nares, f. Instill drops and instruct resident to remain in the position for a few minutes to allow drug to spread through the nasal passages, g. Leave resident in a comfortable position, h. Document medication on MAR **immediately**.	

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
G. Describe and demonstrate the safe adminis-tration of nose drops. (cont'd)	4. Procedure for sprays; a. Check medication label with MAR, b. Provide for privacy, c. Wash hands, d. Instruct resident to blow nose to clear nasal passage as much as possible, e. Resident should be in upright position with head level, f. Insert spray bottle into nares and point tip back and out, g. Compress container quickly and completely for prescribed dose of medication, h. Instruct resident to breathe in gently through the nose and out through the mouth for a few breaths, i. Use tissue to remove excess from the skin if needed, j. Leave resident in a comfortable position, k. Document medication in MAR i**mmediately**.	

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
H. Describe when a CMA may administer an inhalant	H. Safe Administration of Inhalants: 1. Will be self contained units; 2. Used to treat or prevent respiratory problems; 3. Procedure for use of metered-dose inhalants; a. Check medication label with MAR, b. Wash hands, c. Provide privacy, d. Position the resident in an upright sitting position, e. Shake the container well, f. Instruct the resident to totally exhale prior to administration, g. Place inhaler into mouth and instruct to close mouth around it, h. Compress the inhaler and instruct the resident to inhale deeply, i. If more than one "puff" is required, wait a minimum of one minute for the second dose, j. Leave resident in a comfortable position, k. Document medication on MAR immediately**.**	Inhalants that are prescribed for "prn" (as needed) use are to be administered by the nurse. Inform the nurse of the need if a resident asks you for a dose. Closed mouth technique may be easier for a cognitively impaired resident. The open mouth technique may result in better inhalation.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
I. Describe and simulate the administration of a rectal suppository	I. Safe Administration of Rectal Suppositories: 1. May be refrigerated or in medication bin; 2. Used to treat; a. Constipation (or as a part of a bowel program), b. Local discomfort, c. Systemic problem – mucous membrane of the rectum will absorb, 3. Procedure for the administration of a rectal suppository; a. Check medication label with MAR b. Wash your hands and wear protective gloves, c. Provide for the privacy of the resident, d. Place or assist resident to turn on side with upper leg flexed, e. Remove the foil wrapper from the suppository, f. Lubricate the tip of the suppository with a water-soluble lubricant, g. Retract the upper buttock to be able to view the anal area, h. Insert the suppository in with a gloved index finger far enough for it to pass the internal sphincter, i. Instruct the resident to remain lying down for at least 15 minutes if possible for total absorption of the suppository, j. Discard gloves and other materials in appropriate waste container. k. Wash hands, l. Document medication in MAR **immediately**.	Bowel programs are designed to assist the resident to establish a scheduled time for bowel evacuation. Often a part of a paralyzed resident's care plan. If medication aide has any problems with the insertion of the suppository, do not force the medication, contact the nurse. Do not use Vaseline or oil based product as it will interfere with the action of the drug.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
J. Describe and simulate the safe administration of a vaginal medication.	J. Safe Administration of Vaginal Medications: 1. Medication forms; a. Creams, b. Suppositories, 2. Used for Treatment; a. Local dryness, b. Local infections, often yeast Infections, 3. Procedure for the administration of vaginal suppositories; a. Check medication label with MAR, b. Wash your hands and wear protective gloves, c. Provide for the privacy of the resident, d. Place or assist the resident to lie flat on her back with knees flexed and legs spread apart, e. If administering a vaginal cream, fill the applicator directly from the tube of drug or remove the foil packet if inserting a suppository or vaginal tablet, f. Lubricate the end of the suppository or applicator with a water-soluble lubricant, g. Spread labia apart with one hand to be able to see the vaginal opening, h. Gently insert the drug or applicator approximately 2 inches, i. If using applicator, push plunger after insertion of applicator into the vagina, j. Instruct the resident to remain in bed on her back for a few minutes to assist in the absorption of the medication, k. Wash the applicator and wrap in a clean paper towel, leaving in a drawer in the resident's room, l. Remove gloves and discard in room m. Wash your hands, n. Document medication on MAR **immediately.**	Do not use Vaseline or oil based product as it will interfere with the action of the drug. If medication aide has any problems with the insertion of the suppository or applicator, do not force the medication, contact the nurse.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
K. Demonstrate ability to hear and count an Apical pulse	K. Measurements Related to Administration of Specific Medications: Apical Pulse – Listening to the heart beat to determine heart rate; 1. Will need stethoscope, 2. Provide for privacy, 3. Must count for 60 seconds, 4. Determine if you can give the drug by instructions on the MAR, 5. Often digitalis preparations will need apical pulse measured before dose administered, 6. Record actual heart rate on MAR,	*Teaching Alert* This will be a review for the STNA, the residential care aide may or may not have this skill. If the heart rate is very irregular and difficult to count, notify the nurse before giving the drug.

Section VIII: Basic Pharmacology B. Safe Administration of Medications		
Objective	Content Course Outline **(20 Hours)**	Teaching Method
L. Relate reasons for measuring pulse and blood pressure prior to medication administration	L. Blood Pressure; 1. Will need stethoscope and sphygmomanometer, 2. Systolic and Diastolic are both recorded, 3. Systolic – top number and the first you hear the beating with the stethoscope, 4. Diastolic – bottom number and the last beat you hear with the stethoscope, 5. Place the blood pressure cuff around the resident's arm above the elbow, 6. Place the stethoscope over the brachial artery on the antecubital space (underside of the elbow), 7. Pump up the sphygmomanometer cuff past the resident's usual systolic reading, 8. Allow the air out of the cuff slowly while listening with the stethoscope, 9. The first time you hear the beating begin = systolic number, 10. Continue to allow air out slowly, 11. When the beating stops = diastolic number, 12. Determine if you can administer the medication by instructions on the MAR, 13. Record B/P on the MAR.	Be certain you use the proper sized cuff. The wrong size will give an inaccurate reading. Note on MAR previous B/P to know how high to pump. Pump at least 20 points higher than the highest recent blood pressure.
M. Demonstrate ability to hear and record a blood pressure		If B/P difficult to hear or there is any question, refer to the nurse.

Section IX: Appropriate Documentation in the Clinical Record

Documentation of the medication and time of administration is essential for the safety of the resident. Use of the appropriate forms and tools provided by the organization will assure the record is complete. Medication Administration Records are a part of the resident's permanent clinical record.

Section IX: Appropriate Documentation in the Clinical Record		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
A. Describe the Clinical Record and its use.	A. Clinical Record: 1. May be called many other names: Resident Chart, Resident Record; 2. Provides a health care professional with an overall record of the history, current needs and plan of care of the resident; 3. Is a legal document admissible in a court of law if necessary; 4. Used in billing.	*Lecture and Laboratory*
B. Describe the importance of timely, clear and complete documentation in the Medication Administration Record	B. Medication Administration Record (MAR): 1. May be facility specific; 2. Is part of the Clinical Record therefore is a legal document; 3. Must be completed in ink; 4. Medications must be documented as given **immediately** after the administration of the drug. 5. Never erase, "white out" or "scratch out" any entry; use method indicated in class by putting one line through the entry and writing "error" above it and initial it.	*Teaching Alert* Would be wise to have copies of the MAR from the actual facility where the medication aides will be working for laboratory experience. Waiting to document leads to many errors of omission and duplication of drugs.

Section IX: Appropriate Documentation in the Clinical Record		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
B. Describe the importance of timely, clear and complete documentation in the Medication Administration Record (cont'd)	6. Indicate the time the medication is administered to the closest hour; a. If dose is scheduled to be given at 8 am but not given until 9:15, record 9 am, b. Refer to institution policy here, 7. As needed (PRN) medications are documented at the exact time they are administered; 8. Circle the time the medication was to be given if the dose was not administered for any reason and why; 9. Record Apical Pulse or Blood Pressure next to the time if so indicated; 10. Record site for topicals or patches; 11. Must have signature of the medication aide administering the medications.	
C. Demonstrate appropriate documentation on MAR		Always refer to the institution's policy for specifics of documentation that may differ with the basics of documentation taught here.

Section X: Circumstances for Reporting to a Nurse Concerning a Resident and Medication Administration

The medication aide works closely with residents and has the opportunity to observe the behaviors, activities and symptoms of the residents.

The medication aide administers medications, which by law is a nursing function, therefore must be as delegated by the nurse. That means that the medication aide makes **no decisions** relative to the administration of medications. It is imperative that the medication aide be in frequent communication with the nurse related to any symptoms or concerns regarding the residents or any difficulty in administering medications.

Section X: Circumstances for Reporting to a Nurse Concerning a Resident and Medication Administration		
Objective	Content Course Outline **(4 Class Hours)**	Teaching Method
A. Describe the importance of continuing communication with the nurse.	A. Communicating with the Nurse: 1. Is imperative to maintain open communications with the nurses who are ultimately responsible for the nursing care of the resident. 2. Medication administration is a nursing task that medication aides are permitted to perform by law as long as they follow the policies and expectations presented in the law and rules.	Lecture and Laboratory May want to explain the law and rules about delegation for which the RN is ultimately responsible. RN is ultimately responsible to direct the LPN to be responsible for the medication administration by a certified medication aide.

	Section X: Circumstances for Reporting to a Nurse Concerning a Resident and Medication Administration	
Objective	Content Course Outline **(4 Class Hours)**	Teaching Method
B. Describe the process for administering a PRN medication when the nurse is present on site	B. Administering as needed (PRN) medications: 1. Nurse is present on site; a. RN must assess the resident and determine the need for the PRN medication, therefore instruct the CMA to administer the medication, b. A licensed nurse, RN or LPN, must determine the need for the PRN medication and instruct the medication aide to administer the prescribed medication, c. May administer all PRN medications which are oral or rectal except Schedule II medications,	LPN or RN will be the person to whom the CMA reports related to concerns about medication administration or the administration of PRN drugs. Dangerous for anti-arrythmias.
C. Describe the process for administering a PRN medication when the nurse is not on site.	C. Nurse is not present on site, but available by telephone: 1. RN or LPN will determine the need for the PRN medication based on the resident's current plan of care and instruct the CMA to administer the PRN medication, 2. May only administer those PRNs indicated on MAR (They would be over-the-counter medications if purchased in a drug store),	LPN may determine need and instruct (delegate the task) the CMA to administer the PRN medication IF there is a clear order for the PRN and indications for use.
D. Describe the situations when the CMA must report to the nurse.	D. Reporting information or resident's symptoms to the nurse: 1. Medication aide may have more frequent contact with many of the residents than the nurse; 2. Imperative to report any change in the resident's condition to the nurse; a. Any symptom b. Any change in behavior c. Any change in level of awareness d. Any change in skin condition	Give examples here Report resident's nausea or vomiting before administering oral medication. Report any symptoms of dehydration if resident is taking a diuretic.

Section X: Circumstances for Reporting to a Nurse Concerning a Resident and Medication Administration		
Objective	Content Course Outline **(4 Class Hours)**	Teaching Method
D. Describe the situations when the CMA must report to the nurse. (cont'd)	3. Information to report; a. Apical pulse that does not meet the pre-determined rate for CMA to give the medication recorded on the MAR, b. Blood pressure that is outside the parameters determined for the CMA to give the drug recorded on the MAR, c. The refusal of a resident to take one or more of his/her medications, d. **ANY MEDICATION ERROR IMMEDIATELY**.	

Section XI: Medication Error Identification, Reporting and Documentation

Many policies and procedures have been put in place to avoid medication errors. Medication errors place the involved resident at great risk for injury and death. No one intends to make an error; however failure to follow the accepted policy or procedures as well as not devoting one's full attention to the task at hand will set the stage for errors to occur.

All of us are human and an error will occur from time to time. The essential thing is that once an error has occurred, the resident is examined and cared for immediately. This may mean merely observing the resident or it may mean serious treatment to reverse the effects of the error. It is IMPERATIVE that the certified medication aide report and follow the proper steps for documentation of the error in order to protect the resident as much as possible.

Section XI: Medication Error Identification, Reporting and Documentation		
Objectives	Content Course Outline **(4 Class Hours)**	Teaching Method
A. Explain several methods for avoiding medication errors	A. Safeguarding Against Medication Errors: 1. Always using the Six Rights of Medication Administration; 2. Staying focused on the work at hand 3. Not allowing for distractions 4. Getting plenty of rest before beginning work 5. Acknowledging the potential danger of all drugs 6. Always consulting with the nurse when there is a question or even hesitation related to the administration of a medication	Lecture and Laboratory *Teaching Alert* *Wise to refer to handout on Six rights of medication Administration again here.*

Section XI: Medication Error Identification, Reporting and Documentation		
Objectives	Content Course Outline **(4 Class Hours)**	Teaching Method
B. Describe two ways a medication error can occur	B. Identification of a Medication Error: 1. A medication error will always involve not following the six rights of medication administration; a. Right person – the person was not identified adequately, b. Right drug (Medication) – the CMA did not compare the medication to the MAR, may have inadvertently taken the wrong drug out of the bin, bottle or another location, c. Right dose – the CMA did not read the correct does, which may have been changed or require two tablets to equal a dose, d. Right route – the CMA did not read the entire medication line correctly, e. Right time- any drug not given within the hour of its schedule is considered a medication error, f. Right documentation – time was not recorded correctly or not at all, 2. Error will be identified shortly after it occurs of when a subsequent dose is due.	Give examples with each of these. Expect students to come up with examples. Give example of a drug scheduled 9-3-9-3 Dose given at 10 am due to delay in getting drugs out then again at 2 pm for aide to be done before 3pm when time to go home = drug being given only 4 hours apart. Potentially dangerous for anti-arrythmias.
C. Describe when and to whom to report a medication error.	C. Reporting a medication Error: 1. It is essential that it is reported to the nurse as soon as discovered; 2. Give no more medication to that resident until instructed to do so by the nurse; ask if you have not been instructed one way or the other; 3. Nurse will evaluate the situation and determine the next steps;	

Section XI: Medication Error Identification, Reporting and Documentation		
Objectives	Content Course Outline **(4 Class Hours)**	Teaching Method
D. Describe and demonstrate how to record a medication error.	D. Documentation of a Medication Error: 1. All facilities will have an "Incident" reporting form or a "Medication Error" reporting form; 2. Document exactly what happened; 3. Record the actual drug (given in error or circle if omitted) on MAR but leave the error message for the Incident Report; 4. Nurse will document the drug given or omitted in the resident's clinical record; 5. Nurse will notify the prescriber.	*Reiterate:* Do not document that you made a mistake and that you are sorry or any excuses. Merely state the facts on this document. *Teaching Alert* Practice documentation of error reporting.

Section XII: Becoming a Certified Medication Aide: Ohio Law and Ohio Administrative Code Chapter 27

Completing an Ohio Board of Nursing approved course for medication aides and then successfully completing the CMA written and clinical examination will allow the student to apply for a certificate as a Certified Medication Aide in Ohio.

The Ohio Revised Code 4723.32 through 4723.91 allows for this certification and the Ohio Administrative Code 4723 Chapter 27 contains the rules relating to this role and certification.

Section XII: Becoming a Certified Medication Aide: Ohio Law and Ohio Administrative Code Chapter 27		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
A. Describe the components to successful completion of the medication aide training program.	A. Successful Completion of a Medication Aide Training Program: 1. Successfully complete 80 hour didactic and laboratory course; 2. Successfully complete 40 hour supervised clinical experience; 3. Successfully complete the CMA Certification examination.	Lecture and discussion
B. Describe one violation of the law and rules that may result in discipline by the Ohio Board of Nursing.	B. Review of law and rules: 1. Law 4723.32 through 4723.91; 2. Rules 4723 chapter 27; 3. Explanation of the Delegation Rule for the nurse.	*Teaching Alert* Be sure to cover those violations of the rules that could cause discipline.

Section XII: Becoming a Certified Medication Aide: Ohio Law and Ohio Administrative Code Chapter 27		
Objective	Content Course Outline **(2 Class Hours)**	Teaching Method
C. Describe the application process.	C. Application Process: 1. Complete that Ohio Board of Nursing CMA application form; 2. Indicate whether STNA is current or one year of Residential Care Aide work is complete; 3. Submit fee; 4. Submit Civilian and FBI background checks; a. May use previous background checks if less than 5 years old, b. Must submit new set of background checks if last check is 5 years or longer, 5. Have evidence of successfully completed exam sent to the Ohio Board of Nursing.	
D. Describe the Certification Process	D. Certification Process: 1. Completed application and fee, 2. Confirmation of Civilian and FBI background checks, 3. Evidence of completed CMA examination, 4. Verification on OBN website, 5. Wallet certificate.	

Attachment 1
Model Curriculum
Certified Medication Aide Training Programs

Abbreviations Relating to Medication Administration

Although abbreviations are utilized in the health care industry, each facility will specify which abbreviations it authorizes for use within its residents' records. Therefore the CMA must always refer to the facility policy.

Be aware that, due to patient safety concerns related to the potential for misinterpretation of abbreviations and symbols, many national and regulatory organizations such as the Institute of Safe Medication Practice (ISMP) and the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) are requiring health care institutions to examine its use of abbreviations, and to eliminate those recognized as increasing the risk for medication errors.

It is important that abbreviations are recognized when encountered by the CMA so that appropriate consultation and clarification with a nurse can occur.

I. These abbreviations may be used in health care prescriber medication orders.

Abbreviations Used to Specify the Number of Times in a Day a medication is to be administered

b.i.d.	twice a day
t.i.d.	three times a day
q.i.d.	four times a day
q.d.	once daily
q.o.d.	every other day
h.s.	at bedtime (hour of sleep)
a.c.	before meals (approximately one half hour)
p.c.	after meals (approximately one half hour)

Medication ordered ”every day” should be given at the same time each day. Be sure to know the time schedules for daily medication the facility. Facility policy will normally dictate the hours at which routine (such as b.i.d., t.i.d., q.i.d.) medications are scheduled to be administered.

II. The nurse is responsible for scheduling the times the medication is to be administered and for entering the medication in the individual resident’s Medication Administration Record

Abbreviations Used to Specify the Number of Hours Between each Dose of a medication

qh	every hour
q2h	every two hours
q3h	every three hours
q4h	every four hours
q6h	every six hours
q8h	every eight hours
q12h	every twelve hours

III. ***Abbreviations*** Used for Medications or Treatments Ordered to be administered on an “As Needed” basis

ad lib	as desired
stat	immediately; now
prn*	as needed-usually ordered with a certain time interval

*Example---Demeral 50mg. PO prn q4h for pain---The “prn” means that the medication is given when the resident needs it. The “q4h” is a safeguard, meaning that if a resident should need another prn dose of the same medication, it should be given at least four hours after the previously administered prn dose.

IV. ***Miscellaneous Medical Abbreviations Used***

BPH	benign prostatic hypertrophy
BUN	blood urea nitrogen
c	with
CBC	complete blood count
CNS	central nervous system
COPD	chronic obstructive pulmonary disease
CSF	cerebrospinal fluid
CV	cardiovascular
CVA	cerebrovascular accident
D/C	discontinue
ECG or EKG	electrocardiogram
EEG	electroencephalogram
EENT	eyes, ears, nose, throat
Fx	fracture
GI	gastrointestinal
gm	gram
gtt	drop
GU	genitourinary
h	hour
HS	bedtime, hour of sleep
HX	history
I.M.	intramuscular
I.V.	intravenous
mcg	microgram
mEq	milliequivalent
mg	milligram
MI	myocardial infarction
N/A, NA	not applicable, not available

IV. ***Miscellaneous Medical Abbreviations (Continued)***

NKA	no known allergies
NPO	nothing by mouth
N/V	nausea and vomiting
OD	right eye
OS	left eye
OTC	over-the-counter
OU	both eyes
p	after
per	by, through
P.O	per os or by mouth
q	every
qam	every morning
qhs	every night
RBC	red blood cell
Rx	prescription or treatment ordered by a physician
s	without
S.C.	subcutaneous
S.L.	sublingual
SOB	shortness of breath
s/s	signs/symptoms
TO	telephone order
TPR	temperature, pulse, respiration
tsp	teaspoon
UTI	urinary tract infection
vs, v/s	vital signs
WBC	white blood cell

Attachment 2
Model Curriculum
Certified Medication Aide Training Programs

Medications List

Antihistamines

Generic Name	*Trade Name*
cetirizine hydrochloride	*Zyrtec*
chlorpheniramine maleate	Allergy, Chlo-Amine, Chlor-Trimeton, Chlor-Tripolon
clemastine fumarate	Dayhist-1, Tavist Allergy
desloratadine	Clarinex
diphenhydramine hydrochloride	Allerdryl, AllerMax Allergy and Cough Formula, AllerMax Caplets, Aller-med, Banophen, Banophen Caplets, Benedryl, Benadryl Allergy, Benylin Cough, Compoz, Diphen Cough, Diphenadryl, Diphenhist, Dormarex 2, Genehist, Hydramine, Hydramine Cough, Nervine Nighttime Sleep-Aid, Nordryl Cough, Sleep-eze 3, Sominex, Tusstat, Twilite Caplets, Uni-Bent Cough
fexofenadine hydrochloride	Allegra, Telfast
loratadine	Alavert, Claratyne, Clarinase, Claritin, Claritin Syrup, Tavist ND Allergy
promethazine hydrochloride	Phenadoz, Phenergan
promethazine theoclate	Avomine

Anti-anemia Drugs

Generic Name	*Trade Name*
argatroban	argatroban
bivalirudin	Angiomax
dalteparin sodium	Fragmin
desirudin	Iprivask
enoxaparin sodium	Lovenox
fondaparinux sodium	Arixtra
heparin calcium	Uniparin-Ca
heparin sodium	Hepalean, Heparin Sodium Injection, HepLock
tinzaparin sodium	Innohep
warfarin sodium	Coumadin, Warfilone

Anti-coagulants

Generic Name	*Trade Name*
argatroban	
bivalirudin	Angiomax
dalteparin sodium	Fragmin
desirudin	Iprivask
enoxaparin sodium	Lovenox
fondaparinux sodium	Arixtra
heparin calcium	Uniparin-Ca
heparin sodium	Hepalean, Heparin Sodium Injection, HepLock
tinzaparin sodium	Innohep
warfarin sodium	Coumadin, Warfilone

Antacids and Adsorbents

Generic Name	*Trade Name*
aluminum hydroxide	AlternaGEL, Alu-Cap, Aluminum Hydroxide Gel, Alu-Tab, Amphojel, Dialume
calcium carbonate	Alka-Mints, Amitone, Calci-Chew, Cal-Supp, Caltrate, Chooz, Dicarbosil, Maalox, Antacid Caplets, Oscal, Rolaids Calcium Rich, Tums, Viactiv
Magaldrate (aluminum-magnesium complex)	Isopan, Lowsium, Riopan
magnesium hydroxide	
magnesium oxide	Mag-Ox 400, Maos, Uro-Mag
simethicone	Flatulex, Gas Relief, Gas-X, Mylanta Gas, Mylicon, Ovol, Phazyme
sodium bicarbonate	

Anti-Diarrheal Drugs

Generic Name	*Trade Name*
bismuth subsalicylate	Bismatrol, Kaopectate, Pepto-Bismol, Pepto-Bismol Maximum Strength Liquid, Pink Bismuth
calcium polycarbophil	
diphenoxylate hydrochloride and atropine sulfate	Logen, Lomanate, Lomotil, Lonox
loperamide	Imodium, Imodium A-D, Kaopectate II Caplets, Maalox Anti-Diarrheal Caplets, Pepto Diarrhea Control
octreotide acetate	Sandostatin, Sandostatin LAR
rifaximin	Xifaximin

Anti-Emetics

Generic Name	*Trade Name*

aprepitant	Emend
chlorpromazine hydrochloride	
dimenhydrinate	Andrumin, Apo-Dimenhydrinate, Calm-X, Dramamine, Dramanate, Dymenate, Gravol, Gravol L/A, Hydrate, MPS-Dimenhydrinate, Triptone Caplets
dolasetron mesylate	Anzemet
dronabinol	Marinol
granisetron hydrochloride	Kytril
meclizine hydrochloride	Antivert, Bonamine, Bonine, Dramamine Less Drowsy Formula
metoclopramide hydrochloride	Apo-Metoclop, Clopra, Maxeran, Maxolon, Octamide PFS, Pramin, Reglan
ondansetron hydrochloride	Zofran, Zofran ODT
palonosetron hydrochloride perphenazine	Aloxi
prochlorperazine	Compazine, Compro, PMS Prochlorperazine, Stemetil
prochlorperazine meleaate	Compazine, Compazine Spansule, PMS Prochlorperazine, Stemetil
promethazine hydrochloride	
scopolamine	
trimethobanzamide hydrochloride	Tebamide, T-Gen, Ticon, Tigan, Triban, Trimazide

Vitamins

Generic Name	*Trade Name*
vitamin A (retinol)	Aquasol A, Palmitate-A
vitamin B complex (cyanocobalamin, vitamin B12)	Crystamine, Crysti-12, Cyanocobalamin, Cyanoject, Cyomin, Nascobal, Rubramin PC
vitamin B complex (hydroxocobalamin, vitamin B12)	Hydro-Cobex, Hydro-Crysti-12, LA-12
vitamin B9 (folic acid)	Folvite, Novo-Folacid
vitamin B3 (nicotinic acid)	Nia-Bid, Niacor, Niaspan, Nicobid, nicotinex, Slo-Niacin
niacinamide (nicotinamid)	
vitamin B6 (Pryidoxine hydrochloride)	Nestrex, Rodex
vitamin B1 (thiamine hydrochloride)	Betamin, Beta-Sol
vitamin C	Cebid Timecelles, Cecon, Cenolate, Ce-Vi-Sol, Dull-C, Flavorcee, N'ice w/vitamin C Drops, Vicks Vitamin C Drops
vitamin D (cholecalciferol (vitamin D3))	Delta-D
vitamin D (ergocalciferol (vitamin D2))	Calciferol, Drisdol, Radiostol
vitamin D analogue (doxercalciferol)	Hectorol
vitamin D analogue (paricalcitol)	Zemplar
vitamin E (tocopherols)	Aquasol E, Aquavit-E, d'Alpha E
vitamin K analogue (phytonadione (vitamin K1))	AquaMEPHYTON, Mephyton
trace elements	
chromium (chromic chloride)	Chroma-Pak, Chromic Chloride
copper (cupric sulfate)	Cupric Sulfate
iodine (sodium iodide)	Iodopen
manganese (manganese chloride, manganese sulfate	
selenium (selenious acid)	Sele-Pak, Selepen
zinc (zink sulfate)	Zinca-Pak
minerals	

Anti-infectives

Generic Name	*Trade Name*
Amebicides, and antiprotozoals	
atovaquone	Mepron
chloroquine hydrochloride	
chloroquine phosphate	
metronidazole	Apo-Metronidazole, Flagyl, Flagyl 375, Flagyl ER, Metrogyl, Novo-Nidazol, Protostat, Trikacide
metronidazole hydrochloride	Flagyl IV RTU, Novo-Nidazol
nitazoxanide	Alinia
pentamidine isethionate	NebuPent, Pentam 300
tinidazole	Tindamax
Anthelmintics	
mebendazole	Vermox
pyrantel pamoate	Antiminth, Combantrin, Pin-Rid, Pin-X, Reese's Pinworm
Antifunguls	
amphotericin B cholesteryl sulfate complex	Amphotec
amphotericin B desoxycholate	Amphocin, Amphotericin B for Injection, Fungizone
amphotericin B lipid complex	Abelcet
amphotericin B liposomal	AmBisome
caspofungin acetate	Cancidas
fluconazole	Diflucan
flucytosine	Ancobon, Ancotil
itraconazole	Sporanox
keyoconazole	Nizoral
nystatin	Mycostatin, Nadostine, Nilstate, Nystex
terbinafine hydrochloride	Lamisil
voriconazole	Vfend

Antimalarials	
atovaquone and proguanil hydrochloride	Malarone, Malarone Pediatric
chloroquine hydrochloride	Aralen HCI, Chlorquin
chloroqine phosphate	Aralen Phosphate, Chlorquin
doxycycline	
hydroxychloroquine Sulfate	Plaquenil Sulfate
mefloquine hydrochloride	Lariam
primaquine phosphate	
pyrimethamine	Daraprim
pyrimethamine with sulfadoxine	Fandisar
Antituberculotics and antileprotics	
cycloserine	Seromycin
dapsone	Avlosulfon, Dapsone 100
ethambutol hydrochloride	Etibi, Myambutol
isoniazid	Isotamine, Nydrazid, PMS-Isoniazid
pyrazinamide	Tebrazid, Zinamide
rifabutin	Mycobutin
rifampin	Rifadin, Rimactane, Rimycin, Rofact
rifapentine	Priftin
streptomycin sulfate	
Aminoglycosides	
amikacin sulfate	Amikin
gentamicin sulfate	Cidomycin, Geramycin
neomycin sulfate	Mycifradin, Neo-fradin, Neosulf, Neo-Tabs
streptomycin sulfate	
tobramycin sulfate	Nebcin, TOBI

Penicillins	
amoxicillin and clavulanate potassium	Augmentin, Augmentin ES-600, Augmentin XR, Clavulin
amoxicillin trihydrate	Alphamox, Amoxil, Apo-Amoxi, Cilamox, DisperMox, Moxicin, Novamoxin, NuAmoxi, Trimox
ampicillin	Apo-Ampi, Novo Ampicillin, Nu-Ampi
ampicillin sodium	Ampicin, Ampicyn, Penbritin
ampicillin sodium and sulbactam sodium	Unasyn
ampicillin trihydrate	
aafcillin sodium	
aenicillin G benzathine	Bicillin L-A, Permapen
aenicillin G potassium	Pfizerpen
aenicillin G procaine	Ayercillin, Wycillin
aenicillin G sodium	Crystapen
aenicillin V potassium	Abbocillin VK, Apo-Pen VK, Nadopen-V200, Nadopen-V 400, Novo-pen-VK, Nu-Pen-VK, Pen-Vee, PVF K, Veetids
piperacillin sodium and tazobactam sodium	Zosyn
ticarcillin disodium	Ticar
ticarcillin disodium and clavulanate potassium	Timentin

Cephalosporins	
cefaclor	Ceclor, Ceclor CD, Raniclor
cefadroxil	Duricef
cefazolin sodium	Ancef
cefdinir	Omnicef
cefditoren pivoxil	Spectracef
cefepime hydrochloride	Maxipime
cefoperazone sodium	Cefobid
cefotaxime sodium	Claforan
cefotetan disodium	Cefotan
cefoxitin sodium	Mefoxin
cefpodoxime proxetil	Vantin
cefprozil	Cefzil
ceftazidime	Ceptaz, Fortaz, Tazicef, Tazidime
ceftizoxime sodium	Cefizox
ceftriaxone sodium	Rocephin
cefuroxime axetil	Ceftin
cefuroxime sodium	Zinacef
cephalexin hydrochloride	Keftab
cephalexin monohydrate	Apo-Cephalex, Biocef, Keflex, Novo-Lexin, Nu-Cephalex
loracarbef	Lorabid

Tetracyclines	
doxycycline calcium	Vibramycin
doxycycline hyclate	Apo-Doxy, Doryx, Doxy 100, Doxy 200, Doxycin, Doxytec, Novo-Doxylin, Nu-Doxycycline, Periostat, Vibramycin, Vibra-Tabs
doxycycline hydrochloride	Doryx, Doxsig, Doxylin, Doxy Tablets, Vibramycin, Vitra-Tabs 50
doxycycline monohydrate	Adoxa, Monodox, Vibramycin
minocycline hydrochloride	Akamin, Alti-Minocycline, Apo-Minocycline, Dynacin, Minocin, Minomycin, Novo-Minocycline, PMS-Minocycline
tetracycline hydrochloride	Achromycin, Apo-Tetra, Novo-Tetra, Nu-Tetra, Sumycin, Tetrex
Sulfonamides	
co-trimoxazole	Apo-Sulfatrim, Apo-Sulfatrim DS, Bactrim, Bactrim DS, Bactrim IV, Cotrim, Cotrim D.S., Cotrim Pediatric, Novo-Trimel, Novo-Trimel DS, Nu-Cotrimox, resprim, roubac, Septra, Septra DS, Septra IV, Septrin, Sulfatrim, Sulfatrim Pediatric
sulfadiazine	Coptin
sulfisoxazole	Novo-Soxazole
sulfisoxazole acetyl	Gantrisin
Fluoroquinolones	
ciprofloxacin	Cipro, Cipro I.V, Cipro XR, Ciproxin
gatifloxacin	Tequin
gemifloxacin mesylate	Factive
levofloxacin	Levaquin
moxifloxacin hydrochloride	Avelox, Avelox I.V.
norfloxacin	Noroxin
ofloxacin	Floxin, Floxin I.V.

Antivirals	
abacavir sulfate	Ziagen
acyclovir	Acihexal, Acyclo-V, Avirax, Lovir, Zovirax
acyclovir sodium	Aciclovir, Acihexal, Avirax, Zovirax
adefovir dipivoxil	Hepsera
amantadine hydrochloride	Symmetrel
amprenavir	Agenerase
atazanavir sulfate	Reyataz
cidofovir	Vistide
delavirdine mesylate	Rescriptor
didanosine	Videx, Videx EC
efavirenz	Sustiva
emtricitabine	Emtriva
enfuvirtide	Fuzeon
famciclovir	Famvir
fomivirsen sodium	Vitravene
fosamprenavir	Lexiva
foscarnet sodium	Foscavir
ganciclovir	Cytovene
indinavir sulfate	Crixivan
lamivudine	Epivir, Epivir-HBV
lamivudine and zidovudine	Combivir
lopinavir and ritonavir	Kaletra
nelfinavir mesylate	Viracept
nevirapine	Viramune
oseltamivir phosphate	Tamiflu
ribavirin	Virazole
ritonavir	Norvir
saquinavir	Fortovasse
saquinavir mesylate	Invirase
stavudine	Zerit, Zerit XR
tenofovir disoproxil fumarte	Viread
valacyclovir hydrochloride	Valtrex
valganciclovir	Valcyte

Antivirals (cont'd)	
zalcitabine	Hivid
zanamivir	Relenza
zidovudine	Apo-Zidovudine, Novo-AZT, Retrovir
Macrolide anti-infectives	
azithromycin	Zithromax
clarithromycin	Biaxin, Biaxin XL
erythromycin base	Apo-Erythro Base, E-Base, E-Mycin, Erybid, Eryc, Ery-Tab, Erythromycin Base, Filmtab, Erythromycin Delayed-Release, PCE Dispertab
erythromycin estolate	Ilosone, Ilosone Pulvules
erythromycin ethylsuccinate	Apo-Erythro-ES, E.E.S, EES Granules, EryPedy, EryPed 200, EryPed400
erythromycin lactobionate	Erythrocin
erythromycin stearate	Apo-Erythro-S, Erythrocin Stearate
Miscellaneous anti-infectives	
aztreonam	Azactam
chloramphenicol sodium succinate	Chloromycetin Sodium Succinate, Pentamycetin
clindamycin hydrochloride	Cleocin HCI, Dalacin C
clindamycin palmitate hydrochloride	Cleocin Pediatric, Dalacin C Flavored Granules
clindamycin phosphate	Cleocin Phosphate, Dalacin C Phosphate Sterile Solution
daptomycin	Cubicin
drotrecogin alfa (activated)	Xigris
ertapenem sodium	Invanz
imipenem and cilastatin sodium	Primaxin I.M., Primaxin I.V.
linezolid	Zyvox
meropenem	Merrem IV
nitrofurantion macrocrystals	Macrobid, Macrodantin
nitrofurantoin microcrystals	Apo-nitrofurantion, Furadantin, novo-Furantoin
quinupristin and dalfopristin	Synercid

Miscellaneous anti-infectives (cont'd)	
telithromycin	Ketek
trimethoprim	Primsol, Proloprim, Trimpex, Triprim
vancomycin hydrochloride	Vancocin, Vancoled

Cardiac agents

Generic Name	*Trade Name*
adenosine	Adenocard
amiodarone hydrochloride	Aratac, Cordarone, Cordarone X, Pacerone
atropine sulfate	Sal-Tropine
diltiazem hydrochloride	
disopyramide	Rythmodan
disopyramide phosphate	Norpace, Norpace CR, Rythmodan-LA
dofetilide	Tikosyn
esmolol hydrochloride	Brevibloc
flecainide acetate	Tambocor
ibutilide fumarate	Corvert
lidocaine hydrochloride	LidoPen Auto-Injector, Xylocaine, Xylocard
mexiletine hydrochloride	Mexitil
moricizine hydrochloride	Ethmozine
phenytoin	
phenytoin soduim	
procainamide hydrochloride	Procanbid, Pronestyl, Pronestyl Filmlok, Pronestyl-SR Filmlok
propranolol hydrochloride	
quinidine bisulfate	Kinidin Durules
quinidine gluconate	Quinaglute Dura-Tabs, Quinate
quinidine sulfate	Apo-Quinidine, Novoquinidin, Quinidex Extentabs
sotalol hydrochloride	Betapace, Betapace AF, Sotacor
tocainide hydrochloride	Tonocard
verapamil hydrochloride	

Antihypertensives

Generic Name	*Trade Name*
amlodipine besylate	
atenolol	Anselol, Apo-Atenolol, Noten, Tenormin, Tensig
benazepril hydrochloride	Lotensin
candesartan cilexetil	Atacand
captopril	Acenorm, Capoten, Enzace, Novo-Captoril
carvedilol	Coreg
clonidine	Cetapress-TTS
clonidine hydrochloride	Catapres, Dixarit, Duraclon
diltiazem hydrochloride	
doxazosin mesylate	Cardura, Carduran
enalaprilat	
enalapril maleate	Amprace, Renitec, Vasotec
eplerenone	Inspra
eprosartan mesylate	Teveten
felodipine	Agon SR, Plendil, Plendil ER, Renedil
fosinopril sodium	Monopril
hydralazine hydrochloride	Alphapress, Apresoline, NovoHylazin, Supres
irbesartan	Avapro
labetalol hydrochloride	Normodyne, Presolo, Trandate
lisinopril	Prinivil, Zestril
losartan potassium	Cozaar
methyldopa	Aldomet, Aldopren, ApoMethyldopa, Dopamet, Hydopa, Novo-Medopa, Mu-Medopa
methyldopate hydrochloride	Aldomet
metoprolol succinate	Toprol-XL
metoprolol tartrate	Apo-Metoprolol, Betaloc, Betaloc Durulest, Lopresor, Lopreso SR, Lopressor, Minax, Novo-Metoprol, Nu-Metop
minoxidil	Loniten
nadolol	

Antihypertensives (cont'd)

nicardipine hydrochloride	
nifedipine	
nisoldipine	Sular
nitroprusside sodium	Nipride, Nitropress
olmesartan medoxomil	Benicar
phentolamine mesylate	Regitine, Rogitine
prazosin hydrochloride	Minipress
propranolol hydrochloride	
quinapril hydrochloride	Accupril, Asig
ramipril	Altace, Ramace, Tritace
telmisartan	Micardis
terazosin hydrochloride	Hytrin
trandolapril	Mavik
valsartan	Diovan
verapamil hydrochloride	

Antianginals

Generic Name	*Trade Name*
amlodipine besylate	Norvasc
diltiazem hydrochloride	Apo-Diltiaz, Cardizem, Cardizem CD, Cardizem LA, Cardizem SR, Cartia XT, Dilacor XR, Diltia XT, Tiazac
isosorbide dinitrate	Apo-ISDN, CedocardSR, Dilatrate-SR, Isordil, Isordil Tembids, Isordil Titradose
isosorbide mononitrate	
nadolol	Corgard
nifedipine	Adalat, Apo-Nifed, Nifedical XL, Novo-Nifedin, Nu-Nifed, Procardia, Procardia XL
nitroglycerine	Anginine, Deponit, Minitran, Nitradisc, Nitrek, Nitro-Bid, Nitrodisc, Nitro-Dur, Notrogard, Nitroglyn, Nitrolingual, Nitrong, NitroQuick, Nitrostate, Nitro Tab, Nitro-Time, NTS, Transderm-Nitro, Transiderm-Nitro, Tridil
propranolol hydrochloride	Apo-Propranolol, Deralin, Inderal, Inderal LA, InnoPran XL, Novopranol
verapamil hydrochloride	Anpec, Anpec SR, Apo-Verap, Calan, Calan SR, Cordilox, Cordilox SR, Covera-HS, Isoptin, Isoptin SR, NovoVeramil, Nu-Verap, Veracaps SR, Verahexal, Verelan, Verelan PM

Antilipemics

Generic Name	*Trade Name*
atorvastatin calsium	Lipitor
cholestyramine	LoCHOLEST, LoCholest Light, Prevalite, Questran, Questran Light, Questran Lite
colesevelam hydrochloride	Welchol
ezetimibe	Zetia
fenofibrate (micronized)	Lofibra, Tricor
fluvastatin sodium	Lescol, Lescol XL
gemfibrozil	Apo-Gemfibrozil, Lopid
lovastatin	Altoprev, Mevacor
niacin	
omega-3-acid ethyl esters	Omacor
pravastatin sodium	Pravachol
rosuvastatin	Crestor
simvastatin	Lipex, Zocor

Hormones

Generic Name	*Trade Name*
dexamethasone	Decadron, Dexameth, Dexone, Hexadrol
dexamethasone acetate	Cortastat LA, Dalalone D.P., Decaject LA, Dexasone LA, Dexone LA, Solurex LA
dexamethasone sodium phosphate	Cortastat, Dalalone, Decadron Phosphate, Decaject, Dexasone, Hexadrol Phosphate, Solurex
fludrocortisone acetate	Florinef Acetate
hydrocortisone	Aquacort, Cortef, Cornenema, Hydrocortone
hydrocortisone acetate	Anucort-HC, Anusol-HC, Cortifoam, Proctocort
hydrocortisone cypionate	Cortef
hydrocortisone sodium phosphate	
hydrocortisone sodium succinate	A-Hydrocort, Solu-Cortef
methylprednisolone	Medrol
methylprednisolone acetate	DepMedalone 40, depMedalone 80, Depo-Medrol, Depopred-40, Depopred-80
methylprednisolone sodium succinate	A-Methapred, Solu-Medrol
prednisolone	Delta-Cortef, Panafcortelone, Prelone
prednisolone acetate	Key-Pred 25, Key-Pred 50, Predalone 50, Predcor-50
prednisolone sodium phosphate	Hydeltrasol, Key-Pred-SP, Orapred, Pediapred, Predsol retention Enema, Predsol Suppositories, Prelone
prednisolone tebutate	Prednisol TBA, Nor-Pred TBA, Predate TBA, Predcor-TBA
prednisone	Apo-Prednisone, Deltasone, Liquid Pred, Meticorten, Orasone, Panafcort, Panasol-S, Prednicen-M, Prednisone Intensol, Sterapred, Winpred
triamcinolone	Aristocort, Atolone, Kenacort
triamcinolone acetonide	Azmacort, Kenaject-40, Kenalog 10, Kenalog-40, Tac-3, Tac-40, Triam-A, Triamonide 40, Tri-Kort, Trilog
triamcinolone deacetate	Amcort, Aristocort Forte, Aristocort Intralesional, Clinacort, Kenacort, Triam Forte, Trilone, Tristoject
triamcinolone hexacetonide	Aristospan Intra-Articular, Aristospan Intralesional

Androgens and anabolic steroids	
fluoxymesterone	Halotestin
methyltestosterone	Android, Metandre, Methitest, testred,
nandrolone decanoate	Deca-Durabolin
testosterone	Striant, Testopel Pellets
testosterone cypionate	Depo-Testosterone
testosterone enanthate	Delatestryl
testosterone propionate	Malogen
testosterone transdermal system	Androderm, AndroGel, Testoderm, Testoderm TTS, Testoderm w/Adhesive
Estrogens and progestins	
17 beta-estradiol and norgestimate	Ortho-Prefest
drospirenone and ethinyl estradiol	Yasmin
esterified estrogens	Estratab, Menest, Neo-Estrone
estradiol	Alora, Climara, Esclim, Estrace, Estrace Vaginal Cream, Estraderm, Estring Vaginal Ring, FemPatch, Femring, Gynodiol, Menostar, Vivelle, Vivelle-Dot
estradiol cypionate	depGynogen, Depo-Estradiol Cypionate, Depogen
estradiol hemihydrate	Estrasorb, Vagifem
estradiol valerate	Delestrogen, Estra-L 40, Gynogen L.A, Primogyn Depot, Valergen
estradiol and norethindrone acetate transdermal system	CombiPatch
estrogens, conjugated	C.E.S, Cenestin, Premarin, Premarin Intravenous
estropipate	Ogen, Ortho-Est
ethinyl estradiol and desogestrel - monophasic biphasic triphasic	Apri, Desogen, Ortho-Cept Kariva, Mircette ***Cyclessa, Velivet***

Estrogens and progestins (cont'd)	
ethinyl estradiol and ethynodiol diacetate- monophasic	Demulen 1/35, Demulen 1/50, Zovia 1/35E, Zovia 1/50E
ethinyl estradiol and levonorgestrel- monophasic biphasic triphasic	Alesse-21, Alesse-28, Aviane, Lessina, Levlen, Levlite, Levora-21, Levora-28, Nordette-21, Nordette-28, Portia-21, Portia-28, Seasonale Preven Emergency Contraceptive Kit Enpresse, Tri-Levlen, Triphasil, Trivora-28
ethinyl estradiol and norethindrone- monophasic biphasic triphasic	Brevicon, Cenora 0.5/35, Genora 1/35, Junel 21-1/20, Junel 21-1.5/30, ModiCon, N.E.E. 1/35, Necon 1/35-21, Necon 0.5/35-28, Nelova 0.5/35E, Nelova 1/35E, Norethin 1/35E, Norinyl 1 + 35, Ortho-novum 1/35, Ovcon-35, Ovcon-50 Necon 10/11-21, Necon 10/11-28, Ortho-Novum 10/11 Necon 7/7/7, Nortel 7/7/7, Ortho-Novum 7/7/7, Tri-Norinyl
ethinyl estradiol and norethindrone acetate- monophasic triphasic	Junel 21-1/20, Junel 21-1.5/30, Loestrin 1/20, Loestrin 1.5/30 Estrostep 21
ethinyl estradiol and norgestimate-monophasic triphasic	MonoNessa, Ortho-Cyclen, Sprintec Ortho Tri-Cyclen, Ortho Tri-Cyclen Lo, Tri-Sprintec
ethinyl estradiol and norgestrel- monophasic	Loestrin Fe 1/20, Loestrin Fe 1.5/30, Microgesin Fe 1/20, Microgesin Fe 1.5/30

Estrogens and progestins (cont'd)	
ethinyl estradiol, norethindrone acetate, and ferrous fumarate monophasic triphasic	Loestrin Fe 1/20, Loestrin Fe 1.5/30, Microgesin Fe 1/20, Microgesin Fe 1.5/30 Estrostep Fe
etonogestrel and ethinyl estradiol ring	NuvaRing
medroxyprogesterone acetate	Amen, Cycrin, Depo-Provera, Provera
mestranol and norethindrone-monophasic	Genora 1/50, Necon 1/50-21, Necon 1/50-28, Nelova 1/50M, Norethin 1/50M, Norinyl 1+50, Ortho-Novum 1/50
norelgestromin and ethinyl estradiol transdermal system	Ortha Evra
norethindrone	Camila, errin, Jolivette, Micronor, Nora-Be, Nor-QD
norethindrone acetate	
Gonadotropins	
cetrorelix acetate	Cetrotide
histrelin acetate	Supprelin
menotropins	Pergonal, Repronex

Antidiabetics and glucagon	
acarbose	Prandase, precose
chlorpropamide	Apo-Chlorpropamide, Diabinese
glimepiride	Amaryl
glipizide	Glucotrol, Glucotrol XL, Minidiab
glipizide and metformin hydrochloride	Metaglip
glucagon	Glucagon Diagnostic Kit, Glucagon Emergency Kit
Glyburide (glibenclamide)	DiaBeta, Euglucon, Glynase Pres Tab, Micronase
glyburide and metformin hydrochloride	Glucovance
insulins	Humulin R, Iletin II Regular, Novolin R, Novolin R PenFill, Novolin R Prefilled
metformin hydrochloride	Fortamet, Glucophage, Glucophage XR, Riomet
miglitol	Glyset
nateglinide	Starlix
pioglitazone hydrochloride	Actos
repaglinide	Prandin
rosiglitazone mealeate	Avandia
rosiglitazone maleate and metformin hydrochloride	Avandamet

Thyroid hormomes	
levothyroxine sodium	Eltroxin, Levo-T, Levotec, Levothroid, Levoxine, Levoxyl, Novothyrox, Oroxine, Synthroid, Thyro-Tabs, Unithroid
liothyronine sodium	Cytomel, Tertroxin, Triostat
liotrix	Thyrolar
thyroid, desiccated	Armour Thyroid
Thyroid hormone antagonists	
methimazole	Tapazole
potassium iodide	Pima, saturated solution (SSKI), strong iodine solution (Lugol's solution), Thyro-Block
propylthiouracil	Propyl-Thyracil
radioactive iodine	Iodotope, Sodium Iodide 131 Therapeutic
Pituitary hormones	
corticotropin	ACTH, Acthar
desmopressin acetate	DDAVP, Minirin, Octostim, Stimate
leuprolide acetate	
repository corticotropin	ACTH-80, H.P. Acthar Gel
somatrem	Protropin
somatropin	Genotropin, Humatrope, Norditropin, Nutropin, Saizen, Serostim
vasopressin	Pitressin

Parathyroid-like drugs	
alendronate sodium	Fosamax
calcitonin (salmon)	Miacalcin, Salmonine
calcitriol	Calcijex, Rocaltrol
cinacalcet hydrochloride	Sensipar
pamidronate disodium	Aredia
risedronate sodium	Acetonel
teriparatide (rDNA origin)	Forteo
zoledronic acid	Zometa

Antineoplastics

Generic Name	*Trade Name*
asparaginase	Elspar, Kidrolase
azacitidine	Vidaza
bevacizumab	Avastin
bortezomib	Velcade
cetuximab	Erbitux
dacarbazine	DTIC, DTIC-Dome
docetaxel	Taxotere
erlotinib	Tarceva
Etoposide (VP-16, VP-16-213)	Toposar, VePesid
etoposide phosphate	Etopophos
gefitinib	Iressa
gemtuzumab ozogamicin	Mylotarg
imatinib mesylate	Gleevec
irinotecan hydrochloride	Camptosar
mitoxantrone hydrochloride	Novantrone
paclitaxel	Onxol, Taxol
pegaspargase	Oncaspar
procarbazine hydrochloride	Matulane, Natulan

rituximab	Rituxan
teniposide	Vumon
topotecan hydrochloride	Hycamtin
trastuzumab	Herceptin
vinblastine sulfate	Velban, Velbe
vincristine sulfate	Oncovin, Vincasar
vinorelbine tartrate	Navelbine

Respiratory Tract Drugs

Generic Name	*Trade Name*
Broncholidators	
albuterol sulfate	AccuNeb, Airomir, Proventil, Proventil HFA, Proventil Repetabs, Ventolin, Ventilin HFA, Ventolin Obstetric Injection, Ventolin Rotacaps, Bolmax, VoSpire ER
aminophylline	Aminophylline, Phyllocontin, Phyllocontin-350, Truphylline
atropine sulfate	
ephedrine sulfate	Pretz-D
epinephrine	Bronkaid Mistometer, Primatene Mist
epinephrine hydrochloride	Adrenalin Chloride, AshtmaNefrin, EpiPen, EpiPen Jr, MicroNefrein, Nephron, Sus-Phrine, Vaponefrin
formtoerol fumarate inhalation powder	Foradil Aerolizer
ipratropium bromide	Atrovent
isoproterenol hydrochloride	Isuprel
levalbuterol hydrochloride	Xopenex
metaproterenol sulfate	Alupent, Arm-a-Med, Metaproterenol
pirbuterol acetate	Maxair, Maxair Autohaler

salmeterol xinafoate	Serevent Diskus
terbutaline sulfate	Brethine
theophylline	Immediate-release liquids, Accurbron, Aerolate, Aquaphyllin, Asmialix, Bronkodyl, Elixomin, Elixophyllin, Lanophyllin, Slo-Phyllin, Theoclear-80, Theolair Liquid, Theostat 80
tiotropium bromide	Spiriva
Expectorants and antitussives	
benzonatate	Tessalon, Tessalon Perles
codeine phosphate	
codeine sulfate	
dextromethorphan hydrobromide	Balminil DM, Benylin DM, Broncho-Grippol-DM, Buckley's DM, Children's Hold, Delsym, Hold, Koffex DM, Pertussin CS, Pertussin ES, Robitussin Pediatric, St. Joseph Cough Suppressant for Children, Trocal, Vicks Formula 44e Pediatric
diphenhydramine hydrochloride	
guaifenesin	Allfen Jr, Anti-Tuss, Ganidin NR, Guiatuss, Hytuss, Hytuss 2X, Mucinex, Naldecon Senior EX, Robitussin, Scot-Tussin Expectorant
hydromorphone hydrochloride	
Misecllaneous respiratory tract drugs	
acetylcysteine	Acetadote, Mucomyst, Mucosil-10, Mucosil-20
beclomethasone dipropionate	Qvar
beractant	Survanta
budesonide	Pulmicort Respules, Pulmicort Turbuhaler
calfactant	Infasurf
dornase alfa	Pulmozyme
flunisolide	AeroBid, AeroBid-M, Bronalide, Nasalide, Nasarel
fluticasone propionate	Flonase, Flovent HFA, Flovent Diskus
fluticasone propionate and salmeterol	Advair Diskus 100/50, Advair Diskus 250/50,

inhalation powder	Advair Diskus 500/50
montelukast sodium	Singulair
omalizumab	Xolair
palivizumab	Synagis
triamcinolone acetonide	Azmacort, Nasacort HFA, Nasacort AQ
zafirlukast	Accolate

Central Nervous System drugs-Analgesics

Generic Name	*Trade Name*
acetaminophen	Tempra, Tylenol
aspirin	ASA
diflunisal	Dolobid

Central Nervous System drugs-Other

Generic Name	*Trade Name*
almotriptan malate	Axert
atomexetine hydrochloride	Strattera
bupropion hydrochloride	Zyban
donepezil hydrochloride	Aricept
droperidol	Inapsine
eletriptan hydrobromide	Relpax
fluvoxamine maleate	Luvox
frovatriptan succinate	Frova
galantamine hydrobromide	Razadyne
lithium carbonate	Carbolith, Duralith, Eskalith, Eskalith CR, Lithane, Liticarb, Lithizine, Lithobid, Lithonate, Lithotabs, Quilonum SR
lithium citrate	Cibalith-S
memantine hydrochloride	Namenda
naratriptan hydrochloride	Amerge, Naramig
propofol	Diprivan
rivastigmine tartrate	Exelon
sibutramine hydrochloride monohydrate	Meridia
sumatriptan succinate	Imitrex
tacrine hydrochloride	Cognex
zolmitriptan	Zomig, Zomig ZMT

Ophthalmic, Otic and Nasal Drugs

Generic Name	*Trade Name*
Ophthalmic anti-infectives	
ciprofloxacin hydrochloride	Ciloxan
erythromycin	Ilotycin
gatifloxacin	Zymar
gentamicin sulfate	Garamycin, Genoptic, Gentacidin, Gentak
moxifloxacin hydrochloride	Vigamox
ofloxacin 0.3%	Ocuflox
sulfacetamide sodium 10%	AK-Sulf, Bleph-10, Cetamide, OcuSulf-10, Sodium Sulamyd Ophthalmic, Storz Sulf, Sulf-10 Ophthalmic
sulfacetamide sodium 15%	Isopto-Cetamide Ophthalmic
sulfacetamide sodium 30%	Sodium Sulamyd Ophthalmic
tobramycin	AKTob, Defy, Tobrex
Ophthalmic anti-inflammatories	
dexamethasone	Maxidex
dexamethasone sodium phosphate	AK-Dex, Decadron
diclofenac sodium	Voltaren Ophthalmic
fluorometholone	Flarex, Fluor-Op, FML Forte, FML, FML S.O.P.
ketorolac tromethamine	Acular, Acular LS
predisolone acetate	Econopred Ophthalmic, Econopred Plus Ophthalmic, Pred Forte, Pred Mild Ophthalmic
prednisolone sodium phosphate	AK-Pred, Inflamase Forte, Inflamase Mild, Predsol Eye Drops
Miotics	
acetylcholine chloride	Miochol-E
carbachol	Carbastat, Miostat

pilocarpine hydrochloride	Adsorbocarpine, Akarpine, Isopto carpine, Miocarpine, Pilocar, Pilopine HS, Pilopt, Pilostat
pilocarpine nitrate	Pilagan Liquifilm
Mydriatics	
atropine sulfate	Atropine 1, Atropisol, Atropt, Isopto Atropine
cyclopentolate hydrochloride	AK-Pentolate, Cyclogyl, Pentolair
epinephrine hydrochloride	Epifrin, Glaucon
epinephryl borate	Epinal
homatropine hydrobromide	Isopto Homatropine, Minims Homatropine
phenylephrine hydrochloride	AK-Dilate, AK-Nefrin, Ophthalmic, Isopto Frin, Mydfrin, Neo-Synephrine, Phenoptic, Prefrin Liquifilm, Relief
scopolamine hydrobromide	Isopto Hyoscine
Ophthalmic vasoconstrictors	
naphazoline hydrochloride	AK-Con, Albalon Liquifilm, Allergy Drops, Clear Eyes, Comfort Eye Drops, Degest 2, Nafazair, Naphcon, Naphcon Forte, Optazine, VasoClear, Vasocon regular, 20/20 Eye Drops
oxymetazoline hydrochloride	OcuClear, Visine L.R.
tetrahydrozoline hydrochloride	Collyrium Fresh, Eyesine, Geneye, Murine Plus, Optigene 3, Tetrasine, Visine Moisturizing
Miscellaneous ophthalmics	
azelastine hydrochloride	Optivar
betaxolol hydrochloride	Betoptic, Betoptic S
bimatoprost	Lumigan
brimonidine tartrate	Alphagan P
carteolol hydrochloride	Ocupress

dorzolamide hydrochloride	Trusopt
epinastine hydrochloride	Elestat
ketotifen fumarate	Zaditor
latanoprost	Zalatan
levobunolol hydrochloride	AKBeta, Betagan
sodium chloride, hypertonic	Adsorbanac, AK-NaCl, Muro 128, Muroptic-5
timolol maleate	Betimol, Istalol, Timoptic, Timoptic-XE
travoprost	Travatan
unoprostone isopropyl	Rescula
Otics	
boric acid	Auro-Dri, Dri/Ear, Ear-Dry
chloramphenicol	Chloromycetin Otic
triethanolamine polypeptide oleate-condensate	Cerumenex
Nasal Drugs	
beclomethasone dipropionate	Beconase AQ
budesonide	Rhinocort Aqua
epinephrine hydrochloride	Adrenalin Chloride
flunisolide	Nasarel
fluticasone propionate	Flonase
naphazoline hydrochloride	Privine
oxymetazoline hydrochloride	Afrin, Allerest 12 Hour Nasal Spray, Chlorphed-LA, Dristan 12 Hour Nasal, Drixine Nasal, Duramist Plus 12 Hour, Duration, Genasal, NeoSynephrine 12 Hour Spray, Nostrilla, NTZ Long Acting Nasal, Sinarest 12 Hour
phenylephrine hydrochloride	Alconefrin Nasal Drops 12, Alconefrin Nasal Drops 25, Alconefrin Nasal Drops 50, Doktors, Duration, Little Noses Gentle Formula, Neo-Synephrine, Nostril, Rhinall, Rhinall-10 Children's Flavored Nose Drops, Sinex
tetrahydrozoline hydrochloride	Tyzine, Tyzine Pediatric
triamcinolone acetonide	Nasacort AQ

Topical drugs

Generic Name	*Trade Name*
Local anti-infectives	
acyclovir	Avirax, Zovirax
azelaic acid cream	Azelex, Finacea, Finevin
clindamycin phosphate	Cleocin, Cleocin T, Clinda-Derm, Clindagel, ClindaMax, Clindets, C/T/S
clotrimazole	Canesten, Cruex, Desenex, Gyne-Lotrimin, Lotrimin, Lotrimin AF, Mycelex, Mycelex-7, Mycelex G
docosanol	Abreva
econazole nitrate	Ecostatin, Spectazole
erythromycin	Akne-mycin, A/T/S, Del-Mycin, Emgel, Erycette, EryDerm, Erygel, Erymax, EryPads, Ery-Sol, ETS, Sans-Acne, Staticin, T-Stat
gentamicin sulfate	Geramycin, G-Myticin
ketoconazole	Nizoral, Nizoral A-D
metronidazole	MetroCream, MetroGel, metroGel Vaginal, MetroLotion, Noritate
miconazole nitrate	Desenex, Lotrimin AF, Micatin, Monistat-Derm, Monistat 3, Monistat 7, Ting, Zeasorb-AF
mupirocin	Bactroban, Bactroban Cream, Bactroban Nasal
neomycin sulfate	Myciguent
nystatin	Mycostatin, Nilstat, Nystex, Pedi-Dri
sertaconazole nitrate	Ertaczo
silver sulfadiazine	Flamazine, Silvadene, SSD, SSD AF, Thermazene
terbinafine hydrochloride	Lamisil, Lamisil AT
terconazole	Terazol 3, Terazol 7

Scabicides and pediculicides	
crotamiton	Eurax
lindane	GBH
permethrin	Acticin, Elimite, Nix
pyrethrins	A-200, Barc, Blue, End Lice, Pronto, Pyrinyl, R & C, RID, Tegrin-LT, Tisit, Triple X

Topical corticosteroids	
betamethasone dipropionate	Alphatrex, Diprolene, Diprolene AF, Diprosone, Maxivate, Teladar
betamethasone valerate	Betatres, Beta-Val, Betnovate, Luxiq, Psorion Cream
clobetasol, propionate	Clobex, Cormax, Dermovate, Embeline E, Olux, Temovate
desoximetasone	Topicort, Topicort LP
dexamethasone	Aeroseb-Dex, Decaspray
dexamethasone sodium phosphate	Decadron Phosphate
fluocinolone acetonide	Capex, Derma-Soothe/FS, Flurosyn, FS Shampoo, Synalar, Synalar-HP
floudinonide	Fluonex, Lidex, Lidex-E
flurandrenolide	Cordran, Cordran SP, Drenison Tape
fluticasone propionate	Cutivate
halcinonide	Halog, Halog-E
hydrocortisone	Acticort 100, Aeroseb-HC, Ala-Cort, Ala-Scalp, Anusol-HC, Bactine Hydrocortisone, Cetacort, Cort-Dome, Cortisone-5, Cortisone-10, Delcort, Dermolate Anti-Itch, Dermtex HC, Hi-Cor 2.5, Hycort, HydroTex, Hytone, LactiCare-HC, Penecort, Procort, Proctocort, Scalpicin, Synacort, Tegrin-HC, Texacort, T/Scalp
hydrocortisone acetate	Anu-Med HC, Anusol HC-1, Caldecort (Maximum Strength), Cortaid, Cortamed, Cortef Feminine Itch, Corticaine, Dermol HC, Gynecort, Hemril-HC Uniserts, Lanacort-5, Lanacort-10, ProctoCream-HC, ProctoFoam-HC
hydrocortisone butyrate	Locoid
hydrocortisone valerate	Westcort
triamcinolone acetonide	Aristocort, Aristocort A, Delta-Tritex, Flutex, Kenalog, Kenalone, Triacet, Triderm

Rectal suppositories

Generic Name	Trade Name
acetaminophen	Tylenol
aspirin	ASA
bisacodyl	Dulcolax
glycerin	Glycerin
phenegan	Phenegan
promethazine	

Vaginal Suppositories

Generic Name	Trade Name
Estradiol oestradiol Estradiol cypionate Estradiol hemihydrate Estradiol valerate (oestradiol Valerate)	Alora, Climara, Esclim, Estrace, EstraceVaginal Cream, Estraderm, Estring Vaginal Ring, FemPatch, Femring, Gynodiol, Menostar, Vivelle, Vivelle-Dot DepGynogen, Depo-Estradiol Cypionate, Depogen Estrasorb, Vagifem Delestrogen, Estra-L 40, Gynogen L.A, Primogyn Depot, Valergen
conjugated estrogens	C.E.S, Cenestin, Premarin, Premarin Intravenous
Estropipate	Ogen, Ortho-Est