STATE OF LOUISIANA
LOUISIANA DEPARTMENT OF HEALTH

OFFICE FOR CITIZENS

WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ATTENDANT COURSE

INSTRUCTOR'S MANUAL

SUPPLEMENTS, GUIDELINES

AND FORMS

SEPTEMBER – 1995
REVISED – 1998
REVISED – February 2018

LOUISIANA DEPARTMENT OF HEALTH

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INTRODUCTION

PREFACE

The Certified Medication Attendant Course has been designed for instruction by combined classroom lecture and self-study. As the instructor, and in consideration of your agency's policy, **you will be the best judge of how to use your time** during the 40 hours of theory. The trainee's background will influence this decision. The Curriculum Guidelines of Teaching Techniques and Supplemental Guide Manual will assist you in designing your individual curriculum.

ORGANIZATION

The format of this course has been designed to facilitate the learning of essential content and the mastery of entry level skills in administering medication. Each lesson begins with learning objectives and ends with self-study questions. A glossary is provided at the end of the course. Your instructor's manual has the same course content as the trainee's manual except for the insertion of "Instructor's Notes". The insertions guide you to additional information, charts, and diagrams that you may choose to use in your lecture. The supplements give you a resource for questions the trainee may have that is not covered in the course content. For example, when lecturing on cardiovascular medications, the supplement will give you a narrative on the anatomy and physiology of the heart, as well as a diagram of the heart with circulation. The supplements may also be used for your in- services required after the trainee has been certified. Use these supplements in any manner that will benefit you. Many of the diagrams can be converted to transparencies and used as overheads during this course or during an in service. You may also choose to develop a power point presentation.

The Instructor's Manual has the following sections which are not included in the Trainee Manual's: Self-Test Answers, and Practical Checklists. There are 26 Practical Checklists specific to administering different types of medication, vital signs and hand washing. Directions for administering the practical portion of this course are located at the beginning of the Practical Checklists section of the Instructor's Manual.

REMEMBER

It is up to you to take this course and the resources we have made available to you and **enhance the course content through your teaching method**. The trainee may not have a medical background and it will be up to you to present this material in a manner the trainee can relate to. The successful completion of the course by the trainee will largely depend on how interesting you can make the course. Support the trainee by showing your interest and enthusiasm in his/her work throughout the course and both you and the trainee will be rewarded by knowing that the individuals we work with are receiving their medications in a safe and proper manner

A. MEDICATION ATTENDANT LAW

Act 877, 1991, as amended by Acts 668 and 725, 1995

AN ACT

To amend and reenact R.S. 37:1021, 1023, 1024, and 1025, relative to medication attendants; to provide for applicability; to provide for the establishment of drug administration courses by the secretary of the Louisiana Department of Health; to provide for the functions of medication attendants; to provide for qualifications for the drug administration course; and to provide for related matters.

Be it enacted by the Legislature of Louisiana: Section 1. R.S. 37:1021, 1023, 1024, and 1025 are hereby amended and reenacted to read as follows:

1021. Applicability

This Part shall apply to the Office for Citizens with Developmental Disabilities of the Louisiana Department of Health and to community homes for persons with developmental disabilities funded through the Louisiana Department of Health and intermediate care facilities for the developmentally disabled, and to in-home Medicaid waiver services provided to persons with developmental disabilities. This Part shall apply to programs/agencies contracting for services with the Louisiana Department of Health and/or the Department of Social Services except as specifically prohibited in R.S. 37:1024(B) (4). Participation on the part of private providers that contract with the Louisiana Department of Health or the Department of Social Services is strictly voluntary.

1023. Drug administration course; fees

A. Drug administration courses shall be established by the office of the secretary of the Louisiana Department of Health in conjunction with the Louisiana State Board of Nursing and the Louisiana State Board of Practical Nurse Examiners and as approved by the secretary of the Louisiana Department of Health. Persons who have successfully completed the course and passed a qualifying examination shall be permitted to administer certain medications to residents of facilities operated by the Office for Citizens with Developmental Disabilities or community homes for persons with developmental disabilities funded through the Louisiana Department of Health or the Department of Social Services and to persons with developmental disabilities receiving in-home Medicaid waiver services and shall be known as medication attendants. The course shall include but not be limited to instruction of legal aspects, roles, and responsibilities of drug administration, definitions, terminology, classification, measurement, identification, effects, distribution, and the care and handling of drugs.

B. Fees for the drug administration course shall be determined by the office of the secretary of the Louisiana Department of Health. The cost of implementation will be reimbursed to providers with contract by the Louisiana Department of Health or the Department of Social Services.

C. The Louisiana Department of Health shall promulgate rules in accordance with the Administrative Procedure Act to provide for the certification of medication attendants, the renewal, suspension, or revocation of such certification and an appeals process for persons who have been denied certification or renewal, or whose certification has been suspended or revoked. The department shall also promulgate rules for the assessment of fees for instructor training courses.

1024. Authorized and prohibited functions of medication attendants.

A. The authorized functions of the medication attendant are:

1. Deliver and administer medications ordered by a physician or dentist to residents with the supervision of a registered nurse.

2. Record in the client's chart doses delivered to and/or administered to the client.

3. Chart drug effects and side effects, obtain vital signs as indicated or ordered.

4. Deliver pro re nata, "PRN" , as needed medications when authorized by a Licensed physician, dentist, or registered nurse. This authorization must be documented in writing within twenty-four hours.

B. Prohibited Functions of the Certified Medication Attendant

1. May not give medications by intramuscular, intravenous, or subcutaneous routes.

2. May not administer medications by the oral inhalant aerosol route unless administering a premeasured dosage unit provided by the manufacturer.

3. May not receive or assume responsibility for reducing to writing oral or telephone orders from a physician.

4. May not alter medication dosages as delivered from the pharmacy unless authorized by a physician or dentist.

5. May not administer medications in an acute unit funded or operated by the Louisiana Department of Health and/or the Department of Social Services.

1025. Qualifications of applicants to the drug administration course.

A. Each person accepted to participate in the drug administration course shall be citizen of the United States and a resident of this state and in addition:

1. Must be employed in a facility operated by the Office for Citizens with Developmental Disabilities in a community home for a persons with Developmental Disabilities funded through the Louisiana Department of Health or the Department of Social Services or in intermediate care facilities for the mentally retarded, or be a person who provides in-home Medicaid waiver services to a person with a developmental disability.

2. Must be at least 18 years of age.

3. Must be able to read, write, and comprehend the English Language.

4. Must be free of communicable diseases and in suitable physical and emotional health to administer medications safely.

5. Must have no known record or history of drug abuse or record of conviction of a felony. Must be in compliance with the Americans with Disabilities Act (ADA)

6. There will be no discrimination in selection of medication attendants for reason of race, color, creed, religion, or national origin.

The above **law** was enacted from the Regular Session, 1991, House Bill No. 1258 by Representative Jetson and amended by Regular Session, 1995, House Bill No. 568 by Representative Brun and House Bill No. 2164 by Representative Thomas, Ackal, Alario, Copelin, and DeWitt and Senators Bagneris, Brinkhaus, and Kelly.

B. Guidelines for Certification of Medication Attendant

§901. Overview

A. R.S. 37:1021-1025 authorizes the establishment of a medication administration course for the purpose of training and certifying unlicensed personnel to administer certain medication to residents of intermediate care facilities for people with developmental disabilities (ICFs/DD) and community homes for people with developmental disabilities either operated by the Office for Citizens with Developmental Disabilities (OCDD) or funded through the Department of Health (LDH); and to individuals in programs/agencies contracting for services with LDH except as prohibited in §911.B.5. Persons who successfully complete the certified medication attendant (CMA) course and demonstrate an acceptable level of competency on a written test and a practical examination are eligible for certification as medication attendants. Use of certified medication attendants (CMAs) on the part of private providers that contract with DHH is strictly voluntary.

B. The guidelines establish:

1. qualifications for instructors and CMA applicants;
2. authorized functions and prohibitions of certified medication attendants;
3. certified medication attendant 60-hour course curriculum;
4. requirements for initial certification and ongoing re-certification of medication attendants and reciprocity;
5. decertification and appeal process;
6. provider responsibilities;
7. role and responsibilities of the Office for Citizens with Developmental Disabilities; and
8. composition and role of Certified Medication Attendant Committee.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:694 (July 1995), amended by the Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1525 (September 2016).

§903. Definitions

A. For the purpose of these CMA guidelines, the following definitions shall apply.

Abuse (adult/elderly)—the infliction of physical or mental injury, or actions which may reasonably be expected to inflict physical injury, on an adult by other parties, including but not limited to such means as sexual abuse, abandonment, isolation, exploitation, or extortion of funds or other things of value (R.S. 15:503).

Abuse (child)—any of the following acts which seriously endanger the physical, mental, or emotional health and safety of the child:

a. the infliction or attempted infliction, or, as a result of inadequate supervision, the allowance or toleration of the infliction or attempted infliction of physical or mental injury upon the child by a parent or any other person;

b. the exploitation or overwork of a child by a parent or any other person;

c. the involvement of the child in any sexual act with a parent or any other person, or the aiding or toleration by the parent or the caretaker of the child's sexual involvement with any other person or of the child's involvement in pornographic displays, or any other involvement of a child in sexual activity constituting a crime under the laws of this state (*Children's Code*, article 1003).

Authorized Instructor—a registered nurse (RN), with a minimum of one-year experience working with people with developmental disabilities, who has completed the training for instructors, and has a current authorization by OCDD to teach the 60-hour medication attendant course.

CMA Applicant—an employee of an intermediate care facility for people with developmental disabilities or an in-home Medicaid home and community-based service who is enrolled in the 60-hour course curriculum.

Certified Medication Attendant (*CMA*)—the designation given an employee who has successfully completed the 60-hour course and passed the OCDD initial certification exam and has been issued a certificate by OCDD.

Department—the Louisiana Department of Health (LDH).

Exploitation (adult/elderly)—the illegal or improper use or management of the funds, assets, or property of a person who is aged or an adult with a disability, or the use of power of attorney or guardianship of a person who is aged or an adult with a disability for one's own profit or advantage (R.S. 15:503).

Extortion (adult/elderly)—the acquisition of a thing of value from an unwilling or reluctant adult by physical force, intimidation, or abuse of legal or official authority (R.S. 15:503).

Falsification of Participant Medical Records—includes, but is not limited to, falsification of time, dosage, date, amount, and documentation of prescribed treatment that did not occur.

Falsification or Alteration of CMA Certificate—includes, but is not limited to, altering expiration date, CMA name, OCDD coordinator's signature, or attempting to use another person's certificate.

HCBS (*Home and Community-Based Services*)—one or more of the following services:

a. *personal care attendant services*—services required by a person with a disability in order to become physically independent or to remain in or return to the community;

b. *respite care services*—the temporary care and supervision of a person with a disability or an infirm elderly person so that the primary caregiver can be relieved of such duties. Respite care services may be performed either in the home of the person with a disability or infirm elderly person or in a facility owned by the home- and community-based service provider who provides respite care services. For the purposes of this Section, person with a disability shall mean a person with a physical, mental, or medical condition or an adult who requires assistance with activities of daily living;

c. *supervised independent living services*—necessary training, social services, and medical services to enable a person who has mental illness or who has developmental

disabilities and who is living in congregate or individual apartments to live as independently as possible in the community;

d. *family support services*—advocacy services, family counseling, including genetic counseling, family subsidy programs, parent-to-parent outreach, legal assistance, income maintenance, parent training, homemaker services, minor home renovations, marriage and family education, and other related programs;

e. *adult day care services*—a group program designed to meet the individual needs of functionally impaired adults which is structured and comprehensive and which provides a variety of health, social, and related support services in a protective setting for a portion of the 24-hour day. The group program shall provide for 10 or more functionally impaired adults who are not related to the owner or operator of the home- and community-based service provider. For the purposes of this Section, *functionally impaired adults* shall mean individuals aged 17 years of age and older who are physically, mentally, or socially impaired to a degree that supervision is necessary;

f. *substitute family care services*—services providing 24-hour personal care, supportive services and supervision to adults who meet the criteria for having a developmental disability;

g. *supported employment*—a system of supports for people with disabilities in regards to ongoing employment in integrated settings. Supported employment can provide assistance in a variety of areas, including:

i. job development;

ii. job coaches;

iii. job retention;

iv. transportation;

v. assistive technology;

vi. specialized job training; and

vii. individually tailored supervision;

h. *monitored in-home caregiving*—services provided by a principal caregiver to a client who lives in a private unlicensed residence. The principal caregiver shall reside with the client, and shall be contracted by the licensed HCBS provider having a monitored in-home caregiving service module.

Home- and Community-Based Service Provider—an agency, institution, society, corporation, person or persons, or any other individual or group that provides one or more home- and community-based services as defined in this Section. The term *home- and community-based service provider* shall not include any of the following:

a. any person, agency, institution, society, corporation, group, or entity that solely prepares and delivers meals, that solely provides sitter services, or that solely provides housekeeping services;

b. any person, agency, institution, society, corporation, group, or entity who provides gratuitous home- and community-based services;

c. any individual licensed practical nurse or registered nurse who has a current Louisiana license in good standing, and who provides personal nursing services in the home to an individual, provided that the nurse has contracted with the individual or family for such services and payment of such services;

d. staffing agencies which supply contract workers to a health care provider licensed by the department;

e. any person who is employed as part of a department authorized self-direction program (R.S. 40:2120.2).

ICF/DD (*Intermediate Care Facility for People with Developmental Disabilities*)—an institution (or distinct part of an institution) that:

a. is primarily for the diagnosis, treatment, or rehabilitation of people with developmental disabilities or persons with related conditions; and

b. provides, in a protected residential setting, ongoing evaluation, planning, 24-hour supervision, coordination, and integration of health or rehabilitative services to help each individual function at his or her greatest ability (CMS 42 CFR 435.1009).

Institutional Abuse or Neglect—any case of child abuse or neglect that occurs in any public or private facility that provides residential child care, treatment, or education (*Children's Code*, article 603).

Misappropriation of Property—to take possession, without permission, of any and all of an individual's personal belongings.

Neglect (adult/elderly)—the failure, by a caregiver responsible for an adult's care or by other parties, to provide the proper or necessary support or medical, surgical, or any other care necessary for his/her well-being. No adult who is being provided treatment in accordance with a recognized religious method of healing in lieu of medical treatment shall, for that reason alone, be considered to be neglected or abused (R.S. 15:503).

Neglect (child)—the refusal or failure of a parent or caretaker to supply the child with necessary food, clothing, shelter, care, treatment, or counseling for any injury, illness, or condition of the child, as a result of which the child's physical, mental, or emotional health and safety is substantially threatened or impaired. Whenever, in lieu of medical care, a child is being provided treatment in accordance with the tenets of a well-recognized religious method of healing which has a reasonable, proven record of success, the child shall not, for that reason alone, be considered to be neglected or abused. Disagreement by the parent regarding the need for medical care shall not, by itself, be grounds for termination of parental rights. However, nothing herein shall prohibit the court from ordering medical services for the child when there is substantial risk of harm to the child's health or welfare (*Children's Code*, article 1003).

Office—the Office for Citizens with Developmental Disabilities (OCDD).

Supports and Services Center—a state ICF/DD operated by the Office for Citizens with Developmental Disabilities.

Waiver Program Services—other services approved by the Centers for Medicare and Medicaid Services for home- and community-based waivers for the Louisiana Medicaid Program.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:694 (July 1995), amended by the Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1525 (September 2016).

§905. Applicability

A. These guidelines shall apply only for certification of medication attendants who are:

1. employed in intermediate care facilities for people with developmental disabilities (ICFs/DD) operated by the Office for Citizens with Developmental Disabilities;

2. employed in community homes for people with developmental disabilities and/or small or large intermediate care facilities for people with developmental disabilities funded through the Department of Health;

3. employed in program/agencies, except as prohibited by §911.B.5, contracting with The Louisiana Department of Health for services to people with developmental disabilities; or

4. employed in programs supporting individuals licensed in HCBS services.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 21:695 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1527 (September 2016).

§907. Qualifications of Applicants to be Medication Attendants

A. Each person accepted to participate in the medication attendant course must be:

1. a citizen of the United States and a resident of Louisiana;
2. an employee of an intermediate care facility for people with developmental disabilities or an in-home Medicaid home and community-based service provider agency who is enrolled in the 60-hour course curriculum;
3. at least 18 years of age;
4. able to read, write, and comprehend the English language;
5. be free of communicable diseases and in suitable physical and emotional health to administer medications safely;

6. have no known record or history of:

   a. alcohol or drug abuse

NOTE: Must be in compliance with Americans with Disabilities Act.

   b. mental or physical abuse/neglect;

c. molestation; or

d. conviction of a felony or other conviction that bars employment in accordance with R.S. 40:1300.53 or other applicable state law.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:695 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1527 (September 2016).

§909. Qualifications of Instructors for Certified Medication Administration Courses

A. A registered nurse (RN) with a minimum of **one year** of clinical experience as a nurse consultant or a full-time nurse for a provider agency providing services to individuals with developmental disabilities in a day-habilitation facility, state facility, ICF/DD or HCBS setting qualifies as an instructor to teach the 60-hour course consisting of 40-hours classroom theory and 20 hours of clinical practical. The RN **may delegate the 20 hours of practical training** to a licensed practical nurse (LPN) with a **minimum of one year of clinical experience** in a developmental disability setting and knowledge of the course.

B. The RN instructor must complete training offered by the OCDD in the curriculum prior to teaching the course.

C. The DHH/OCDD may offer the medication administration instructor course on at least an annual basis, or as determined by the certified medication attendant committee.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:695 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1527 (September 2016).

§911. Authorized and Prohibited Functions of Certified Medication Attendants

A. Authorized functions of the certified medication attendant:

1. deliver medications ordered by a physician, dentist, or authorized prescriber to individuals for self-administration verifying with the medication administration record, the correct individual, dosage, medication name, route, and time;

2. deliver and administer medications ordered by a physician, dentist, or authorized prescriber to individuals with the supervision of a registered nurse, as defined in LAC 46:XLVII.3703.A, verifying with the medication administration record, the correct individual, dosage, medication name, route, and time;

3. administer oral medications, enemas, douches, ointments, pre-measured oral inhalant aerosols, and suppositories unless otherwise indicated;

4. record in the individual's chart:

a. doses delivered to and/or administered to the individual;

b. effectiveness of the drug;

c. any adverse effect of the drug;

d. appropriate vital signs as indicated by the physician order and/or knowledge of the drug; and

e. may transfer prescribed medication information to a medication administration record (MAR); may transfer medication information using a pre-printed pharmacy label indicating the correct individual, dosage, medication name, route, and time;

5. administer prescribed pro re nata (PRN), or as needed, medications when authorized by a licensed physician, dentist, authorized prescriber, or registered nurse. The authorizing health care professional must document the authorization in writing within 24 hours.

B. Prohibited functions of the certified medication attendant:

1. may not give medications by intramuscular, intravenous, or subcutaneous routes;

NOTE: This **does not include finger sticks for routine capillary blood glucose monitoring.** The CMA may perform routine capillary blood glucose monitoring for clients who do not require sliding scale insulin. This also does not include epinephrine pen usage for emergency situations.

2. may not administer medications by the oral inhalant aerosol route unless administering a premeasured dosage unit provided by the manufacturer;

3. may not receive or assume responsibility for reducing to writing oral or telephone orders from a physician, dentist, or authorized prescriber;

4. may not alter medication dosages as delivered from the pharmacy unless authorized by a physician, dentist, or authorized prescriber. Alteration of a medication dosage may include giving more or less than the dosage ordered or crushing, cutting or diluting without an order to do so by the physician, dentist or authorized prescriber;

5. may not administer medications in an acute care setting, including those funded by DHH and/or operated by the OCDD;

6. may not administer any medications when there is indication that the medication has been inappropriately dispensed by the pharmacist or mishandled by other persons;

7. may not delegate medication administration to others.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:695 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1528 (September 2016).

§913. Certified Medication Attendant Course Curriculum

A. Each applicant must complete a 60-hour course to become a certified medication attendant.

1. The course curriculum is 40 hours of classroom theory to include at a minimum, instruction in the following topics:

a. legal aspects;

b. roles and responsibilities of drug administration;

c. definitions;

d. terminology;

e. classification of drugs;

f. measurement;

g. identification;

h. effects and side effects;

i. distribution and route;

j. care and handling of drugs;

k. skills-tasks to be completed for competency; and

l. documentation.

2. Twenty-hour practical may consist of 10 hours of classroom demonstration and 10 hours on the unit for hands-on experience. The applicant must attain proficiency in the following 26 skill areas, either by actual demonstration, or by verbally demonstrating to the satisfaction of the licensed nurse:

a. hand washing;

b. oral medications;

c. liquid medications;

d. topical medications;

e. eye medications;

f. ear drops;

g. capillary blood glucose monitoring;

h. rectal suppositories;

i. vaginal suppositories/cream;

j. disposable enemas;

k. disposable douches;

l. counting pulse;

m. counting respirations;

n. taking blood pressure;

o. taking oral temperature;

p. taking rectal temperature;

q. taking axillary temperature;

r. taking tympanic temperature;

s. premeasured transdermal patches;

t. nasal atomizer;

u. oral powdered medications;

v. charting;

w. crushing tablets;

x. rectal creams;

y. premeasured dosage unit provided by the manufacturer of an oral aerosol inhalant;

z. limited sublingual medications.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:696 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1528 (September 2016).

§915. Certification Requirements and Process

A. CMA certificates issued after rule promulgation will expire two years from the last day of the month that the certificate was printed.

1. The agency administrator/representative must complete Form CMA - 1, Profile Sheet, for each employee CMA applicant, acknowledging that all the qualifications outlined in §907 are met prior to the applicant attending the course.

2. The CMA applicant must complete the 60-hour course: 40 hours of classroom theory and 20 hours of practical with a minimum of 10 of those hours conducted in the work place.

3. The CMA applicant must demonstrate proficiency in the 26 skill areas to pass the practical portion of the course. An RN or LPN must administer the practical. Proficiency may be either verbal or physical demonstration. A pass/fail grade shall apply.

4. After completion of the 60-hour course, the CMA instructor completes Form CMA-2, initial exam and certification request, and sends it to the regional coordinator to request applicant(s) be scheduled for the written OCDD CMA certification exam. Form CMA-2 must be attached to the Form CMA-1, profile sheet, for each applicant. All forms must be received by the regional coordinator before an exam date can be scheduled.

5. The regional coordinator will:

a. establish a test date;

b. notify the central office CMA coordinator to mail or email an electronic version of the exam that cannot be modified to the regional coordinator (The exam consists of 50 questions at 2 points each for a total possible score of 100 points.);

c. administer the test;

d. return test(s) to the central office coordinator for grading and scoring;

e. notify CMA instructors as to applicants' scores;

f. notify agency about applicants' scores;

g. mail certificates to the agency;

h. assist CMA instructors regarding any questions; and

i. maintain copies of all forms submitted to the central office coordinator.

6. The central office coordinator will:

a. grade each test and determine test score:

i. a test score of 80 is required to pass the exam;

ii. a test score between 70 and 78 allows the test to be retaken once without repeating the course;

iii. a test score below 70 requires a repeat of the entire 60-hour course.

b. send the regional coordinator the exam scores and certificates.

7. Upon passing the OCDD CMA certification exam, the applicant is designated as a CMA.

8. The central office coordinator will issue two certificates; one for the CMA, and one for the requesting provider agency.

9. The certificate shall include at least the following:

a. name of CMA;

b. expiration date;

c. signature of central office coordinator.

d. an embossed seal;

e. the signature of the assistant secretary of OCDD; and

f. the official logo for the OCDD.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:696 (July 1995), amended LR 23:1147 (September 1997), amended by the Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1529 (September 2016).

§917. Re-Certification Requirements and Process

A. Recertification is required **every two years**. Each CMA must be recertified. The requirements for re-certification are:

1. **Every two years** a CMA must complete a **total of nine hours** of in-service training. **Two of the nine** hours must **directly relate to the agency's medication administration policy and procedure.** The remaining seven hours of in-service must relate to medication administration. A CMA working in multiple agencies may combine training to meet these requirements with the exception that the two-hour training on agency medication administration policy and procedure is required for each employer. Each agency must have documentation of each CMA's required nine hours of in-service training;

2. **Annually,** the CMA must pass with proficiency, either by **physical or verbal** demonstration, the **26 skills on the practical checklist**. The annual cycle is based on the last day of the month that the certificate was printed. If a CMA changes employers within the certification period and training records are not available for the first year, the new employer must determine competency by assessing the 26 skills upon hire, in addition to meeting these requirements for re-certification.

B. Upon successful completion of these requirements the CMA instructor sends Form CMA 3a. and Form CMA 3b. to the regional office/ developmental center coordinator requesting re-certification of each CMA. The regional office/developmental center coordinator forwards information to the central office coordinator.

C. The central office coordinator issues two certificates to the regional office/developmental center coordinator for dissemination. One certificate is for the CMA and the other is for the requesting provider agency.

D. The re-certification requirements must be met prior to the month of expiration of the CMA's certification.

E. A CMA who **has not worked directly** with medication administration in a facility, program, or agency for individuals with developmental disabilities for 24 months or more must take the OCDD CMA state exam again and pass with proficiency the 26 skills checklist. If the CMA does not pass the state exam, then the CMA must repeat the 60-hour course and pass the exam prior to being recertified. Failure to pass the state exam will result in de-certification.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 21:697 (July 1995), amended LR 23:1147 (September 1997), amended by the Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1529 (September 2016).

§919. Decertification of Medication Attendants

A. Decertification shall occur under the following conditions:

1. falsification of participant medical records as defined in these regulations;
2. found guilty of abuse, neglect or cruelty to the infirmed as defined in these regulations;

3. found guilty of misappropriation of a resident's property as defined in these regulations;

4. falsification or alteration of CMA certificate issued by the office as defined in these regulations;
5. falsification of CMA qualifications;

6. failure to meet CMA qualifications;

B. Decertification may occur under the following conditions:

1. Failure of CMA to obtain re-certification requirements results in decertification. The CMA may be reinstated if the re-certification requirements are met within six months of expiration of the certificate. During this six-month period the CMA's authorized functions shall be suspended;

2. Unsatisfactory performance of CMA reported by a licensed nurse, either RN or LPN, can result in either a temporary suspension of the CMA's medication administration privileges or decertification. The RN may choose to suspend CMA medication administration privileges not to exceed three months and provide training during which time the CMA may administer medications only under RN or LPN direct observation. After completion of designated suspension and training, the RN reserves the right to re-instate medication administration privileges or decertify the CMA. If decertified, the CMA must repeat the 60-hour course and retake the OCDD CMA certification exam. The reinstatement of CMA medication administration privileges does not extend the expiration date of the certificate.

C. Based on the aforementioned criteria, the RN in consultation with the agency administrator makes the decision to decertify the CMA.

D. The RN/CMA instructor sends a confidential letter and Form CMA 4 - Decertification Form to both the CMA and the central office coordinator identifying the reasons for decertification of the individual.

E. A copy of the decertification letter and Form CMA 4 along with pertinent documentation is maintained in the provider's records.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:697 (July 1995), amended by the Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1529 (September 2016).

§921. Appeal Process

A. A CMA who has had privileges suspended or has been decertified has the right of appeal.

B. Notice of Violations. When there are substantiated charges against the CMA, either through oral or written evidence, the OCDD will notify the individual(s) implicated in the investigation of the following information by certified mail:

1. the nature of the violations, and the time and date of each occurrence;
2. the state's intent to report these violations to the CMA registry; and
3. The right to request an informal discussion and/or the right to an administrative hearing.

C. Right To An Informal Discussion. When a CMA feels that he/she has been wrongly accused, the following procedure should be followed:

1. Within 15 calendar days of the receipt of the office's notice of violation, the CMA may request an informal discussion.

2. Such request must be made to the office in writing. A meeting will be arranged within 20 days of such a request. The informal discussion is designed to provide an opportunity for:
   a. the CMA to informally review the situation;
   b. the agency to offer alternatives based on corrections or clarifications, if any; and
   c. the CMA to evaluate the necessity for seeking an administrative hearing;
3. During this informal discussion, the CMA will be afforded the opportunity to talk with office personnel involved in the situation, to review pertinent documents on which the alleged violation is based, to ask questions, to seek clarifications, and to provide additional information.

D. Right to Request Administrative Hearing

1. Within 30 calendar days after the receipt of notice of the office's notice of violation or the notice of results of informal discussion, the CMA may request an administrative hearing. Such request must be in writing to the: Office of the Secretary, Attention: Bureau of Appeals. The request must contain a statement setting forth the specific charges with which he/she disagrees, and the reasons for this disagreement.

2. Unless a timely and proper request is received by the appeals section, the findings of the OCDD shall be considered a final and binding administrative determination. Notification will then be entered to the CMA registry.

E. Basic Provisions. The administrative hearing shall be conducted in accordance with the Louisiana Administrative Procedure Act, R.S. 49:965 et seq., and the provisions set forth in the procedures described therein.

F. Right to Counsel. Any party may appear and be heard at any appeals proceeding through an attorney at law or through a designated representative.

G. Appearance In Representative Capacity

1. A person appearing in a representative capacity shall file a written notice of appearance on behalf of a provider:
   a. identifying himself by name, address and telephone number; and
   b. identifying the party represented; and
2. Such person shall have a written authorization to appear on behalf of the provider.

H. Preliminary Conference

1. Although not specifically required, the appeals bureau may schedule a preliminary conference. The purposes of the preliminary conference include but are not limited to the following:

a. clarification, formulations and simplification of issues;

b. resolution of matters in controversy;

c. exchange of documents and information;

d. stipulations of fact so as to avoid unnecessary introduction of evidence at the formal review;

e. the identification of witnesses; and

f. such other matters as may aid disposition of the issues.

2. When the appeals bureau schedules a preliminary conference, it shall notify all parties in writing. The notice shall direct any parties and their attorneys to appear at a specified date, time, and place.

I. Results of Preliminary Conference

1. Where the preliminary conference resolves all or some matters in controversy, a summary of the findings agreed to at the conference shall be provided by the administrative law judge.

2. Where the preliminary conference does not resolve all matters in controversy, an administrative hearing shall be scheduled on those matters still in controversy. The hearing shall be scheduled within 30 calendar days following the completion of the preliminary conference, or at a time mutually convenient to all parties.

J. Notice of Administrative Hearing. When an administrative hearing is scheduled, the appeals bureau shall notify the CMA and/or his representative and the office representative, in writing of the date, time and place of the hearing. Notice shall be mailed not less than 10 calendar days before the scheduled date of the hearing.

K. Conduct of Hearing

1. The hearing shall be conducted by the administrative law judge from the appeals bureau.
2. Testimony shall be taken only on oath, affirmation, or penalty of perjury.

3. Each party shall have the right to call and examine parties and witnesses; to introduce exhibits; to question opposing witnesses and parties on any matter relevant to the issue even though the matter was not covered in the direct examination; to impeach any witness regardless of which party first called him to testify; and to rebut the evidence against him.

4. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduce of serious affairs regardless of the existence of any common law or statutory rule which might make improper the admission of such evidence over objection in civil or criminal actions. Documentary evidence may be received in the form of copies or excerpts.

5. The administrative law judge may question any party or witness and may admit any relevant and material evidence.

6. The administrative law judge shall control the taking of evidence in a manner best suited to ascertain the facts and safeguard the rights of the parties. Prior to taking evidence, the administrative law judge shall explain the issues and the order in which evidence will be received.

7. A party has the burden of proving whatever facts it must establish to sustain its position.

8. The burden of producing evidence to substantiate the written charge(s) will be on the provider of services. Once the burden of producing evidence to substantiate the charges has been met, the CMA and/or his representative shall have the burden of producing evidence answering the charges.

L. Witnesses and Subpoena

1. Each party shall arrange for the presence of their witnesses at the hearing.

2. A subpoena to compel the attendance of a witness may be issued by the administrative law judge upon written request by a party and a showing of the need therefor.

3. A subpoena may be issued by the administrative law judge on his own motion.

4. An application for subpoena duces tecum for the production by a witness of books, papers, correspondence, memoranda, or other records shall be made in writing to the administrative law judge, giving the name and address of the person or entity upon whom the subpoena is to be served. The application shall precisely describe the material that is desired to be produced and shall state the materiality thereof to the issue involved in the proceeding. It shall also include a statement that, to the best of the applicant's knowledge, the witness has such items in his possession or under his control.

M. Continuance of Further Hearings

1. The administrative law judge may continue a hearing to another time or place, or order a further hearing on his own motion of upon showing of good cause, at the request of any party.

2. Where the administrative law judge determines that additional evidence is necessary for the proper determination of the case, he may at his discretion:

a. continue the hearing to a later date and order the party to produce additional evidence; or

b. close the hearing and hold the record open in order to permit the introduction of additional documentary evidence. Any evidence so submitted shall be made available to both parties and each party shall have the opportunity for rebuttal.

3. Written notice of the time and place of a continued or further hearing shall be given except that when a continuance of further hearing is ordered during a hearing, oral notice of the time and place of the hearing may be given to each party present at the hearing.

N. Record of Hearing. A sound recording of the hearing shall be made. A transcript will be prepared and reproduced at the request of a party to the hearing provided he bears the cost of the copy of the transcript.

O. Decision

1. At the conclusion of the hearing, the administrative law judge shall take the matter under submission.

2. The administrative law judge shall prepare a written proposed decision which will contain findings of fact, a determination of the issues presented, a citation of applicable policy and regulations, and an order.

3. The appeals bureau, on behalf of the secretary of the DHH, may adopt the proposed decision or may reject it based upon the record, or it may be remanded to the administrative law judge to take additional evidence. In the latter case, the administrative law judge thereafter shall submit a new proposed decision.

4. The decision shall be final and binding upon adoption on behalf of the secretary, subject only to judicial review by the courts. Copies of the decision shall be mailed to the CMA at his last known address and to any representative thereof.

P. Failure to Appear

1. If a CMA fails to appear at a hearing, a decision may be issued by the appeals bureau dismissing the hearing. A copy of the decision shall be mailed to each party.

2. Any dismissal may be rescinded upon order of the appeals bureau if the CMA makes written application within 10 calendar days after the mailing of the dismissal, and provides evidence of good cause for his failure to appear at the hearing.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:697 (July 1995).

§923. Reciprocity

A. A provider whose employee furnishes documentation as to successful completion of an equivalent medication administration course conducted in another state and meets other criteria stated in these guidelines and successfully passes the 26 skills checklist and the CMA initial certification exam, may on a case-by-case basis be granted reciprocity. The provider agency would complete Form CMA-5, reciprocity request, and mail to the central office OCDD coordinator. The Certified Medication Attendant Committee will review the documentation and determine if the person will be certified as a CMA in Louisiana. If reciprocity is granted, the provider is notified and the central office OCDD coordinator would issue the certificates to the provider.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:699 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1530 (September 2016).

§925. Provider Responsibility

A. There will be no discrimination in selection of medication attendants for reason of race, color, creed, religion, disability, as defined in R.S. 51:2232(11), or national origin.

B. Each provider shall maintain records on each CMA. The records must include:

1. the current monitoring skills checklist required for certification and re-certification;

2. a copy of the current certificate issued to the CMA by the central office coordinator. The second copy must be provided to the CMA;

3. documentation of annual successful completion of the 26 skills checklist and completion every two years of continuing education necessary for re-certification of CMA.

C. The provider shall have policies and procedures in place regarding medication administration processes.

D. The provider is legally responsible for the level of competency of its personnel and for ensuring that unlicensed staff administering medication have successfully completed the medication administration course curriculum. Additionally, the provider is responsible for maintaining re-certification requirements of its CMAs and ensuring that its CMAs perform their functions in a safe manner.

E. The provider is responsible for providing access to RN supervision of staff through employment or through a contract with a registered nurse. This nurse should review all medication errors on a monthly basis.

F. The provider shall conduct thorough employment checks including verification of CMA certification.

G. The provider is responsible for contacting the central office to verify that a CMA is in good standing prior to employing a CMA certified by another provider. The central office coordinator will send the provider Form CMA-6 verifying that the CMA is in good standing. Form CMA-6 must be maintained on file in the provider's records. The CMA would be responsible for providing a copy of his or her certificate to the provider.

H. If a CMA changes employers within the certification period and training records are not available for the first year, the new employer must determine competency by assessing the 26 skills upon hire, in addition to meeting the requirements for re-certification.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:699 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1530 (September 2016).

§927. Office for Citizens with Developmental Disabilities Responsibilities

A. The OCDD shall ensure the integrity of the medication administration course by:

1. implementing the CMA Law, R.S. 37:1021-1025;

2. revising guidelines;

3. issuing tests for initial certification of CMAs;
4. administer the tests for initial certification of CMAs;
5. grading the tests for initial certification of CMAs;
6. maintaining the originals of written examinations with scoring;
7. maintaining a roster of nurses who complete the CMA instructor training;
8. issuing certificates;
9. offering an instructor's course;
10. convening the Certified Medication Administration Committee as needed;
11. verifying CMAs are in good standing; and
12. maintaining a CMA registry.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:700 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1530 (September 2016).

§929. The Certified Medication Administration Committee

A. Composition of committee as determined by the assistant secretary of OCDD:
1. authorized CMA instructors;
2. central office coordinator;
3. two OCDD regional coordinators;
4. an individual or individual's representative (e.g., family member), and
5. other representatives as determined by the office.

B. Responsibilities of the committee:
1. Provide input regarding CMA program aspects such as guidelines, course curriculum, instructor training;
2. review requests for reciprocity status; and
3. Offer assistance to CMA instructors upon request.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.
HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:700 (July 1995), amended by the Louisiana Department of Health, Office for Citizens with Developmental Disabilities, LR 42:1530 (September 2016).

§931. CMA Forms

A. Forms to be used are as follows:

1. Form CMA - 1 is the profile sheet completed by the provider agency's administrator/representative to attest that all qualifications are met for the CMA applicant to attend the 60-hour medication administration course. This form is given to the CMA instructor.

2. Form CMA - 2 is the exam request and initial certification request form completed by the CMA instructor and sent to either the regional office or developmental center coordinator to request the office schedule CMA applicant(s) for the OCDD CMA certification exam. Form CMA - 1 must be attached to the CMA - 2 for each CMA applicant to be scheduled for the test. For those applicants that pass the test, the office will send the certificates to the CMA instructors.

3. Form CMA - 3a. and 3b. are the re-certification requests completed by the CMA instructor acknowledging that all recertification requirements are met. The CMA instructor sends these forms to the central office coordinator for issuance of certificates.

4. Form CMA - 4 is the decertification form completed by the CMA instructor identifying the reasons for decertifying the CMA and sent to the central office coordinator. Form CMA - 4 is also sent to the CMA along with a confidential letter. A copy of Form CMA - 4 must be maintained in provider agency records.

5. Form CMA - 5 is the reciprocity request form the provider agency would complete for employees that furnish documentation of successful completion of an equivalent medication administration course from another state. This form is sent to the central office coordinator for review and determination.

6. Form CMA - 6 is the form completed by the central office coordinator verifying a CMA is in good standing. This form is sent to provider agencies who employ a CMA in good standing certified by another agency. Form CMA - 6 must be keep on file in the provider records.

AUTHORITY NOTE: Promulgated in accordance with R.S. 37:1021-1025.

HISTORICAL NOTE: Promulgated by the Department of Health and Hospitals, Office for Citizens with Developmental Disabilities, LR 21:700 (July 1995).

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION COURSE
"PROFILE SHEET"

EMPLOYEE NAME: **SOCIAL SECURITY #**:

HOME ADDRESS: **DATE OF BIRTH**: MM DD YY

City State Zip

EMPLOYER/AGENCY:

EMPLOYER NAME

MAILING ADDRESS

TELEPHONE #

CMA INSTRUCTOR:

SIGNATURE

PRINT NAME

MAILING ADDRESS

TELEPHONE #

EMAIL ADDRESS

I DO HEREBY CERTIFIY, TO THE BEST OF MY KNOWLEDGE, THE ABOVE NAMED EMPLOYEE MEETS THE FOLLOWING QUALIFICATION REQUIREMENTS PROSCRIBED UNDER L.R.S. 37:1025.

- US Citizen
- Louisiana resident
- 18 years of age
- Able to read, write and comprehend the English language
- Free of communicable diseases
- Is in suitable physical and emotional health to administer medications safely
- Free of current illicit drug use
- No record of conviction of a felony

AGENCY ADMINISTRATOR/REPRESENTATIVE DATE

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION COURSE
"INITIAL EXAM REQUEST AND CERTIFICATION REQUEST"

DATE: _____

TO: _____

FROM: _____
CMA INSTRUCTOR AND AGENCY

RE: SCHEDULING OF MEDICATION ADMINISTRATION TEST

As outlined in the Guidelines for Medication Attendant Certification, I certify the individual(s) named on the **attached CMA 1 "profile sheet(s)"** have:

_____ a) Completed the 60 hour course consisting of the 40 hours of classroom instruction and 20 hours of practical,

AND

_____ b) Successfully passed all of the skills practical checklist.

Listed below are the employees who need to be scheduled to take the exam:

EMPLOYEE NAME	**AGENCY**

Duplicate this page if more space is needed.

_____ _____
CMA INSTRUCTOR DATE

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

COVER MEMORANDUM
(TO USE WITH "RECERTIFICATION REQUEST")

DATE: _____

TO: _____
CMA REGIONAL COORDINATOR

FROM: _____
CMA INSTRUCTOR AND AGENCY

RE: "RECERTIFICATION REQUESTS"

Attached are the "recertification requests" for those employees who have met the recertification requirements. Please issue certificates for the following:

CMA NAME	**AGENCY**	**RECERTIFICATION EFFECTIVE DATE** (MM/DD/YY)

Duplicate this page if more space is needed.

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION
"RECERTIFICATION REQUESTS"

DATE: _____

TO: _____
CMA REGIONAL COORDINATOR

FROM: _____
CMA INSTRUCTOR AND AGENCY

_____
MAILING ADDRESS

_____
CITY STATE ZIP

_____
TELEPHONE # **EMAIL**

RE: **RECERTIFICATION EFFECTIVE DATE:_____**

CMA NAME: _____

SS #: _____

EMPLOYER: _____

EMPLOYER ADDRESS: _____

_____
CITY STATE ZIP

The above named CMA has met the requirements for recertification. Please issue a certificate.

____Documentation of successful completion of 9 hours of ongoing training of medication administration. Two of the 9 hours were regarding agency policy and procedures on medication administration.

____ Successfully passed with proficiency the 26 skills on the practical checklist on an annual basis or at both the point of hire and at the point of recertification if the CMA was hired during the certification period.

_____ _____
CMA INSTRUCTOR DATE

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION
"DECERTIFICATION REQUEST"

DATE: _____

TO: _____
CMA REGIONAL COORDINATOR

FROM: _____
CMA INSTRUCTOR AND AGENCY

_____
MAILING ADDRESS

_____
TELEPHONE # **EMAIL**

RE: **"DECERTIFICATION REQUEST"**

_____
CMA NAME

_____
SOCIAL SECURITY #

_____
EMPLOYER

_____
EMPLOYER ADDRESS

I request, effective on the above referenced date, decertification of the identified CMA due to the following condition(s):

	Falsification of consumer medical records.
	Found guilty of abuse, neglect or cruelty to the infirmed.
	Found guilty of misappropriation of a resident's property.
	Found guilty of falsification or alteration of CMA certificate.
	Failure of CMA to obtain annual recertification requirements.
	Unsatisfactory performance of CMA reported by a licensed nurse (either RN or LPN).

_____ _____
CMA INSTRUCTOR DATE

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION
"RECIPROCITY REQUEST"

DATE: _____

TO: _____
CMA REGIONAL COORDINATOR

FROM: _____
CMA INSTRUCTOR AND AGENCY

_____
MAILING ADDRESS

_____
TELEPHONE # **EMAIL**

RE: **RECIPROCITY OF EMPLOYEE FOR CMA**

I do hereby certify to the best of my knowledge, the above named employee meets the following qualification requirements prescribed under L.R. S. 37: 1025 and is a certified medication attendant in good standing in another state and am requesting CMA status in Louisianan for said employee. Attached is documentation of employee's medication administration training curriculum from another state.

- US Citizen
- Louisiana resident
- 18 years of age
- Able to read, write and comprehend the English language
- Free of communicable diseases
- Is in suitable physical and emotional health to administer medications safely
- Fee of current illicit drug use
- No record of conviction of a felony

SIGNED: _____ _____
AGENCY ADMINISTRATOR/REPRESENTATIVE DATE

STATE OF LOUISIANA
OFFICE FOR CITIZENS WITH DEVELOPMENTAL DISABILITIES

CERTIFIED MEDICATION ADMINISTRATION
"VERIFICATION OF CMA IN GOOD STANDING"

DATE: _____

TO: _____

FROM: _____

_____
MAILING ADDRESS

_____
City **State** **Zip**

RE: **VERIFICATION OF CMA IN GOOD STANDING**

This will verify that the below referenced CMA is in good standing with all privileges.

CMA NAME	**CERTIFICATE/ EXPIRATION DATE**

_____ _____
OCDD CMA STATE OFFICE COORDINATOR DATE

C. RESPONSIBILITIES AND PROHIBITED FUNCTIONS OF THE MEDICATION ATTENDANT

RESPONSIBILITIES:

The significance of your role as a staff person designated to administer medications to the individuals in your agency's program should never be underestimated. It is important that you, as a direct care worker, understand all the legal issues, roles and responsibilities to which you have been assigned.

Many of the individuals in your agency's program will need prescribed medications and drugs which you may not be familiar with and which are potentially dangerous.

When a provider agency such as the one you work in, assumes responsibility for the care and protection of its residents, it is required by law to make special efforts to protect their safety. Serious medication errors are often made even in relatively uncomplicated family settings. Given the complexity of a typical service setting (many different staff and residents, staff turnover, *etc.*) , you can see that a ***systematic set of rules, regulations and laws is necessary to ensure that appropriate procedures are carried out on a consistent basis, and that your specific authorized and prohibited functions and responsibilities as outlined in this manual, the laws and other regulations will serve to protect you and your agency from errors which would have serious legal consequences***.

As you recall from your previous review of Act 877

The Authorized functions of the medication attendant are:

1. Deliver and administer medications ordered by a physician or dentist to residents with the supervision of a registered nurse.

2. Record in the client's chart doses delivered to and/or administered to the client.

3. Chart drug effects and side effects, obtain vital signs as indicated or ordered.

4. Deliver pro re nata, "PRN" , as needed medications when authorized by a Licensed physician, dentist, or registered nurse. This authorization must be documented in writing within twenty-four hours.

The Prohibited Functions of the Certified Medication Attendant are:

1. May not give medications by intramuscular (IM), intravenous (IV), or subcutaneous routes.

2. May not administer medications by the oral inhalant aerosol route unless administering a premeasured dosage unit provided by the manufacturer.

3. May not receive or assume responsibility for reducing to writing oral or telephone orders from a physician.

4. May not alter medication dosages as delivered from the pharmacy unless authorized by a physician, dentist.

5. May not administer medications in an acute care unit funded or operated by the Louisiana Department of Health and/or the Department of Social Services.

In addition to the authorized and prohibited functions as outlined in Act 877, and bearing in mind the necessity of assisting individuals who have developmental disabilities develop their abilities in various fields of activity, the following concepts are to be observed:

1. A resident, if capable, is to be encouraged to self- administer medication.
2. A resident and/or the parents of a resident under 18 years of age have a right to know what medication he/she is receiving, its actions and adverse reactions.
3. Only medications which a physician, dentist or other authorized prescriber has prescribed or approved for the resident should be given. prescriber has prescribed or approved for the resident should be given.
4. Medications should not be given for the convenience of the staff, but only for the benefit of the individual.
5. Medications which do not show specific effects should be brought to the attention of the prescribing physician.
6. A positive approach should be taken when giving medications. If the use of physical force is necessary to administer medication, this situation must be brought to the physician and supervisor's attention.
7. All medication changes should be discussed with the residents and/or parents of a resident under the age of 18.

PARTICIPANTS SHOULD REVIEW THEIR OWN AGENCY'S POLICIES AND PROCEDURES FOR ANY ADDITIONAL RESPONSIBILITIES.

Answer Self -Test Questions - Introduction

CERTIFIED MEDICATION ATTENDANT COURSE

INSTRUCTOR'S MANUAL

PART 1

LESSON CONTENT

REVISED - 1998
REVISED – FEBRUARY 2018

LESSON 1:
RESPONSIBILITIES IN THE AREAS OF MEDICATION ADMINISTRATION AND LEGAL MANDATES

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Discuss who is responsible for administration of medication
2. Discuss medication standards
3. Describe the purpose of medication legislation
4. Discuss legal obligations as it relates to neglect and malpractice
5. Discuss regulations pertinent to medication labeling

Who is Responsible?

Doctors, other authorized prescribers, pharmacists, nurses and other specified residential staff (CMAs) are all members of a **team** that are responsible for giving individuals the correct medications. All staff must be aware of their legal responsibilities regarding the administration of medication. You must therefore understand how to properly give (administer) medications and record their actions (effects).

In addition to understanding the correct method of administration and documentation, the staff must be aware of policies and procedures regarding omitted and refused medications. The material in this lesson will be supplemented with your agency's specific policies and procedures. Follow your agency's policies and procedures. ALWAYS follow your agency's policies.

I. People Responsible for Medication

A. **Physicians and other authorized prescribers--** determine the need for and order medication.

B. **Pharmacists--**fills the order, provides information about medications to the staff and to the individuals, performs quarterly drug reviews to ensure that medication administration, storage of medications, medication use and appropriateness of therapy are correct.

C. **Registered nurses, Licensed Practical Nurses--**administer medications ordered by the physician or other authorized prescriber, transfer telephone orders to writing, monitor the accuracy of medication administration to clients and provide education to staff on medications.

D. **Certified Medication Attendants--**Administer only those medications for which they are so authorized to administer by law.

1. Responsibilities **before** administering medication:
   a. Check the original medication order and Medication Administration Record (MAR) for accuracy.
   b. Prepare the medication for administration
   c. Use the proper equipment.
   d. Prepare the medications accurately by using the "Rule of Three" (discussed in Lesson 4).

2. Responsibilities **during** the administration of medications:
   a. Identify the individual (use Photo identification).
   b. Explain the procedure to the individual.
   c. Administer the medication correctly. (Pour only one medication at a time.)

3. Responsibilities **following** administration of medications:

   a. Record (document) the administration of the medication on the Medication Administration Record (MAR).
   b. Clean the equipment.
   c. Observe and record (document) the effects of the medication.
   d. Record (document) and report the adverse effects or poor response to the medication.

LEGAL MANDATES

I. Medication Standards and Legislation

- Standardization is needed to ensure uniformity of the purity and potency of medication. Their primary purpose is to provide standards for identity, strength, and purity of substances used in the practice of health care.

- Medication legislation is designed to protect the public from fraud, false advertising and untested drugs and to regulate the manufacture and dispensing of drugs.

The Federal Food, Drug, and Cosmetic Act, June 25, 1938, spells out regulations concerning the purity, strength, effectiveness, safety, labeling and packaging of medications. **The amendment of 1952** allows certain medications to be dispensed only by prescription and to be refilled only on a doctor's order; it also recognizes over the Counter (OTC) medications as medications that do not require a prescription.

The amendment of 1952 allows certain medications to be dispensed only by prescription and to be refilled only on a doctor's order; it also recognizes over the Counter (OTC) medications as medications that do not require a prescription.

The labeling aspect is an important part of this act. Warning statements must appear on the label of certain medications. For example, laxatives must bear a statement that "such medications should not be taken in the presence of abdominal pain or cramps and that they may be habit forming". Requirements like these go a long way in protection of the public.

II. Legal Obligations of Medical Personnel

A. State and Federal regulation set forth the **rights of individuals.**

B. Agencies and all personnel are required to respect **individuals' rights** which include: (Not to be confused with the 6 Rights of Medication Administration.)

1. The right to refuse medication and treatment.
2. The right to be informed on consequences of refusing medication and treatment.
3. Freedom from physical and mental abuse and neglect.
4. Freedom from restraint without a physician's written order.
5. The right to privacy.
6. The right to confidential treatment.

C. All individuals are legally protected from:
   1. Libel and slander.
   2. Assault and battery.

III. MALPRACTICE AND NEGLIGENCE

A. **Malpractice** is an act of negligence as applied to a **PROFESSIONAL** person, such as a physician, nurse or dentist.
   1. Malpractice is any improper or injurious practice or any unskillful or faulty medical treatment.

B. **Negligence** is performing an act that a reasonably prudent person under similar circumstances would not do, or failing to perform an act that a reasonably prudent person under similar circumstances would do.
   1. By law, individuals can expect safe and efficient care.
   2. Individuals expect medication personnel to administer medication accurately.
   3. The residential staff is obligated to perform care that meets minimum standards.

C. Individuals are protected from health care negligence/malpractice by a law called "**Duty of Care."**
   1. The residential staff is negligent if **REASONABLE** care is **NOT** given or **UNREASONABLE** care **IS** given.

D. Both residential staff and individuals are protected by the standard of "**Reasonable Care."**

1. Individuals can expect "reasonable care." Reasonable care is doing only that which you have been trained to do; acting as others would act in the same or similar situations.
2. Residential staff are required to provide care based on this minimum standard of "**Reasonable Care."**

E. To avoid being negligent:

1. Do only those things you **have been trained** to do.
2. Observe the legal rights of every individual.
3. Complete all records carefully.
4. Be informed about the medications including their actions and adverse effects.
5. Follow the policies of your agency.

F. Examples of negligence include:

1. Leaving a dependent individual unattended in a shower or bath.
2. Giving the wrong medication to an individual.
3. Failing to report an observation or adverse effect to the staff nurse that later has profound consequences for the individual's health.
4. Causing an injury by using defective/broken equipment or supplies.
5. Failing to give a medication at the prescribed time (Unless otherwise instructed by physician or RN due to extenuating circumstances.)

G. Accountability for negligence:

1. All persons are accountable for their own actions.
2. Supervisory personnel are accountable for the actions of whomever they direct and supervise.
3. The agency is legally obligated to ensure all individuals are free from physical and mental abuse and restraints.

H. Legal action:

1. May result from claims of negligence and/or malpractice.
2. Action can be brought against the agency, supervisory personnel, and/or an individual who is considered negligent.
3. If the residential staff had "no intent to harm," then a financial settlement may be made.
4. If the individual proves an "intent to harm" or the individual's injury is severe, the residential staff person may be fired.

5. Criminal action may also be taken if a crime is committed, such as:
   a. **Assault:** a threat or attempt to make bodily contact with another person without that person's consent.
   b. **Battery:** an assault (threat) that is carried out.
   c. **Neglect**: omission of any reasonable precaution, care or action.
   d. **Misuse of controlled substances:** The use of a controlled substance for any other purpose then the prescribed purpose.

IV. Ethical Considerations

A. A "**Code of Ethics**" is a voluntary set of rules that influence relationships between people based on dignity and respect for each individual's rights.

B. Words that describe ethical behavior:

   1. Honesty
   2. Sincerity
   3. Loyalty
   4. Dependability

C. Unethical behavior results in:

   1. Discipline of the worker or group
   2. Feelings of guilt

D. "Golden Rule" for ethical behavior: "Do unto others as you would have them do unto you, or one of yours."

V. Purpose of the Individual's Record (Chart)

A. Provides a complete medical picture of the individual
B. Provides a legal record that is admissible as evidence in a legal action

VI. Legal and Ethical Considerations Concerning Charting

A. Charts contain **confidential** information that is available only to people authorized by the agency.

B. Entries should present an accurate, readable picture of the individual's care.

C. **Legally,** the chart is considered accurate. Every medication given must be charted. Residential staff are held responsible for any medications signed out but not charted. **Refer to the six rights of administering medications that are listed in Lesson 6**.

D. Your signature on an entry means **that you assume responsibility for the entry.** You administered or supervised the administration of the medication, made the observation, knew that the care was given as charted.

E. State law or regulation determines the length of time records must be kept.

F. PRN medications must be documented. Every entry must be signed and dated. **Results** of PRN medication must also be documented.

VII. Medication Errors

A. Violation of "**reasonable care**," often results from not following the "six rights" of medication administration.

1. The **"six rights"** of medication administration are:

    1) Give the Right Medication
    2) Give the Right Dose
    3) Give the medication to the Right Individual
    4) Give medication by the Right Route
    5) Give medication at the Right Time
    6) Provide the Right Documentation

B. Errors in medication administration can be caused by:

1. Lack of concentration
2. Lack of knowledge
3. Failure to follow correct procedure
4. Poor communication
5. Performing a job beyond your scope of duty

C. Responsibilities regarding medication errors:

1. Truthfully reporting an error is better legally than trying to cover it up.
    a. Individual can be protected from harmful effects by immediate action.
    b. Situation can be reviewed and similar errors avoided in the future.

2. **REPORTING**--the **FIRST** thing to do if you make or discover a medication error is **REPORT IT TO YOUR STAFF NURSE**.

   a. The staff nurse will notify the physician and receive orders.
   b. The staff nurse will probably tell you to observe the individual and complete an incident report.

3. **OBSERVING THE INDIVIDUAL FOR UNDESIRABLE EFFECTS:**

   a. Check the drug information for desired action, adverse effects, and toxic effects of the medication that was administered. (**Lesson 8** will list the various resources for obtaining information on medications)
   b. Watch for general symptoms, such as nausea, vomiting, difficult breathing, dizziness, itching, hives, drowsiness, and others listed in the drug information under the administered drug.
   c. Record (document) and report all information that is pertinent to the individual's care.

4. **DOCUMENTING**

   a. **Medication Error Report**
      i. Completed by whomever is the most familiar with the situation, usually the person who committed or discovered the error.
      ii. Report is sent to the staff nurse or the agency director, and is not put in the chart. Follow your agency's policy.
      iii. Medication Error Reports are reviewed periodically by the agency director and the staff nurse, who designs plans that will avoid future errors.
      iv. Answer all of the questions on the incident report form.

   b. **Informing the individual of the error:**
      i. A physician will decide if the individual is to be informed.
      ii. A physician informs the individual.
      iii. This decision is not the responsibility of the person administering the medication.

The following list of medications are commonly used look-alike and sound-alike drugs. Being familiar with these will assist you in preventing errors.
Note: We will discuss specific drugs later in the course.

COMMONLY USED LOOK-ALIKE AND SOUND-ALIKE DRUGS

A

Achromycin----------Aureomycin
ADC----------AVC
Afrin----------Aspirin
Aldactone----------Aldactazide
Aldoril----------Aldomet

Ambenyl----------Aventyl
Ambenyl----------Amvical
Aminopyrine-------- ---Aminopterin
Ananase---------- ----Orinase
Ananase----------Tolinase
Anusol----------Aquasol
Aralen----------Arlidin
Arlidin----------Aeroline
Atarax----------Enarx
Azotrex----------Afrodex

B

Belladonna----------Belladenal
Benadryl----------Belladenal
Benadryl----------Bentyl
Benadryl----------Benylin
Benemid----------Beminal
Bentyl----------Aventyl
Benuron----------Enduron
Betalin----------Benylin
Bicillin----------V-Cillin
Bontril----------Vontrol
Brondecon----------Bronkotabs
Butibel----------Butabell
Butibel----------Butisol
Butigetic----------Butagesic

C

Calamine----------Calomel
Calcidin----------Calcidrine
Calurin----------Saluron
Capla----------Keflin
Cedalanid----------Acetanilid
Chloromycetin---------Chlor-Trimeton
Codeine----------Cordran
Combid----------Combex
Compazine----------Compocillin
Compocillin----------Ampicillin
Consotuss----------Cotussis
Coramin----------Calamine

D

Daricon----------Darvon
Decadron----------Percodan
Decagesic----------Donnagesic
Delalutin----------Deladumone
Delta-Dome----------Deltasone
Demerol----------Dicumarol
Deprol----------Demerol
Desbutal----------Desoxyn
Desoxyn----------Digitoxin
Dexameth----------Dexamyl
Dialose---------- Dialog
Dialose----------Dialose
Digoxin----------Desoxyn
Dilantin----------Delaluitn
Digitoxin----------Digoxin
Disophrol---------- -Isuprel
Diuril----------Doriden
Diutensen----------Salutensin
Diutensen----------Unitensen
Donnatal----------Dianabol
Donnatal----------Donnagel
Doriden----------Doxidan
Doriden----------Loridine
Doxan----------Dixidan
Duragesic----------Duo-Gesic
Dyazide----------Thiazide
Dyrenium----------Pyridium

E

Ecotrin----------Edecrin
Elase----------Alidase
Elavil----------Aldoril
Elavil----------Marax
Enduron----------Eutron
Equagesic----------Decagesic
Esimil----------Estinvl
Esimil----------Ismelin
Estomul----------Isomel
Eutonyl----------Eutron

F

Feosol----------Felsol
Feosol----------Feostat
Feosol----------Fer-In-Sol
Feosol----------Festal
Fostex----------Phisohex
Fulvicin----------Furacin

G

Gantrex----------Kantrex
Gantrisin---------- ----Gantanol
Garamycin----------Terramycin
Gevral----------Gevrine

Glucola----------Clural

H

Haldrone----------Haldol
Halodrin----------Haldol
Halotestin----------Halothane
Hiprex----------Herplex
Hyadrine----------Hydergine
Hycomine----------Hycodan

I

Imferon----------Infron
Imuran---------- ---Imferon
Inderal---------- ---Isordil
Indocin----------Lincocin
Isordil----------Isuprel

K

Kaomin----------Kaon
Kaon----------Kao-Con
Kemadrin----------Coumadrin
Keflex----------Keflin
Ketostix----------Ketosox

L

Loridine----------Leritine
Luride----------Loryl

M

Maalox----------Maolate
Maalox----------Marax
Marax----------Atarax
Mebaral----------Mellaril
Mebaral----------Tegretol
Medaprin----------Edecrin
Medaprin----------Ecotrin
Medrol----------Mebaral
Meprobamate----------Mepergan
Meprobamate----------Mepridine
Mesantoin----------Mestinon
Metherdrine----------Methergine
Methadone----------Maphyton
Methortrexate----------Meprobamate
Modane----------Mudrane

N

Nasocon----------Vasocon
Negatan----------NegGram
Nembutal----------Myambutal
Niacin----------Niamid
Nialex----------Nicolex
Nico-Span----------Nitrospan
Nilevar----------Noludar
Nisine----------Visine
Nitroglycerine----------Nitroglyn
Norlestrin----------Novahistine
Norlutate----------Norlutin

O

Omnadin----------Ominpen
Omipen----------Unipen
Orabiotic----------Otobiotic
Orabiotic----------Urobiotic
Oracon----------Oreton
Orase----------Orinase
Oretic----------Oreton
Oridine----------Loridine
Orinase----------Ornade
Ornex----------Ornade
Otalgine----------Auralgan
Otobiotic----------Urbiotic
Ovlin----------Ovulen

P

Palocillin----------Polycillin
Pamcillin----------Polycillin
Pantopon----------Percogesic
Paregoric----------Percogesic
Percodan----------Percobarb
Percodan----------Percorten
Periactin----------Taractan
Periactin----------Percodan
Phenabarbital----------Pentobarb
Persantine----------Persistin
Persantine----------Trasentin
Persantine----------Tranxene
Phenaphen----------Phenergan

Q
Quinidine----------Quinine
Quinora----------Quinolor

R
Rabellon----------Robinul
Regroton----------Hygroton
Rifadin----------Ritalin
Ritalin----------Ismelin

S
Sansert----------Cenasert
Sansert----------Singoserp
Sedatole----------Cidicol
Serenium----------Dyrenium
Spectrocin----------Spartocin
Surfak----------Sur-bex
Synar----------Synalar
Synthroid----------Synthaloid

T
Taractan----------Tinactin
Tedral----------Teldrin
Tegopen----------Tegretol
Tegopen----------TegrinTermaril---
Tepanil----------Termaril
Tepanil----------Terfonyl
Terfonyl----------Toleron
Thiamine----------Thiomerin
Triamcinalone---------Triaminacin
Tuinal---------- -Tylenol
Tyzine----------Visine

U
Unipen----------Unicap
Unitensen----------Salutensin

V
Vigran----------Wigraine

W
Wyamine----------Wydase

Z
Zactirin----------Saccharin
Zarotin----------Zentron

VIII. Regulations Pertaining to Labeling

A. General Provisions

1. Regulations pertaining to labeling **apply to all medications** not just prescription medications. A common medication like aspirin will have the following information on its label:

    a. No false or misleading statement.

    b. Dosages and frequency must be clearly stated and must not be dangerous to health when used as recommended on the label.

    c. Name, business address, and lot number of the manufacturer.

    d. An accurate statement of the contents.

    e. A warning if the medication is habit forming.

    f. Quantity, kind, and proportion of specific ingredients.

    g. Directions for use and contraindications, with adequate warnings for:
        i. children
        ii. persons with disease conditions

    h. Expiration date of the medication

2. However, when medications are dispensed in a prescription bottle, some information will be excluded. Check your agency's policy for further information.

B. Controlled Substance Act, 1970

1. **The Comprehensive Drug Prevention and Control Act** was passed by Congress in the fall of 1970. This new statute, commonly referred to as the **"Controlled Substances Act**," is designed to improve the administration and regulation of the manufacturing, distributing, and dispensing of

    "**MEDICATIONS THAT PRODUCE OR SUSTAIN EITHER MENTAL OR PHYSICAL DEPENDENCE"** (**habit forming**).

TABLE 1.1

MAJOR FEATURES OF THE FEDERAL COMPREHENSIVE DRUG ABUSE PREVENTION AND CONTROL ACT OF 1970

SCHEDULE	CONTROLLED DRUGS (as of 2016)
Schedule I – no accepted medical use • has a high abuse potential • no prescriptions may be written for Schedule I substances	**Heroin, LSD, Marijuana**
Schedule II - drugs with high abuse potential and accepted medical use.	Narcotics (morphine and pure Codeine), hydrocodone, Adderall® amphetamines, guaifenesin
Schedule III - drugs with moderate abuse potential and accepted medical use.	Moderate and intermediate acting barbiturates Dalmane® Restoril®
Preparations containing codeine plus another drug.	(Tylenol #3® acetaminophen plus codeine)
Schedule IV - drugs with low abuse potential and accepted medical use (prescription needed)	Phenobarbital, chloral hydrate, anti-anxiety drugs (Valium ®, Librium ®).
Schedule V - drugs with low abuse potential and accepted medical Use/OTC-sign out for drug on the narcotic register.	Narcotic drugs used in limited quantities for antitussive and anti- diarrhea purposes, Donnagel PG ® some cough syrups.

NOTE: Tetrahydrocannabinol (THC, marijuana) is still considered a Schedule 1 drug by the DEA, even though some U.S. states have legalized marijuana for personal, recreational or for medical use.

LESSON 1

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #1 FOR PROFESSIONAL AND OCCUPATIONAL STANDARDS FOR PHARMACIST

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 2: FUNDAMENTALS OF BASIC PHARMACOLOGY

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define medication therapy.
2. Name the four sources of medications.
3. Define medication names.
4. Know the most common abbreviations used to designate time and frequency of drug administration.
5. Describe six factors that can influence the effectiveness of a medication.

Medication is an important part of health care for many individuals in group homes. The individuals and residential staff must be knowledgeable regarding the different names, uses, actions and adverse effects of all medications that are being administered. Each individual may react differently to medication. Factors such as health, age, body size and internal functions can and do alter the effectiveness of medications. Residential staff must recognize the limits of their ability and knowledge, and seek the advice and assistance of the staff nurse, pharmacist or doctor when needed.

I. Medication Therapy

Medication therapy may be defined as treatment by the use of substances that **cure, relieve, prevent and diagnose disease**. Many of the medications used today have been in use for thousands of years. Ancient records show that herbs, seeds, barks, and other substances were collected and steeped into potions for treating the sick.

II. Four Sources of Medications

"Fire properly controlled" is "Man's best friend", uncontrolled it's his worst enemy. The same statement might well be applied to drugs. Properly used, drugs are a great blessing to mankind, indiscriminately or improperly used, could cause harm.

Pharmacology is as old as the story of mankind. Humans have always experienced illness and injury. They have searched for the means of combating disease and caring for the wounded. This search for healing techniques marks the progress of civilization.

Mankind's early attempts at using remedies resulted in several discoveries. By observing animals, they learned the **therapeutic** properties of many plants, waters, and muds. The theory that disease was a manifestation of evil spirits resulted in attempts to cure disease by driving out the spirits with noxious materials. This experimentation led to the beginning of medicine, for some of these treatments did recover the patient.

The word "drug" is derived from the Dutch word "droog" meaning dry. Most early drugs were dried plants or plant products. Today, drugs are derived from four main sources:

Pig

Herbs/Plants

Mineral/Calcium

Synthetic/Chemicals

1. **Animal** i.e. insulin, thyroid
2. **Plant** i.e. digitalis-digoxin-penicillin
3. **Mineral** i.e. calcium-lithium-magnesium
4. **Synthetic** i.e. ampicillin-phenobarbital

Drugs are chemical compounds that act in various ways on the body. They may alter the body's chemical reactions, reverse a disease, relieve symptoms, maintain health, prevent disease, alter a normal process or aid in diagnosis. For example, psychotropic medications alter the body's chemical reactions and birth control pills alter a normal process.

III. Medication Names

Medications are chemicals that have rather long, difficult, chemical names. Consequently, all medications are given a shorter name, known as the **GENERIC** name. When the medication is manufactured, it is given a third name known as the **BRAND ®** or **TRADE ®** name. Several companies may market the same generic medication, there may be several different trade names for any one medication. The following example will illustrate the various names for phenobarbital.

Chemical Name: 5, 5=phenylethylbarbituric acid

Generic Name: phenobarbital

Trade Names: Luminal®, Eskabarb®, Barbital®

The **first letter** of the **Trade Name** is **Capitalized.** The **Symbol ®** to the right of the name indicates the name is registered and its use restricted to the manufacturer of the medication who is the legal owner.

A **generic name** is generally **not capitalized**. Presently physicians are encouraged to prescribe generic drugs; they may be less expensive than brand name.

EXAMPLES OF BRAND NAMES AND GENERIC NAMES:

BRAND NAME ®	GENERIC NAME
Achromycin, Sumycin	tetracycline
Acthar	adrenocorticotropic hormone
Afrin	oxymetazoline
Aldomet	methyldopa
Amoxil	amoxicillin
Antepar	piperazine
Antiminth	pyrantel
Aquasol A	aqueous vitamin A
Aquasol E	aqueous vitamin E
Aqua-mephyton	vitamin K
Aristocort	triamcinolone
Artane	trihexyphenidyl HCl
Aspirin	acetylsalicylic acid
Ascorbic Acid	vitamin C
APC	aspirin, phenacetin and caffeine
Atarax	hydroxyzine HCl
Aventyl	nortriptyline
Baciguent	bacitracin
Benadryl	diphenhydramine HCl
Betapen VK	potassium p penicillin
CeViSol	vitamin C drops
Chloromycetin	chloramphenicol
Cleocin	clindamycin HCl
Cogentin	benztropine mesyate
Compazine	prochlorperazine
Cordran	flurandrenolide
Coumadin	warfarin sodium
Cytomel	sodium liothyronine
Darvon	propoxyphene HCl
Darvon Compound 65	propoxyphene, aspirin, phenacetin & caffeine
Decadron	dexamethasone
Depo-Provera	medroxy-progesterone
Desenex	miconazole
Dexedrine	dextroamphetamine
Diamox	acetazolamide
Dimetane	brompheniramine
Diodoquin	diiodohydroxyquiine

BRAND NAME ®	GENERIC NAME
Diuril	chlorothiazide
Dilantin	phenytoin
Dramamine	dimenhydrinate
Dulcolax	bisacodyl
Elavil	amitriptyline HCl
Empirin	APC (Aspirin, Phenacetin and Caffeine)
Equanil	meprobamate
Equagesic	meprobamate and aspirin
Erythrocin	erythromycin
Feosol	ferrous sulfate
Flagyl	metronidazole
Fluogen	INFLUENZA VIRUS TRI-SPLIT
Furacin	nitrofural
Furadantin	nitrofurantoin
Gantanol	sulfamethoxazole
Gantrisin	sulfisoxazole
Garamycin	gentamycin
Haldol	haloperidol
Ilosone	erythromycin
Isopto Carpine	pilocarpine
Isuprel	isoproterenol
Keflex	cephalexin
Kefzol	cephazolin
Kenalog	triamcinolone
Lanoxin	digoxin
Larodopa	levodopa
Lasix	furosemide
Lincocin	lincomycin HCl
Lomotil	diphenoxylate HCl
Luminal	sodium phenobarbital
Macrodantin	nitrofurantoin
Mandelamine	methenamine mandelate
Marezine	cyclizine
Mellaril	thioridazine HCl
Mephyton	magnesium hydroxide
Minocin	minocycline
Mintezol	thiabendazole
Mycostatin	nystatin
Mysoline	primidone
Navane	thiothixene
Neosynephrine	phenylephrine
Noctec	chloral hydrate
Paregoric	tincture of camphorated opium
Periactin	cyproheptadine
Phenergan	promethazine
Polaramine	dexchlorpheniramine

BRAND NAME ®	GENERIC NAME
Polycillin	ampicillin
Povan	pyrvinium pamoate
Premarin	conjugated estrogens
Principen	ampillicin
Prolixin	fluphenazine
Prostaphlin	sodium oxacillin
Ritalin	methylphenidate
Seconal	secobarbital
Senokot	senna fruit extract
Selsun	selenium sulfide
Sinequan	doxepin
Sudafed	pseudoephedrine HCl
Sumycin	tetracycline
HCl Surfak	dioctyl sulfosuccinate
Talwin	pentazocine **and** naloxone
Tegretol	carbamazepine
Thorazine	chlorpromazine HCl
Tinactin	tolnaftate
Tigan	trimethobenzamide
Tofranil	imipramine HCl
Tylenol	acetaminophen Unicap,
Theragran	multivitamins (MVI)
Valium	diazepam
V-Cillin K	potassium p penicillin
Veetids	potassium p penicillin
Vibramycin	doxycycline hyclate
Valisone	betamethasone
Visine	tetrahydroxoline HCl
Vistaril	hydroxyzine pamoate
Zarontin	ethosuximide
Xylocaine	lidocaine

IV. Weights and Measurements

Measurement has always been an important part of prescribing and administering medications. **This is so because different amounts of medication present different effects.** Some medications are deadly poisons, but when given in tiny amounts can help relieve disorders. Other medications are useless for therapy unless given in large amounts. Most medications have a certain dosage range, that is, a range of quantities that can produce therapeutic effects. Doctors prescribe an amount within the dosage range depending on how strong an effect is needed and on the individual's age and physical condition**. Doses less than the dosage range do not produce any therapeutic effects. Doses more than the dosage range are harmful to the body and can be fatal.**

To get the desired effects physicians and pharmacists through the ages have tried to make dosages very exact by measuring medications carefully. However, they have not all used the same units of measurement. There are different measurement systems, each having its own units of weight and volume. The three systems of measurement used in ordering medications are **APOTHECARY, METRIC**, and **HOUSEHOLD SYSTEM.**

Regardless of the system used by the physician and/or pharmacist, medications obtained from the pharmacist are **generally labeled according to the household system**. The household system is used because we need to be able to administer medications in doses that can be measured with utensils we have on hand (teaspoon, tablespoon, etc.). Most of us have grown up using this household system and are comfortable with the units of weight and volume. However, you should also have knowledge of the other systems.

V. Abbreviations

Abbreviations are a kind of "shorthand" for writing medication orders. They are a quick, convenient way to summarize instructions on what medication to give and how to give it. **It is traditional for doctors to write medication orders in Latin, the language of medicine.** Most of the abbreviations used are shorthand versions of Latin words. For example, stat is derived from "statim" which means "immediately" and p.o. is from "per os" which means "by mouth".

MEASUREMENTS

Calculating medication doses is done by the RN or the Pharmacist only. If there is a difference between the dose ordered and the dose on hand, the RN or Pharmacist must be contacted. They will instruct the non-licensed personnel what to do.

EQUIVALENT MEASUREMENTS YOU WILL NEED TO BE FAMILIAR WITH:

The law prohibits the Medication Attendant from altering any dosages received from the pharmacist; however it is important for you to be able to recognize and understand why the pharmacist may have filled the prescription from the physician with an equivalent.

Liquid Measures

1 ml	=	1 cc
5 ml (=5 cc)	=	1 fluid dram
5 ml (=5 cc)	=	1 tsp
1 tsp	=	1 fluid dram
30 ml (= 30 cc)	=	1 fluid ounce
500 ml (=500 cc)	=	1 pint
1,000 ml (=1,000 cc)	=	1 quart

Weight Measures

15 mg	=	1/4 gr
30 mg	=	1/2 gr
60 mg	=	1 gr

Conversion Chart

1000 ml	=	1 quart	10 mg	=	1/6 grain
30 ml	=	1 fluid ounce	1 mg	=	1/60 grain
4 ml	=	1 fluid dram	2 tbsp.	=	1 fluid ounce
1 ml	=	15 minims	1 tbsp.	=	1/2 fluid ounce
30 gm	=	1 ounce	1 tsp	=	5 cc
15 gm	=	4 drams	30 ml	=	1 fluid ounce
1 gm	=	15 grains	1 cc	=	15 drops
60 mg	=	1 grain			

Half Dose and Double Doses

Most tablets come in 50 mg, 100 mg, or 250 mg weight measurements. Thus if the drug calls for 25, 50, 100, 200, 125, or 500 mg, then you will likely see that pharmacist has filled the prescription with a half a tablet or two tablets. This will depend upon the dose needed and the weight of the normal tablet. The following chart should cover most of the tablet orders you will have.

WEIGHT OR NORMAL TABLET	WEIGHT PRESCRIBED	WHAT YOU WILL ADMINISTER
50 mg	**25 mg**	**1/2 tablet**
50 mg	**100 mg**	**2 tablets**
100 mg	**200 mg**	**2 tablets**
250 mg	**125 mg**	**1/2 tablet**
250 mg	**500 mg**	**2 tablets**

If you have **any** questions about the amount you are to give, check with the Nurse or Pharmacist.

Medication compressed into **tablets comes in two forms: scored and unscored.**

1. **Scored** tablets have a **line running through the tablet** which allows the tablet to be broken easily in order to make half-tablet doses. These are the only tablets that should be broken in order to give a half dose.

Round Scored Tablet

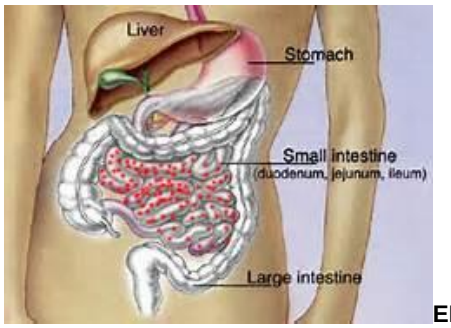
2. **Unscored** tablets are of two different forms: sugar-coated tablets and enteric-coated tablets. These may not be broken for half doses.


Round Unscored Tablet

   a. **Sugar-coated** tablets are usually smooth and glossy. The sugar coating conceals the bad taste of the drug.


Sugar coated tablet

   b. **Enteric-coated** tablets are treated so they can **pass through the stomach** unchanged and then **disintegrate in the intestine**. This is used because the drug may be irritating to the stomach or because it will be more effective if absorbed in the intestine.



ENTERIC COATED TABLETS MUST NOT BE CRUSHED

VI. Abbreviations Used to Designate Time and Frequency

A. Abbreviations used to specify the **number of times per day:**

1. bid - twice a day
2. tid - three times a day
3. qid - four times a day
4. qd - daily
5. qod - every other day
6. hs - at bedtime
7. ac - before meals
8. pc - after meals
9. qHS - every night at bedtime

B. Abbreviations used to specify the **number of hours between** doses:
   1. qh - every hour
   2. q2h - every two hours
   3. q3h - every three hours
   4. q4h - every four hours

C. Abbreviations used for medications ordered **as needed:**
   1. **ad. lib.** - as desired
   2. **stat** - immediately, now
   3. **s.o.s.** - if necessary, one time only
   4. **prn** - as needed-usually ordered with a certain time interval
      Example: Tylenol 2 tabs q4h prn for pain -- The prn means that the medication is given when the individual needs it. The q4h is a safeguard, meaning that if an individual should need another prn dosage, it should be given **at least** four hours after the first prn dosage.

D. Medication ordered **qd (every day)** should be given at the **same time each day**. Be sure to know the time schedules for daily medication for your agency.

On the following page is a chart of common medical abbreviations used in the practice of medicine. You may see these used in the individual's medical record or on the original prescription written by the physician. It is important to recognize them if it is necessary that you compare medication on hand with an original prescription or written order.

DD FORM 1289
1 NOV 71
DOD PRESCRIPTION

FOR (Full name, address, & phone number) (If under 12, give age)
John R. Doe, HM3, USN
U.S.S. Neverforgotten (DD 178)

MEDICAL FACILITY: U.S.S. Neverforgotten (DD 178)
DATE: 23 JAN 99

℞ (Superscription) gm or ml.

(Inscription)
Tr Belladonna 15 ml
Ampholgel gsad 120 ml

(Subscription)
M & FI Solution

(Signa)
Seg: 5ml t.i.d a.c.

MFGR: Wyeth
LOT NO: P39K106
EXP DATE: 12/02
FILLED BY: KMT

℞ NUMBER: 10072
Jack R. Frost
LCDR, MD, USNR
SIGNATURE RANK AND DEGREE

EDITION OF 1 JAN 60 MAY BE USED FOR
S/N 0102-LF-012-6201

SUMMARY OF COMMON ABBREVIATIONS

WORD ELEMENT	REFERS TO OR MEANS	WORD ELEMENT	REFERS TO OR MEANS
aa	of each	OD	right eye
ac	before meals	OS	left eye
ad lib	as desired	os	mouth
bid	twice a day	OU	both eyes
B/P	blood pressure	oz.	ounce
$\underline{c}$	with	pc	after meals
CAP	capsule	per	by means of
cc	cubic centimeter	PM, pm	afternoon, evening
cm	centimeter	p.o., PO, per os	by mouth, orally
c/o	complained of	PRN, prn	when necessary
dr	dram	pt	pint
elix	elixir	q	every
GI	gastrointestinal	qd	every day
g, GM, gm	gram	q3h	every 3 hours
gr	grain	qid	four times a day
gtt, gtts	drop (s)	qod	every other day
h, hr	hour	qt	quart
IM	intramuscular	RBC	red blood cell
IV	intravenous	$\underline{s}$	without
kg, KG	kilogram	SC, subc, sub Q	subcutaneous
L	liter	sig	label
lb	pound	stat	immediately
med, meds	medication (s)	sol	solution
m, min	minim	supp	suppository
mEq, meq	milliequivalent	tab	tablet
mcg	microgram	tbsp., T, Tbs	tablespoon
mg	milligram	tid	three times a day
ml	milliliter	tsp, t	teaspoon
NPO, npo	nothing by mouth	Ung	ointment
od	overdose	WBC	white blood cell

Symbols used to denote quantity or number:

$\overline{ss}$ = ONE HALF i = ONE ii = TWO iii = THREE iv = FOUR v = FIVE

It is recommended to use numerical symbols to denote number of pills to be taken 1, 2, etc.

VI. Factors about Medications that Influence Effectiveness

A. **Absorption** occurs when medication moves from the site of administration into the bloodstream.

1. The **route** of administration affects absorption.
   a. Oral medications are absorbed slowest.
   b. Sublingual is faster than oral.
   c. Injectable drugs are absorbed faster and more completely than oral.
   d. Inhaled drugs are absorbed rapidly.

2. The **form** of an oral medication affects how fast it is absorbed.
a. Oral drugs often must be mixed with fluids to be absorbed.
b. Liquid medications absorb more rapidly than solids.
c. Sustained release tablets and capsules absorb slowly.
d. Enteric coated tablets are not absorbed until they reach the intestine.

3. The **chemical composition** of a medication determines whether it will be absorbed in the stomach or the intestine.
   a. Acidic medications are absorbed in the stomach (Example: aspirin).
   b. Alkaline medications are absorbed in the small intestine (Example: quinidine).

4. **Dosage**
   a. Usually calculated by body weight.
   b. Changes in body weight may change the dosage of medication required to produce a desired effect.
   c. Changes in age may require changes in dosage.
   d. Changes in kidney function may require changes in dosage.
   e. Addition or deletions of other medications may require changes in dosages.

5. The **rate** at which a medication is absorbed may change given the following factors:
   a. Decreased saliva production
   b. Decreased gastric juice in the stomach
      i. Oral medications **usually** absorb faster if the stomach is empty.
      ii. Absorption may be delayed by food.
      iii. Food may prevent some medications from being absorbed (Examples: milk with tetracycline medications).
   c. Decreased movement of the esophagus and stomach muscles.
   d. One medication may delay or prevent another from being absorbed (Examples: antacids with tetracyclines, antacids with iron products).
   e. Fluids taken with oral medications increase the rate of absorption.

B. **Metabolism of biotransformation** is the process by which a substance is changed into a form that is more easily excreted by the body. The metabolism of a **drug** or **toxin** in a body is an example of a biotransformation. The body typically deals with a foreign compound by making it more water-soluble, to increase the rate of its excretion through the urine.

1. Most drugs are metabolized by the **liver.**
2. **Kidneys, lungs, and intestines** also help metabolize drugs.
3. Some drugs can be excreted unchanged, but most must be metabolized.
4. Different drugs are metabolized at different rates.
5. If metabolism is decreased, then medication will accumulate in the blood and cells.
6. If metabolism is increased, then more medication will be required to produce the Same effect (tolerance).
7. The age of the individual affects the metabolic rate.
8. Adverse effects will appear mainly in the liver and kidneys.

C. **Medication Elimination**

The effects of a medication cease when the medicine has been eliminated from the body. Medications are eliminated by the lungs, kidneys, intestines, skin or saliva. **However, bear in mind that many medications build up in the body and when the medication is stopped, the effects may continue for several days until it is completely eliminated from the body.**

Excretion is a process by which a drug is eliminated from the body.

1. Most oral and parenteral medications are excreted by the kidneys through the urine.
   a. Some drugs are excreted in their original form, most are changed by metabolism before excretion.

   b. All medications excreted by the kidneys are dissolved in the urine relative to the amount of fluid intake.

2. Some oral medications are excreted by the intestines, through the feces.

3. Inhalant medications, such as ether, are excreted by the lungs through breathing.

D. The **amount of physical activity** is thought to affect the rate of drug action.

E. **Chronic illness**, such as diabetes and heart failure, may change the body's response to medication.

F. **Pain and anxiety** may increase the amount of medication required to bring about a desired effect.

G. Other **emotional factors** such as worry, fear and sorrow may change the amount of medication required.

H. **Other chemicals** present in the body may affect the potency of a drug. Example: alcohol decreases the effect of some antibiotics but increases the effect of tranquilizers, such as Valium ® and Librium ®.

VII. Drug Information

A. Action of the drug--how the drug provides its therapeutic effect.

B. Use--what the drug is commonly prescribed for.

C. Adverse effects--an undesirable side effect of a medication.

D. Special considerations--listing of useful information including contraindications and precautions. Some suggestions for prevention and treatment are included.

E. More complete information about a drug may be obtained by consulting one of the many drug resources available. If you have further questions, contact your Pharmacist or staff nurse.

Answer Self-Test Questions - Lesson 2: Basic Pharmacology

LESSON 2

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 3: FUNDAMENTALS OF MEDICATION THERAPY

OBJECTIVES

At the completion of this lesson you will be expected to:

1. Describe two common routes of medication administration.
2. Define systemic and local effects.
3. Define desired effects.
4. Define side effects.
5. Discuss causes of medication interaction.
6. Describe how medications are eliminated from the body.
7. Define six different types of effects that may result from a medication.

The familiar saying "no two people are exactly alike" applies well to the effects produced by medications. The same dosage of a medication may produce an intense response in one individual and no observable effects in another; the major reason for these differences is individual variation. Variation occurs as a result of several factors, any of which can influence the body's response to medications.

One of the factors which affects medication action is the **route** of administration. **The most common routes of medication administration are oral (PO) and topical**. Intramuscular, intravenous and subcutaneous routes are generally restricted to hospital use. However, you may come in contact with diabetic individuals who are taking insulin by subcutaneous injection. These injections will be **administered by a nurse or self-administered by the client.**

The **CMA** may perform routine capillary blood glucose monitoring for clients who do not require sliding scale insulin **following appropriate training by the nurse.**

A **CMA** may administer Epinephrine to an individual experiencing anaphylaxis using an **Epi Pen** in order to save their life **following instruction by the nurse.**

A. ROUTES OF MEDICATION ADMINISTRATION

ROUTES OF MEDICATION ADMINISTRATION

ROUTE OF ADMINISTRATION	APPROXIMATE ONSET OF ACTION	INDICATIONS	EXAMPLES
Oral (PO)	30-60 minutes	Whenever possible--general effects	Most medications, aspirin, sedatives, vitamins, antibiotics
Sublingual	several minutes	When rapid effects are needed/ general effects	Nitroglycerin for chest pain
Rectal	15-30 minutes	When person cannot take oral medication	Analgesics, laxatives suppositories
Topical	within 1 hour	For local effects on skin, and eye, ear	Creams ointments
OTHER ROUTES OF MEDICATIONS CMA'S CANNOT PERFORM:			
Subcutaneous (SC)	several minutes	For medications which are activated by the gastrointestinal tract--general effects	Insulin
Intramuscular (IM)	several minutes	For medications which have poor oral absorption and when rapid effects are desired--general effects	Narcotic analgesic, antibiotics
Intravenous (IV)	within 1 minute	In emergency situations when effects are required	IV fluids, nutrient supplements, antibiotics

Other variations in response will be due to effects of medications. In general, there are two effects to acknowledge:

- **local effects**, which mean the effects of the medication are limited to the site of application as with topical medications, and
- **general or systemic effects**, which mean the effects will be systemic throughout the body.

B. MEDICATION FORMS

Because of the various makeup of the different medications and the many uses some of them have, it is necessary to have different ways to prepare them for use. Listed below are the more common medication forms which you may come in contact with and which also contribute to variation of response among individuals.

ORAL FORMS

Capsules

1. Capsules are small, cylindric gelatin containers that hold a dry powder or liquid Drug.

2. Capsules are a convenient way of administering medications with an unpleasant odor or taste. They are available in various sizes.

3. Capsules can contain several doses of a medication. The doses have special coatings that dissolve at different rates, so that the medicine is released in the body gradually. These **timed-release** capsules allow for medication effects to continue at the same level over a long period of time.

CAUTION: Never crush, open or empty the contents of a **timed release** capsule into food or liquid. Any of these actions could cause all of the medicine to be released at once, and the individual would receive an overdose of medicine.

4. Other words which indicate a drug is “timed-release" are sustained-release or spansule. **EXAMPLE:** Contact spansules.

Tablets

1. Tablets are powered medications compressed into small disks. Many are easily dissolved. EXAMPLE: aspirin

2. Tablets may also have coatings that allow the medication to be **dissolved in the intestines instead of the stomach**. This is known as an **enteric coating.** Like timed-release forms, enteric coated tables must **not** be **crushed or mixed into food or liquid**. This would destroy the enteric coating and cause the medicine to be released in the stomach instead of the intestine.

3. Tablets may also be scored (line through center) which allows the tablet to be split if necessary.

Suspensions

1. Suspensions are solid, insoluble particles dispensed in a liquid.
2. All bottles of suspensions must be shaken well before use.
3. Example: Dilantin suspension--an anticonvulsant.

RECTAL/VAGINAL
Suppositories

1. Suppositories are mixtures of medications with a firm base, such as cocoa butter. They are molded into a shape suitable for insertion into a body opening, such as the rectum or the vagina.

2. Suppositories **melt at body temperature**. This allows the medication to come in contact with the mucous membranes of, for example, the rectum or vagina. The medication then produces a local or general effect.

3. Examples: glycerin and Dulcolax ®--medications to move the bowels (should be refrigerated)

TOPICAL

1. **Lotions** are commonly used as **soothing applications** to protect the skin and relieve rashes and itching.
2. Some lotions have a cleansing action, while others have a drying or drawing action.
3. To prevent increased circulation and itching, **lotions should generally be Patted on** the skin instead of rubbed on.
4. All lotions should be **shaken** before using.
5. Example: calamine lotion

GELS

1. Gels are suspensions of insoluble drugs in hydrated form.
   Example: Aluminum hydroxide gel (Amphojel)-an antacid

EXTRACTS 

1. Extracts are concentrated, solid preparations of drugs obtained by dissolving the crude drug in alcohol or water. The solution is then allowed to evaporate. **Example:** cascara sagrada, used as a laxative.

Lozenges 

1. Lozenges are flat disks containing a medicinal agent in a suitable flavored base. The base may be hard sugar candy or the combination of sugar with sufficient mucilage to give it form.
2. Lozenges are placed in the mouth to slowly dissolve, liberating the antiseptic or astringent ingredient.
   Example: cough lozenges--given to stop irritation or a dry, tickling cough

Elixirs

1. Elixirs are palatable preparations of drugs made up with alcohol, sugar, and some aromatic or pleasant-smelling substance.

   Examples: a. Elixir of terpin hydrate--a cough medicine
   b. Elixir of phenobarbital--a sedative and anticonvulsant

Magma

1. Magma are bulky suspensions, in water, of drugs or preparations that are insoluble. They look like milk or cream. Example: milk of magnesia--a laxative

Syrups

1. Syrups contain medicinal agents dissolved in a sugar and water solution. They are particularly effective for masking the taste of a drug.

   Example: cherry syrup

Tinctures

1. Tinctures are diluted alcoholic extracts of drugs. They vary in strength from 10% to 20%. Example: triamcinolone ointment--used for treatment of skin rash.

Creams

1. Creams are solid emulsions containing medicinal agents.
   Example: hydrocortisone cream--a coticosteroid applied to rashes caused by an allergic reaction.

C. Effects of Medication

The observable results of changes in the body:

1. A **systemic action** has an effect on the entire body.
2. A **local action** has an effect only the area of the body where the medication has been applied.

Effects from a single medication:

1. Primary or desired effect – therapeutic effect – it is working
2. Secondary effect – (not the main purpose but yields another effect which could be beneficial or harmful)
3. Adverse effect – (harmful or abnormal effect)
4. Allergic effect or hypersensitivity
5. Toxic effect – (causing tissue or organ damage)
6. Cumulative effect (The too Frequent Administration of a drug which is slow of excretion will cause it to accumulate in the systern, and sooner or later produce a poisonous effect)
7. Tolerance- (a higher dose is needed to produce the same effect)
8. Idiosyncrasy – (an unusual response to a drug- could be more or less intense)
9. Psychological or emotional dependency.
10. Physical dependency or addiction

EFFECTS OF MEDICATION

The **route** of administration and the **form** of the medication will produce various effects. Most of you, at one time or another, will use some type of medication. When properly prescribed and administered, medications can have several possible outcomes.

The **three primary outcomes** are:

- desired effect
- side effects
- no apparent desired effects.

DESIRED EFFECTS (THERAPEUTIC EFFECTS)

Medications may be prescribed to prevent or cure an illness or reduce the related symptoms. The desired effect is **when the medication is working correctly**. Eliminating a headache by taking aspirin is an example of a desired effect.

SIDE EFFECTS (Unwanted Effects)

Whether or not the desired effect occurs, there is always the possibility that side effects will also occur. Side effects are those produced by the medication other than the desired effects. Side effects are often called unwanted or adverse effects. This module will use the term "side effects." Side effects may be expected and predictable (such as drowsiness when taking a tranquilizer) or unexpected and unpredictable (such as increased activity when taking a tranquilizer). These effects can be minor and relatively harmless (such as urine discoloration from phenytoin) or major and potentially fatal such as a severe reaction to penicillin). Side effects are physical or behavioral changes that may require follow up action. It is important to remember that any change (physical or behavioral) during the first few hours or days following administration of a new medication may have been caused by the medication.

As the direct care giver, you have the most contact with the individual. Therefore, you are the person best able to recognize any changes. **It is your responsibility to observe, report and record** any and all suspected effects of medications.

NO APPARENT DESIRED EFFECTS

All medications have different periods of time in which their full benefit is expected. However, due to unique body differences, there are sometimes no apparent desired effects. The medication has not worked within its usual time period. For example, aspirin is ordered to be administered every 4 hours for a fever. After 24 hours, the fever remains unchanged. Therefore, there has been no desired effect.

The main responsibility in this situation is to record and report the lack of desired effects. The physician may then prescribe an alternate medication or change the dosage of the present medication.

D. INTERACTIONS

Individuals may be receiving more than one medication at a time. Every medication has the potential to interact with another medication. Medication interactions are unwanted effects which are the result of being on more than one medication at a time. Some medications increase the effect of another medication, while other medications decrease the effect. The interactions may be:

- **Synergistic or Potentiation** one medication will increase the effects of another medication.
- **Antagonistic or Against**-one medication will decrease the effects of another medication.

There are two important points to remember concerning medication interactions:

1. The more medications an individual takes, the greater the possibility that a medication interaction will occur.

2. By being aware of what medications an individual is taking, the physician can prescribe a new medication that has the least chance of interacting with the medications the individual may already be taking (non-prescription medications will also cause interactions).

In addition to medications interacting, there may also be food and medication interactions. The results of **food/medication** interactions can be the same as medication interactions. Depending on the medications prescribed, some foods may be limited and others suggested. An example would be to avoid foods high in acid when taking antibiotics because antibiotics are destroyed by stomach acid. The reverse of this: increase foods high in acid when taking urinary antiseptics, as these medications work best when the body has a high acid content.

In addition to medication effects previously described, there are additional terms to be familiar with when discussing medication effects.

- **Medication Allergy:** A response which may be immediate and life threatening or delayed and slow to appear.
- **Cumulation:** The body does not eliminate one dose of a drug before another dose is given.
- **Tolerance:** Resista**nce** to the effect of a medication.
- **Addictive Effect:** The physical or emotional dependence on certain medications.

E. Medication Elimination

The effects of a medication cease when the medicine has been eliminated from

the body. Medications are eliminated by the lungs, kidneys, intestines, skin or saliva. However, bear in mind that many medications build up in the body and when the medication is stopped, the effects may continue for several days until it is completely eliminated from the body.

Answer Self-Test Questions - Lesson 3 Fundamentals of Medication Therapy

LESSON 3

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

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LESSON 4:

PRINCIPLES AND FUNDAMENTALS OF ADMINISTERING MEDICATIONS

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Describe the correct procedure for disposal of controlled drugs.
2. Describe the proper manner in which medications are to be stored.
3. Describe at least three precautions which help to avoid errors when preparing Medication.
4. Describe the correct procedure to follow when medication is refused.
5. Describe the correct procedure to follow when a medication has been omitted.
6. Describe the term Universal Precautions

PRINCIPLES OF ADMINISTERING MEDICATIONS

Preparing and administering medication requires staff to be diligent at all times. Proper handling and dispensing of medication ensures that the individual is receiving the correct medication. There are specific guidelines that must be followed in the event that a medication is not given at the correct time or a medication needs to be destroyed. It is also important for the residential staff to be aware of the guidelines for controlled substances, storing medications, and maintaining medical asepsis.

I. Medication Dispensing Procedure

A. The doctor writes an order or co-signs telephone order taken by the staff nurse.

B. The medication order is then sent to the pharmacist to be filled (follow your agency policy).

C. The medication is delivered by the pharmacy or picked up at the pharmacy and stored in the designated medication area. The amount may be a single dose, or one to several days' supply:

1. Individual medication--individual's own container labeled according to the doctor's order.
2. Unit-dose packaging--**each dose sealed, labeled and dated**

II. Preparing and Administering Medications

A. Medication Administration Record (MAR)

1. Keep in a flip carrier or notebook
2. Used to prepare medication
3. Stored in medication area and used to compare each medication with the order **before** the medication is administered
4. Medications should **always** be checked at least **three (3) times** prior to administration **(RULE OF THREE)**.
   a. compare the medication to the order before removing container from the medicine cabinet.
   b. compare the medication to the order before you pour it.
   c. compare the medication to the order before replacing container in the medicine cabinet.
5. Using the **MAR** as a preparation and administration guide which enables the residential staff and the individual to chart immediately. **Charting is to be done immediately following administration**

B. Obtain vital signs as indicated or ordered **prior to pouring** and administering certain medications (i.e. digitoxin, propranolol)

C. Keep good notes about medications withheld, refused, and as needed (PRN) medications.

D. Never chart until **after** you have given the medication.

E. Medication Administration Records (MAR) are used to record medication orders. Follow the agency policy and ask the staff nurse for further instruction.

III. General Considerations when Administering Medications

A. Safety precautions that help to avoid errors when preparing medications:

1. Using **aseptic technique** when administering medications helps to reduce the transfer of microorganisms from one person to another. Wash your hands before administering medication. Individuals should wash their hands if they will be handling their own medications.
2. Good lighting should be available when preparing medications.
3. Work alone and avoid distractions and interruptions while preparing medications. Do not leave medications unattended during preparation. If you must leave, place medications in a locked area.
4. Read the label three times. **(RULE OF THREE)**
5. Make sure that the information on the **MAR** corresponds **exactly** to the label on the individual's medication. If it does not-**DO NOT GIVE** the medication. Seek instructions from your nurse. Follow agency policy.
6. Never administer a medicine from an unlabeled or illegibly-labeled container. Never relabel medication yourself. Instead, notify the staff nurse.
7. Medications can be given within one hour of the prescribed time and still be effective.
8. Before giving a medication that is **more than one hour late**, contact your staff nurse for instructions.
9. **Never borrow** medication from one individual to give to another.
10. Check the expiration date. Do not give outdated or discolored drugs.
11. Never return an unused dose of medicine to its container.

B. **Safety precautions that prevent errors when administering medications:**

1. Address the individual by name.
2. Remain with the individual while he/she swallows the medication**. Do not leave medications for the resident to take later**, unless you are directed to do so by the interdisciplinary team.
3. Always check the medication sheet to make sure the medication has not already been given.
4. Do not allow anyone, including family members or other individuals, to carry or administer medication to another individual.
5. If an individual expresses doubt or concern about a dosage of medication, you must make certain that no mistake has occurred--the individual may be right. **Compare the original physician's order with the label on the medication**. If there is still doubt, check with the staff nurse. Always keep a copy of the **ORIGINAL** physician's order.
6. Observe for any undesirable effects of medications. If you notice any symptoms or hear any complaints that are unusual, check with the staff nurse before administering more medication to the individual.

C. **Omitted or Refused Drugs:**

1. Omission of a medication should be **reported as soon as it is discovered.** The doctor or staff nurse will determine if the dosage should still be given.

2. Drugs may be omitted for legitimate reasons, such as suspected allergy or NPO for diagnostic tests. Be sure to chart the omission on the individual's chart according to agency policy.

3. When an individual refuses medications:

    a. **Listen to the reason**; if it is a refusal due to nausea or other possible adverse effect, check with your staff nurse. Always explain to the individual why it is important that he/she take the medication and that it was ordered by his/her physician.
    b. If the individual still refuses, ask for advice from your staff nurse; it is the individual's right to refuse treatment, including medication, and to receive information about the medical consequences of his/her refusal from the nurse of physician.

4. If a medication is omitted due to refusal, chart the omission on the medication sheet **and** chart the reason for refusal and your notification of the staff nurse

5. Omission of medication for other reasons:

    a. Reasons for omission might include:
        i. Inability of individual to swallow medication
        ii. Physician's order for nothing by mouth (NPO)
        iii. For cardiotonics, pulse **below 60** unless otherwise ordered by the physician
        iv. Absence of individual from facility
            aa. When the individual is away from the facility, medications are sent along with them.
            bb. Medications are prepared for each scheduled time of administration, packaged, labeled, and sent with the individual.
        v. Individual has alcohol on his/her breath or appears under the influence. Contact the staff nurse for further instructions.

    b. Chart an omission on **both the MAR** and incident form and include the reason for omission. Follow agency policy.

    c. Notify the staff nurse when a medication is omitted.

D. **Additional observations**:

1. Comments by individual
2. Signs or symptoms observed
3. Consultation with staff nurse
4. Remember to date and sign every entry on the individual's chart

E. **Standing Orders**

1. Used for **over-the-counter medications**--Example--aspirin, Maalox, cough medications.
2. Must be renewed by the physician annually.
3. Policies regarding standing orders are agency specific. Check With your staff nurse.

IV. Safety Precautions for Controlled Substances

A. Controlled Substance Act of 1970--established **five schedules** for all controlled substances (drugs that are addictive or habit forming).

B. Reviewed yearly--substances may be moved from one schedule to another.

C. Five controlled substances schedules:

1. **Schedule I**--drugs with a high potential for abuse and no currently accepted medical use, such as heroin, marijuana, LSD and research drugs**. Even though marijuana use is legal in some states it remains as a schedule I drug**.

2. **Schedule II**--drugs with a high potential for abuse that have a medical use; every refill requires a new written order from the physician, such as morphine, Demerol® (meperidine), codeine, Tylox ®, and Percodan ®.

3. **Schedule III**--drugs with moderately high potential for abuse that are often used as medical treatment, such as medications combined with codeine (Tylenol ® with codeine), Doriden ® (glutethimide) and Butisol ® (butabarbital).

4. **Schedule IV**--drugs with little potential for abuse, such as many mild sedatives and anti-anxiety drugs (tranquilizers). For example, Halcion ® (triazolam), Valium ® (diazepam), Librium® (chlordiazepoxide), phenobarbital, Dalmane® (lurazepam), and Talacen ®.

5. **Schedule V**--drugs with a low potential for abuse that still require prescriptions, such as Lomotil® (diphenoxylate).

D. **The Controlled Substance Act Requires Special Precautions:**

1. Orders for psychotropics and tranquilizers **may not be refilled**. The physician must write a new order.

2. Controlled substances **must be accounted for by the agency**. (Follow agency policy)

3. **Special accountability forms** that are used to record the use of controlled substances are required by agency policy and federal guidelines. The following information must be on the drug record.
   a. Name of the individual receiving the drug
   b. Amount of drug used
   c. Time drug was administered to the individual
   d. Name of the individual administering the drug and his or her signature
   e. Name of the doctor who ordered the drug
   f. The amount remaining after each administration
   g. Special destruction forms are used when the drug is being destroyed **(DEA Form 41)**

4. The frequency that controlled substances are counted depends on agency policy. Usually psychotropics and tranquilizers and other drugs indicated by the agency are counted during visits by the staff nurse.

5. Wasted or contaminated (dropped) controlled substances must be destroyed by the nurse and pharmacist. The amount destroyed is to be documented by both. Follow agency policy. **Do not flush wasted or contaminated controlled substances.**

6. Follow your agency's policy for disposal of discontinued tranquilizers and/or psychotropics. **NEVER DESTROY THESE MEDS BY YOURSELF**

V. Storage of Medications

A. **In a locked cabinet:**
   1. Each home will have a storage cabinet/file drawer used to store ALL medications.

   2. Topical medication or those for instillation (eye or ear) must be stored in separate containers or on a **separate shelf** from orals to avoid contamination and labeled as **EXTERNAL MEDICATIONS**.

B. Some medications **must be refrigerated** in a locked box.

   1. Refrigeration prevents medication from spoiling and maintains its consistency.
   2. Insulin and other injectable medications are usually kept in a refrigerator.
   3. Liquid antibiotics must be refrigerated to maintain their potency.

4. Most suppositories are refrigerated to maintain their potency.

5. Any other medications marked **"Refrigerate"** by the pharmacist must be kept in the refrigerator in a locked box. If it is a scheduled drug it must be kept in a locked box, inside of another locked box

VI. Key Points about Maintaining Medications

A. Medications are never stored in an area easily accessible to the public.

B. Medicine cabinets are always locked when not in use.

C. Labels on medications are kept clean and readable.

1. If the label is **not readable**, notify the staff nurse, **do not** relabel the medication. A pharmacist must relabel medications.
2. Never administer a medication from a container that has an unreadable label.

D. Keep medications securely capped to maintain their potency. Chemical changes can occur when medication is exposed to air.

E. Many medications are dispensed in dark bottles that prevent their exposure to light.

F. Do not use outdated medications--before giving medications always check the expiration date on each medication.

G. Report to the staff nurse any changes in consistency, odor, or color of medication. (Follow agency policy).

1. If any of these changes are observed, **do not** administer the medication.

2. Give **any changed medication** to the staff nurse or pharmacist.

VII. Ordering, Receiving, and Disposing of Medications

A. Ordering medications: Check your agency's policy for guidelines on ordering medications.

B. Receiving--Medications must be signed for, checked against the list of medications ordered, and put away properly by the assigned medication personnel. **Check agency policy for specific guidelines**.

C. **Disposing of medications:**

1. If a medication has expired, do not give it to an individual. Inform the staff nurse--**the agency policy will determine how to dispose of it.**

2. **Contaminated** medication (such as **medicine dropped on the floor**) should be destroyed **according to agency policy**. It must also be documented on the individual's medication sheet and signed by two witnesses.

3. Unit-dose medication that has been refused by an individual, but not contaminated or opened, may be returned to the individual's drug supply.

4. **Discontinued** medications should be **removed immediately** from the individual's drug supply and packaged for the staff nurse.

5. When an individual is transferred, the staff nurse will document the name and number of all medications sent with the individual.

VIII. Aseptic (clean) Technique in Medication Maintenance

A. Cleanliness protects the individual from disease.

B. Frequent and careful hand washing is the most effective way to avoid spreading organisms that cause disease.

C. Keep the medication storage area clean.

D. Clean all equipment after each use.

E. Wipe the outside of bottles containing liquid with a clean, wet cloth. Do not wipe the rim.

F. Touch only the outside of medication containers, not the inside.

G. Universal precautions (see Guidelines for Universal Precautions at the end of this lesson) are to be observed when coming in contact with an individual's body fluids.

H. Pour medications into appropriate containers, **NOT** into your hand.

IX. Hand Washing Using Medical Asepsis--The single most important step you can take to prevent the spread of infection is proper hand washing.

Handwashing Steps

A. Turn on the water.

B. Regulate the water to a comfortable temperature.

C. Wet your hands.

D. Apply soap to your hands.

E. Wash your palms and the backs of your hands.
   1. Use at least 10 rotary motions.
   2. Use at least 10 friction motions.
   3 . If you wear a ring move it frequently washing the ring and finger

F. Wash your fingers, your thumbs, your knuckles, and between your fingers.

G Interlace your fingers and rub them up and down at least 10 times.

H. Wash underneath your fingernails.

I. Point your hands down toward the drain and rinse them thoroughly under the running water.

J. Wet your wrists and forearms.

K. Apply soap to your wrists and forearms.

L. Wash your wrists and forearms.
   1. Use at least 10 rotary motions.
   2. Use at least 10 friction motions.

M. Point your arms down toward the drain and rinse thoroughly, beginning at your elbows and ending at your fingertips.

N. Blot your hands and arms dry.
   1. Begin at your forearm and blot down to your fingertips.
   2. Use clean paper towels.

O. Turn off the water without breaking asepsis (use a clean paper towel to turn off the faucets).

X. Guidelines for Universal Precautions (See following pages)

Recommended Guidelines for Universal Precautions

The mission of the Occupational Health and Safety Administration (OSHA) is to save lives, prevent injuries, and protect the health of America's workers. As part of the Department of Labor, OSHA promotes worker safety and health in every workplace in the United States. OSHA'S **Bloodborne pathogens standard** protects employees who work in occupations where they are at risk of exposure to blood or other potentially infectious materials (OPIM).

In order to reduce or eliminate the hazards of occupational exposure to Bloodborne pathogens, an employer must implement an exposure control plan for the worksite with details on employee protection measures. The plan must also describe how an employer will use engineering and work practice controls, personal protective clothing and equipment, employee training, medical surveillance, hepatitis B vaccinations, and other provisions as required by OSHA's Bloodborne Pathogens Standard (29 CFR 1910.1030). Engineering controls are the primary means of eliminating or minimizing employee exposure and include the use of safer medical devices, such as needleless devices, shielded needle devices, and plastic capillary tubes.

Bloodborne pathogens are infectious microorganisms in human blood and certain other body fluids that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Needle sticks and other sharps-related injuries may expose workers to Bloodborne pathogens. Infected body fluids splashed into eyes, nose, mouth or through open areas of the skin will also expose workers.

> These guidelines are designed to assist facilities and individuals in the use of universal precautions that are necessary to prevent the spread of HIV, HBV, HCV infection and other dangerous communicable diseases.

OVERVIEW

Exposures to blood and other body fluids occur across a wide variety of occupations. Health care workers, emergency response and public safety personnel, and other workers can be exposed to blood through needle stick and other sharps injuries, mucous membrane, and skin exposures. The pathogens of primary concern are the human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Workers and employers are urged to take advantage of available engineering controls and work practices to prevent exposure to blood and other body fluids.

Universal precautions refers to the practice, in medicine, of avoiding contact with patients' bodily fluids, by means of the wearing of nonporous articles such as medical gloves, goggles, and face shields. The practice was introduced in 1985–88. In 1987, the practice of universal precautions was adjusted by a set of rules known as body substance isolation. In 1996, both practices were replaced by the latest approach known as **standard precautions**. Use of personal protective equipment is now recommended in all health settings.

In December 1991, the U.S. Occupational Safety and Health Administration (OSHA) promulgated its *Occupational Exposure to Bloodborne Pathogens Standard*, incorporating universal precautions and imposing detailed requirements on employers of health care workers, including engineering controls, provision of protective barrier devices,

standardized labeling of biohazards, mandatory training of employees in the Universal Precautions, management of accidental parenteral exposure incidents, and availability to employees of immunization against hepatitis B virus.

The following is a Quick Reference Guide to the Bloodborne Pathogens Standard

1. **What is the Bloodborne Pathogens standard?**
   OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) as amended pursuant to the *Needlestick Safety and Prevention Act* of 2000, prescribes safeguards to protect workers against the health hazards caused by Bloodborne pathogens. Its requirements address items such as exposure control plans, universal precautions, engineering and work practice controls, personal protective equipment, housekeeping, laboratories, hepatitis B vaccination, post-exposure follow-up, hazard communication and training, and recordkeeping. The standard places requirements on employers whose workers can be reasonably anticipated to contact blood or other potentially infectious materials (OPIM), such as unfixed human tissues and certain body fluids.

2. **What is the Needlestick Safety and Prevention Act?**
   The *Needlestick Safety and Prevention Act* (the Act) (Pub. L. 106-430) was signed into law on November 6, 2000. Because occupational exposure to Bloodborne pathogens from accidental sharps injuries in healthcare and other occupational settings continues to be a serious problem, Congress required modification of OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) to set forth in greater detail (and make more specific) OSHA's requirement for employers to identify, evaluate and implement safer medical devices such as needleless systems and sharps with engineered sharps protections. The Act also mandated additional requirements for maintaining a sharps injury log and for the involvement of non-managerial healthcare workers in identifying, evaluating and choosing effective engineering and work practice controls. These are workers who are responsible for direct patient care and be potentially exposed to injuries from contaminated sharps.

3. **How does the Needlestick Safety and Prevention Act apply to OSHA's Bloodborne Pathogens standard?**
   The Act directed OSHA to revise its Bloodborne Pathogens standard (29 CFR 1910.1030). OSHA published the revised standard in the *Federal Register* on January 18, 2001; it took effect on April 18, 2001. The requirement to implement the use of engineering controls, which includes safer medical devices, has been in effect since 1992.

This overview is intended to be consistent with guidelines published as a Joint Advisory Notice of the Department of Labor and Department of Health and Human Services (Federal Register Vol. 52, No 210, Oct. 30, 1987), proposed rules of the Department of Labor (29 CFR Part 1910, Nov. 27, 1987), and guidance from the Centers for Disease Control (CDC) (MMWR Vol. 36, Aug. 21, 1987) and MMWR, Vol. 37, June 24, 1988). It is not the intent of these guidelines to mandate protection from all possible or theoretic exposures to blood or visibly blood contaminated body fluids. Rather, the intent is to provide guidelines for protection from predictable exposure to blood or visibly blood contaminated body fluids, regardless of known or suspected HIV serologic status. These

guidelines represent **minimum precautions** and employers are free to utilize more stringent policies for the protection of their workers.

The human immunodeficient virus (HIV), the causative agent of AIDS, is transmitted through direct contact with blood, through sexual intercourse or perinatally from an infected pregnant woman to the baby she is carrying. Blood, semen, vaginal secretions, and possibly breast milk are the only body fluids known to transmit HIV. Universal precautions also apply to tissues and to the following fluids: cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. The risk of transmission of HIV and HBV from these fluids is unknown, epidemiologic studies in the health-care and community setting are currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial, and amniotic fluid (6-8), and HB_sAG has been detected in synovial fluid, amniotic fluid, and peritoneal fluid. One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration. Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

Employees **must** protect themselves from direct exposure to blood or body fluids that are visibly contaminated with blood to prevent diseases, such as hepatitis, that are transmitted by body fluids such as saliva, urine or feces, regardless of contamination with blood. For this reason, it is strongly recommended that precautions be taken to prevent direct contact **with all body fluids of all persons**, whether or not the body fluids re visibly contaminated with blood.

1. Sterile gloves shall be worn for procedures involving contact with **normally sterile** areas of the body.

2. Use examinations gloves for procedures involving contact with mucous membrane, unless otherwise indicated and for other patient care or diagnostic procedures that do not require the use of sterile gloves.

- Examination gloves should be worn at least in situations where direct contact with blood or body fluids that are visibly contaminated with blood is likely. Examples of such situations include but are not limited to: invasive or surgical procedures; performing oral hygiene; providing wound or decubitus care; cleaning up blood contaminated vomitus, urine, or feces; and handling items or surfaces soiled with blood or blood contaminated body fluids.

- Examination gloves are not necessary for contact with intact skin or for handling unsoiled objects previously in contact with or handled by others.

3. Examination gloves shall be removed and discarded after contact with each patient, fluid, item or surface. Hands should be washed immediately after gloves are removed. A new set of gloves should be used for contact with each person. Gloves should never be washed or wiped with any substance as this damages their integrity and increases permeability.
4. Experienced professional phlebotomists who are judged by their employer to have excellent technique may be permitted by the employer to use their

judgment as to whether gloves are necessary or not on an individual basis.

- **However, employees with permission** not to wear gloves shall be permitted to wear gloves at their discretion. Employers cannot deny any employee the right to protective equipment.

- **The employer shall document this permission** for individual employees to be exempt from wearing gloves. Any change, e.g., withdrawal of permission, shall also be documented.

- Even if an employee has permission not to wear gloves, gloves must be worn if hands are chapped, scratched, or with non-intact skin. Also, if infection control measures requiring gloves and other protective equipment are in effect for a specific patient, these infection control measures supersede any general exclusion allowed to phlebotomists under these guidelines. For example, if a physician has ordered a patient to be in "strict isolation", this order prevails and all health care providers, including phlebotomists, should comply with the physician's order.

- Gloves must be readily available at all times. Hands shall be washed in between each individual whether gloves are worn or not.

5. Use general-purpose utility gloves (e.g., rubber household gloves) for housekeeping chores involving potential blood contact and for instrument cleaning and decontamination procedures. Utility gloves may be decontaminated and reused but should be discarded if they are peeling, or cracked or discolored, or if they have punctures, tears, or other evidence or deterioration.

6. Eye protectors (goggles, glasses or shields) and face masks shall be worn for all tasks or procedures that are likely to generate sprays or splashes of blood/body fluids.

7. Impervious gowns or aprons shall be worn during all tasks or procedures that are likely to generate sprays or splashes of blood/body fluids.

8. Needles and other sharp objects shall be placed in a puncture resistant container immediately after use. Needles shall not be recapped, bent, or broken prior to disposal.

9. Health care workers with weeping exudative lesions or dermatitis, which cannot be securely covered, shall refrain both from direct patient care and from handling clean or soiled patient equipment.

10. Persons whose tasks include participation in cardiopulmonary resuscitation (CPR) should use a one-way mask when performing mouth-to-mouth resuscitation.

11. Linen, clothing or other materials that are visibly contaminated with blood or body fluids shall be placed in bags or containers that impervious to moisture before transport for cleaning. Gloves should be worn while bagging these materials.

12. Blood and other visibly blood contaminated specimens of body fluids or tissues shall be handled in accordance with infectious waste rules adopted by your facility.

13. An abuse of these guidelines should be reported to your supervisor or infection control chairperson.

DEFINITIONS and EXPLANATORY NOTES CONCERNING UNIVERSAL PRECAUTIONS

1. **Universal precautions** refer to the use of barrier precautions by employees to prevent direct skin or mucous membrane contact with blood or other body fluids that are visibly contaminated with blood. These precautions should be applied to blood and body fluids of ALL persons. The purpose of universal precautions is to protect individuals from HIV infection and other communicable diseases.

2. **Barrier** precautions, also known as protective equipment, include gloves, masks, gowns, glasses, goggles and face shields.

3. **HIV** - human immunodeficiency virus, the causative agent of the acquired immuno-deficiency syndrome (AIDS). This virus has been isolated on at least one occasion from blood, semen, vaginal secretions, breast milk, saliva, tears, spinal fluid, amniotic fluid and urine. Blood, semen, vaginal secretions and possibly breast milk are the only fluids implicated in transmission of HIV. No cases of HIV infection have been reported from exposure to tears, saliva, urine or feces. However, other potentially dangerous communicable diseases may be transmitted by these bodily fluids in the absence of blood contamination and avoidance is recommended. Previous names of HIV include Human T-Lymphotropic Virus Type III (HTLV-III) and Lymphadenopathy-Associated Virus (LAV).

4. **HIV seropositive** refers to the medical condition of a person having positive serologic (blood) tests for antibodies to the HIV. To be considered seropositive, a person must test positive repeatedly and test positive by two different methods of testing. Currently the enzyme linked immunosorbent assay (ESLISA) is the recommended screening test and the Western Blot assay is the recommended confirmatory test.

5. **Body fluids** are any secretions or emissions from the human body. Body fluids included but are not limited to semen; saliva; tears; vomitus; urine; feces; breast milk; wound drainage; spinal and amniotic fluids; vaginal secretions; menses and mucus.

6. **Blood** is composed of both cellular and fluid components. Blood includes white and red blood cells, serum, plasma and other untreated blood products.

7. **Exposure** is defined as direct contact of blood or body fluids of one person with the skin or mucous membranes of another person.

NOTE: Scientific evidence indicates that only direct contact with semen, vaginal secretions, blood, or visibly blood contaminated body fluids carries a potential risk for HIV transmission. Moreover, only direct contact with blood has been implicated in occupational acquisition of HIV infection.

READING MATERIALS

Centers for Disease Control

- 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings(http://www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html) Page 66 of this Guideline from the Healthcare Infection Control Practices Advisory Committee (HICPAC) describes Standard Precautions.
- Recommendations for Preventing Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Patients During Exposure-Prone Invasive Procedures(http://www.cdc.gov/mmwr/preview/mmwrhtml/00014845.htm)
  MMWR, July 12, 1991/40 (RR08)
  Updates recommendations for prevention of transmission of human immunodeficiency virus (HIV) and hepatitis B virus (HBV) in the health care setting

Answer Self-Test Questions
Lesson 4 Principles & Fundamentals of Administering Medications

LESSON 4

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #4 GUIDELINES FOR DEVELOPING POLICIES AND TRAINING PROGRAMS IN UNIVERSAL PRECAUTIONS AND INFECTION CONTROL

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 5: THE MEDICATION CYCLE

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. List the types of information which must accompany an individual when visiting a physician.

2. Discuss three (3) ways to encourage individuals to represent themselves when visiting a physician.

3. List the questions which must be asked of the physician and/or pharmacist when a new medication is prescribed.

4. Define the purpose of a prescription.

5. Relate how to verify if you have received the right medication from the pharmacy.

6. List the information transcribed by a pharmacist to the medication label.

7. Record procedure to follow for "out of residence" medication administration.

8. Define the difference between unit dose and medication in a bulk container.

MEDICATION CYCLE

Not long ago, only doctors and nurses were allowed to administer medications, but times are changing: many others in human services are now also asked to give medications. They are also **expected to observe for changes** which may necessitate taking the individual to see a physician, obtaining the prescribed medication, following directions for storage and recording, and administering the medication. However, responsibilities do not end at this point, for **you will now be observing for changes which may be due to the medications. It is important to have knowledge of the medications that you are administering in order to know if they are effective or perhaps causing a potentially serious side effect.**

MEDICATION CYCLE

The following medication cycle has been designed to guide you through six steps of medication administration.

The cycle is continuous: we start with Step 1 and go through the various steps and eventually return to Step 1. Using the cycle as a guide, you will now start with the first step.

A. OBSERVING FOR PHYSICAL AND BEHAVIORAL PROBLEMS AND/OR CHANGES

THE FIRST STEP IN THE MEDICATION CYCLE

Think back to problems or symptoms which may have prompted you to see a doctor. Possibly some of the symptoms you are thinking of include: loss of appetite, pain, fatigue, rash, and general discomfort. These symptoms may be due to physical and behavioral changes and are the same types of symptoms you may observe in individuals. Because you are the person in closest contact with the individual, your observations and descriptions of these symptoms are very important. Very often the physician will rely on your report, in addition to the individual's description of the problem.

Observing and reporting physical and behavioral changes in individuals is an important responsibility for direct care staff. You have the responsibility for the care of the individual 24 hours a day. Therefore, you are in the best position to notice any changes--physical and behavioral.

TYPES OF CHANGES

- **Objective Symptoms:** Change which can be clearly seen, heard, felt (e.g., cough, loss of weight, loss of appetite, vomiting, diarrhea, flushing or reddening of skin, rash, etc.)

- **Subjective Symptoms:** Change which is only perceptible to the individual (e.g., itching of the skin, tenderness or pain). You will have to ask questions about how the person feels.

Objective symptoms (SIGNS) are **easily observed**. However, in order to acknowledge subjective symptoms, you will have to ask the individual specific questions and observe his/her behavior which is inferred through "body language" (e.g., shaking head, gestures, hand movements, facial expressions, body position, expressing interest and disinterest).

It is clear that medications can be used to treat a variety of **physical** problems. However, there are many instances where other methods can be utilized to alleviate a physical symptom. For example: an individual says he/she has a headache. Before resorting to medications, consider these questions: Is the individual constipated? Does she/he have a fever? Is the individual saying she/he has a headache because she/he wants your attention? Exploring some of the possible reasons for a physical change will help in your explanation to the doctor when you seek direction.

- **Behavioral Changes:** The use of medications as a treatment procedure to influence behavior problems has increased dramatically. Prior to the discovery of tranquilizers, behavior problems were treated with sedatives and electric shock therapy.

Strait jackets and padded cells were used for violent individuals, and last but not least, pre-frontal lobotomies were performed. Tranquilizers are classified as psychotropic medications, drugs that are "mind altering." They affect behavior, emotions, and/or intellectual processes. Although psychotropics are useful, they should be used only when all other alternative treatments have been tried and have been unsuccessful.

Observations to Chart: Report changes from normal to Staff Nurse

1. **Vital Signs**

   A. Temperature--chart the following: (Normal temp is 98.6)

      1. Actual thermometer reading
      2. Areas of the body used for measuring the temperature
      3. Example: 98.6 axillary (AX), 98.6 rectal (R), and 98.6 oral (O)

   B. Respirations--chart the following: Normal adult range 12 to 16

      1. Rate of respiration per minute
      2. Difficulty breathing (dyspnea)
      3. Difficulty breathing unless sitting (orthopnea)
      4. Periods of not breathing (apnea)

   C. Pulse--chart the following: **The normal pulse for adults ranges from 60 to 100 beats per minute**

      1. Rate per minute
      2. Rhythm (regular or irregular)
      3. The quality (strong, weak and thread)

   D. Blood pressure--chart the following:

      1. Systolic/diastolic reading
      2. Position of individual when blood pressure is taken
      3. Limb from which blood pressure was taken
      4. Example: BP 120/90 right arm – sitting

According to the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health, high blood pressure for adults is defined as: 140/90.

In an update of NHLBI guidelines for hypertension in 2003, a new blood pressure category was added called prehypertension: 120/80 to 139/ 89

The NHLBI guidelines now define normal blood pressure as follows: Less than 120/80

2. **General appearance and condition**

A. **Skin color**--chart the following:
   1. Pallor (pale)
   2. Flushing (redness)
   3. Cyanosis (blue)
   4. Jaundice (yellow- can be seen in the eye as well as the skin)

B. **Skin condition**--chart the following:
   1. Turgor
   2. Bedsores (decubiti)
   3. Edema
   4. Rashes/itching
   5. Lacerations
   6. Bruises
   7. Burns
   8. Inflammation/redness
   9. Dryness/wetness
   10. Example: 3cm x 5cm x 1cm (length, width, depth) area of coccyx. Redness decreases when individual turned on side.

C. **Weakness--**chart the following:
   1. Loss of strength
   2. General or localized
   3. Example: Unequal hand grips. Right hand stronger than left.

D. **Eating habits**--chart the following:
   1. Amount of food eaten
   2. Any difficulty in swallowing
   3. Difficulty in feeding self
   4. Food preferences

5. Example: Individual prefers soft food. Lunch: ate 1/2 meat, all vegetables, ½ dessert, drank all liquids.

E. **Sleep**--chart the following:
   1. Ability to sleep at night
   2. Severe drowsiness during the day
   3. Statements made by the individual about sleep habits
   4. Example: Individual stated difficulty sleeping last night due to another Individual being noisy.

F. **Weight**--chart the following:
   1. Accurate weight (labeled in lbs. or kilos)
   2. Report variance of three (3) or more pounds to staff nurse.
   3. Any persistent increase or decrease unrelated to dietary changes.

3. **Gastrointestinal Tract**

A. Nausea, vomiting (emesis)--chart the following:
   1. Color
   2. Frequency
   3. Amount of vomitus
   4. Consistency
   5. Times of nausea
   6. Example: Emesis of 100 cc green, thick liquid, 3:00 a.m.

B. Abdominal distention--chart the following:
   1. Variation in size of abdomen
   2. Whether the abdomen is soft, hard, or painful
   3. Example: Abdomen appears more distended, but remains soft.

C. Bowel movement (feces)--chart the following:
   1. Amount
   2. Frequency
   3. Consistency
   4. Color
   5. Example: Individual expelled 100 cc tarry, liquid stool.

D. Mouth and gums – chart the following:
   1. Bleeding
   2. Soreness
   3. Lesions or sores
   4. Ill-fitting dentures
   5. Example: Individual c/o soreness on right upper gum. States "dentures need to be adjusted."

4. **Respiratory Tract**

A. Respirations (see vital signs):

B. Cough--chart the following:

1. Productive or non-productive
2. Any difficulty in breathing
3. Breath odor--foul, sweet, fruity, alcohol
4. Example: Individual has productive cough of thick, yellow sputum. There is an odor of alcohol on breath.

5. **Genitourinary Tract**

A. Urine (voiding)--chart the following:

1. Amount
2. Color--redness, deep brown, pale yellow, dark yellow, amber
3. Pain
4. Difficulty in voiding
5. Frequency
6. Example: Individual voiding 50 cc concentrated urine every 30 minutes. Slight pain upon urination.

B. Discharge--chart the following:

1. Color of any discharge from vagina, urethra, penis, or rectum
2. Consistency of any discharge from vagina, urethra, penis, or rectum
3. Example: Thin, watery, clear discharge from vagina.

6. **Musculoskeletal System--chart the following:**

A. Physical activity

1. Movements of limbs
2. Ability to walk
3. Involuntary movements
4. Tremors
5. Contractions
6. Pain, swelling
7. Exercises, including Range of Motion (ROM)
8. Example: ROM to all extremities for 5 minutes.

7. **Mental and Emotional State**

A. State of consciousness--chart the following:

1. Alert
2. Lethargic
3. Comatose
4. Responsive
5. Example: Individual arouses only to painful stimuli (sternal rub).

B. Emotional status--chart the following **by describing what the individual is doing** which **causes you to think** that the individual is:
   1. Apprehensive
   2. Fearful
   3. Nervous
   4. Distressed
   5. Withdrawn
   6. Happy
   7. Friendly
   8. Sad
   9. Depressed
   10. Apathetic
   11. Example: Individual is pacing up and down the hall, wringing his hands, and talking to self for 30 minutes.

8. **Nervous System--**chart the following:
   A. Changes in sensation or movement
   B. Changes in speech--slurring, drooling, tremors of the tongue
   C. Period of vertigo, aphasia, syncope
   D. Convulsions
      1. Time convulsion occurred
      2. Part of the body affected
      3. Type
      4. Duration
      5. INJURY (IF ANY OCCURRED)
      6. Example: 15 second syncopal episode after being outdoors (T.99) for 30 minutes BP 80/60, P. 120, R. 30.

9. **Pain** – chart the following:
   A. Time
   B. Area
   C. Type
      1. Mild
      2. Steady
      3. Intermittent
      4. Sharp
      5. Dull
      6. Throbbing
      7. Sudden onset
      8. Gradual onset
      9. Severity

D. Individual’s statement regarding pain.

E. Example: Individual complaining of headache. Aspirin given, No relief in an hour.

10. **Eyes**

A. Changes in vision--chart individual's statements about vision:

1. Blurred.
2. Double
3. Decreased
4. Change in pupil size
5. Sensitivity to light
6. Visual halo
7. Inability to see
8. Color of sclera
9. Recurrent headaches
10. Example: Individual c/o double vision in right eye. Staff nurse notified.

B. Physical signs.

1. Drainage
2. Itching

11. **Ears**

A. Changes in hearing--chart the following statements by the individual:

1. Decreased Hearing
2. Presence of ringing in ear(s)
3. Pain or pressure
4. Example: Individual c/o ringing in right ear.

B. Physical signs:

1. Drainage
2. Itching

Answer Self-Test Questions - Lesson 5: The Medication Cycle -- A. Observing for Physical and Behavior Problems and/or Changes.

B. REPORTING AND RECORDING PHYSICAL AND BEHAVIORAL PROBLEMS AND/OR CHANGES

THE SECOND STEP IN THE MEDICATION CYCLE

In addition to observing physical and behavioral problems and/or changes, you must know what to report, to whom to report and how to report. Agencies usually have specific policy and procedures to follow for reporting and recording observations. However, the following information is basic to most agencies.

EMERGENCY MEDICAL CONDITIONS

What to Report

There is no single rule to follow in determining what constitutes an emergency condition. It may stem from an illness or accident, resulting in a severe injury (life threatening).

Some Common Emergency Conditions:

- excessive bleeding which you are unable to control
- broken bones
- choking, not breathing, failure of respiratory system
- no heartbeat, failure of circulatory system
- behavior which poses a threat to individual, or other individuals or staff safety
- loss of consciousness not related to seizure, and
- prolonged seizure activity

When to Report

Immediately to the supervisor.

How to Report

Most agencies will have an emergency number posted by the telephone. This number will facilitate getting an ambulance. Some helpful suggestions

If more than one person is available:

- one person makes call
- one person stays with individual and administers first aid, if applicable
- collect individual's medical record so that complete information can be given to the treating physician (records are not to be left with the physician)
- accompany individual to hospital with medical records

In case of emergency: Make sure you have posted in your residence the name and telephone number of the following:

- Administrative supervisor
- Ambulance
- Individual's physician

Any error involving medication shall be reported immediately to the appropriate agency personnel (according to agency policy).

If you are alone, your primary responsibility is the welfare of the individual.

GET HELP BUT STAY WITH THE INDIVIDUAL UNTIL HELP ARRIVES

After the Emergency

As soon as possible, inform the person on call and the individual's physician. Follow these calls with a written report in the individual's record according to agency policies.

NON-EMERGENCY MEDICAL CONDITIONS

What to Report

Potentially, health threatening conditions are those physical or behavioral signs which lead you to believe that the health or safety of the individual or others is endangered. This is a very broad definition. You know your individuals better than anyone; you know what their normal behavior patterns and physical signs are like; you have to make an interested, caring judgment as to when a health threatening condition exists.

Common sense is important here. Think of those situations (if they occurred at home) which would lead you to call a doctor, but not an ambulance. Examples:

- A fever which is not reduced by normal procedures, such as aspirin
- Repeated episodes of angry aggressive behavior which, while controllable, are not typical of the person
- Diarrhea which is not affected by prescribed medication
- A rash which lasts for several days or seems to be getting worse
- An increase in seizure activity
- Cold symptoms which last longer than a week
- Severe seizure for an individual who has a history of mild seizures
- Unusually withdrawn behavior on the part of a person who ordinarily has frequent interactions with other
- Unexplained black and blue marks
- Lack of balance or coordination

When to Report
As soon as possible after the situation is observed

To Whom and How to Report
Whenever a health threatening condition arises, notify your supervisory person on call. Report your observations and reasons why you feel this is a health threatening situation. Your supervisor will then determine whether or not the individual should be seen by a physician.

- **Follow up your phone call with a written documentation as soon as possible.**
- **Continue to observe individual for any further changes.**

OTHER HEALTH RELATED CHANGES

What to Report
Any physical or behavioral changes other than those covered before are included in this category. Any significant physical or behavioral changes could be important. They must be recorded in the client's record in order that they may be used in machine decisions regarding medications, dosages, and treatment plans. Report as soon as possible after the condition is observed.

Examples:
a. changes in sleep patterns
b. changes in bowel habits

To Whom and How to Report

Write a description of occurrence in the client's record and notify your supervisor.

When in Doubt

If you are **not certain** if a situation is an emergency or non-emergency--**treat it as an emergency**. If you are wrong no harm will have been done.

Answer Self-Test Questions - Lesson 5: The Medication Cycle--B. Reporting and Recording Physical and/or Behavioral Changes.

C. ASSISTING IN VISIT TO THE PHYSICIAN AND PHARMACIST THIRD AND FOURTH STEPS IN THE MEDICATION CYCLE

ASSISTING IN VISIT TO THE PHYSICIAN

In previous sections you learned the types of behavioral and physical problems and/or changes to observe in individuals. You also studied how and when you should report any changes which you observed. In this section, you will be guided through the process of assisting the individual in a visit to the physician.

When you assist an individual in visiting the physician, there are three things which you should be aware of: you need to take specific individual information to the physician, there is certain information you should obtain from the physician, and there are certain things you need to do with the information obtained from the physician.

INFORMATION FOR THE PHYSICIAN

In order to prescribe the best medication and treatment that will offer the maximum help and minimum potential danger, the physician must have certain information.

- **Give observations not opinions or diagnoses**

Most agencies make a practice of keeping the above information in a single place or file. However, agency policies differ. You should know the forms used and the location of the records needed to provide all the above information to the physician. However, such records cannot be left with the physician.

ENCOURAGING INDIVIDUAL PARTICIPATION WHEN VISITING PHYSICIAN

Individuals will differ greatly in their ability to represent themselves when seeing a doctor. Some persons will need your help only to gather the necessary documents and will then be able to go to the physician and pharmacist by themselves. Others will need more assistance, and a few individuals will depend almost entirely on your help.

In all cases, **encourage the individual to participate** as much as possible. Don't "speak for the individual" unless it is necessary. Look at the following examples, for the "wrong" and "right" way to assist the individual.

1. Encourage the individual to provide his or her own description first and you fill in later.
2. Always allow the individual to answer first. If necessary, redirect the physician’s questions to the individual.

3. Encourage the individual to ask all the questions he/she can remember and then you ask the rest.

4. Have the physician give the individual the prescription then provide assistance, if necessary, to have it filled.

The main point is for your actions to provide an appropriate model for others. Many people will assume that the individual is totally dependent and has little to offer in this process. Your behavior can counteract this attitude and should serve to reinforce a positive image of the individual.

INFORMATION TO OBTAIN FROM THE PHYSICIAN AND/OR PHARMACIST

When a physician prescribes a new medication for an individual, you must be sure to get certain information. This information will be helpful for anyone who will be administering the medication.

In addition to the prescription, there are important questions you should have answered:

a. **What is the purpose and desired effect of the medication?**
What is the diagnosis or condition for which the medication has been prescribed? What signs will tell you the medication is effective?

b. **What is the response time?**
How much time should it take before the desired effects can be expected to occur? When should we see some improvement?

c. **Are there any side effects that should be especially watched for?**
Given the personal characteristics of a specific individual and/or the properties of a given medication, there may be certain potential side effects.

d. **Are there any possible interactions with other medications and/or foods?**
Food and/or medication interactions are a major cause of side effects. The physician's knowledge of the individual's current medications and diet will allow him or her to predict whether interactions may occur.

e. **Are there any special administration or storage instructions?**
Cover such areas as special storage instructions or diet restrictions while taking this medication. Also specific time(s) to take medication.

MEDICATION CONTAINER

The pharmacist will fill the prescription and transcribe the information from the prescription to the drug label. When you and the individual are given the container, read the label to make sure you understand the directions. The following medication label has been adapted from the previous prescription for Clara Barton (see below).

MEDICATION LABEL

PHONE
473-5480

Cozens Pharmacy
80 Delaware Avenue
Albany, NY 12208

Clara Barton 10/20/2016
phenytoin
substitute for: Dilantin 100 mg. #90
Take one (1) capsule three times a day

Rx 113 Dr. J. Dibble
Refills remaining 2 Expiration date 2/14/17

Dr. J. Dibble Substitution Permitted

It is important that you fully understand the directions on the label for this information must be transcribed to a medication administration record when you return to the residence.

> **NOTE:** The physician signed the prescription on the line substitution permissible. Therefore, the pharmacist substituted phenytoin for the trade name Dilantin.

UNIT DOSE

Sometimes the medication you receive from the pharmacist will not be a traditional bottle type container. Unit dose packaging is an alternative that is being used more and more frequently.

A unit dose package system contains the ordered amount of medicine for a single unit dose, individually wrapped. Each individual dose will be labeled with the drug's brand and generic name, strength of dose contained, expiration date (if appropriate) and recommendations for special storing if necessary. The number of doses the doctor orders will be given to you in a container which is labeled with the prescription information. Tablets, capsules, and liquids can all be prepared in a single unit dose package. The unit dose package system is very convenient but more expensive than the traditional method of packaging and more room is needed for storage.

OUT OF RESIDENCE MEDICATION ADMINISTRATION

In some instances, individuals will have medications ordered for times when they are out of the residence, such as attending a day program or visiting with family. When this occurs, special arrangements should be made to ensure the individual will continue to receive the medication.

Agency policies will vary as to arrangements. Some recommendations are:

- send the medication bottle as dispensed by the pharmacist with the individual and/or family, or
- at the time the medication is prescribed, request the prescribing physician to write a separate prescription for the period of absence, or
- bring the medication bottle to the pharmacy and ask the pharmacist to dispense the needed amount into another labeled container, or
- ask the pharmacist to fill a prescription by dividing it into two separate labeled containers when advance knowledge of the period of absence is known.

Answer Self-Test Questions - The Medication Cycle-- C. Assisting in visit to Physician and Pharmacist

D. RECORDING AND STORAGE OF MEDICATIONS

THE FIFTH STEP IN THE MEDICATION CYCLE

Once you have obtained the necessary medication(s) from the pharmacist and have returned to your facility, you should record certain information on appropriate forms and store the medication properly. You will be using the information received from the physician and pharmacist to complete the documentation process.

Care and Storage of Medications

1. Medications must be safely locked in a storage container, i.e., lock box or medication cabinet, at all times except when the individual is taking the medications.

2. Drug supplies for each individuals must be stored under the proper conditions of sanitation, temperature, light, refrigeration and moisture.

   a. Exposure to excessive heat over a period of time causes deterioration of some drugs.

   b. Refrigeration is required for some drugs because they deteriorate if kept at room temperature. These drugs must also be locked in a storage container, for example a lock-box.

   c. Exposure to light causes deterioration of some drugs. These must be kept in a dark bottle.

   d. Bottles must always be capped when not in use to prevent deterioration of the medicine. Many drugs undergo chemical changes when exposed to air for a length of time.

3. Prescription drugs are to be obtained from a licensed pharmacy and are to be labeled with name, address, and telephone number of the pharmacy, the name of the individual, name and strength of the drug, directions for use, date filled, prescription number, the name of the physician or dentist, and the expiration date.

4. Non-prescription or over-the-counter (OTC) drugs and vitamins may be purchased anywhere and taken providing the following conditions are met:
   a. the physician ordered the medication
   b. the medication is maintained in original container.
   c. the individual's name is taped to the container in such a manner as to not to obscure the original label.
5. Any drug container having detached, excessively soiled, or damaged labels must be returned to the pharmacy for re-labeling.

6. The contents of any drug container having no label or with an unreadable label must not be used. Follow you agency's procedure for disposing of medications.

7. Medications having specific expiration dates must not be used after the date of expiration.

8. Medication for **external use** must be kept in a separate area from those medications which are taken internally. These area must be labeled **"External Medications".**

Destruction of Medications

Medications must not be given after the expiration date on the container has passed. **These must be disposed of according to your agency's policies procedures**. Consult with your supervising nurse or pharmacist. There are special regulations from the Drug Enforcement Agency (DEA) regarding the disposal of **Scheduled drugs. NEVER dispose of medications yourself.**

Answer Self-Test Questions - Lesson 5: The Medication Cycle-- D. Recording and Storage of Medications

LESSON 5

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 6: MEDICATION ADMINISTRATION

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Record the procedure to determine the "Six Rights".
2. State procedure to follow when one of the "Six Rights" do not agree.
3. Record your responsibilities for individuals who need assistance with medications.
4. Record your responsibilities for individuals who are unable to administer medication themselves.
5. State procedure to follow when administering rectal and vaginal suppositories
6. Describe five (5) ways a medication error may occur and your responsibilities.
7. Discuss situations when medications should not be given.

The FINAL step in the medication cycle is MEDICATION ADMINISTRATION

The "Six Rights" of Medication Administration

1. Give the **Right medication**--compare the label on the medication container with the individual's medication administration record (MAR)

2. Give the **Right dose**--compare the order on the medication administration record (MAR) with the label on the medication. If it is different, ask the staff nurse for further instructions.

3. Give medication to the **Right Individual**--compare the name on the medication administration record (MAR)with the individual's Photo, I.D. band (or other means of identifying individual).

4. Give medication by the **Right route**--compare the medication administration record (MAR) and the medication label.

5. Give medication at the **Right time**--compare the medication administration record (MAR) and the medication label. Always chart the **exact time** the medication is administered. If not administered within one hour prior to or after the prescribed time, you must chart the exact time you administered it.

6. **Right documentation**--record medication immediately **after** it is given.

BEYOND THE 6 RIGHTS

Beyond the "Six Rights" of medication administration, there are some additional safeguards to follow that will help to minimize medication risks. These have been divided into three **DO's** and three **DON'Ts.**

- **DO** give your full attention to the task.
- **DO** remain with the individual until the medication has been taken.
- **DO** prepare medication for only one individual at a time.

- **DON'T** give a medication from a container which has a label that cannot be read.
- **DON'T** give a medication from another person's container.
- **DON'T** try to hide a medication error.

Before administering a medication, double check the medication record to be sure the medication is in the form ordered by the physician. If the medication record says capsules, be sure you have capsules and not tablets. The medication and record and pharmacy label should state the route (method) by which the drug should be administered. For instance, you might be instructed to **externally apply** an ointment to a rash. Follow the route directions carefully.

If you have **any** doubt as to whether the medication is the correct form as ordered, or can be administered as specified, call your supervisor before administering the medication.

Notify the nurse

Examples:

- If the medication in the container is in tablet form and the instructions say apply externally," call your supervisor.

- If the individual has difficulty swallowing and the medication is in capsule form, call your supervisor.

- If the medication in the container is in a suppository form and the instructions say "take orally three times a day', call your supervisor.

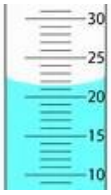
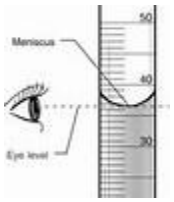
- **Or if the label says capsule and you have tablets.**

GUIDELINES FOR INDIVIDUALS WHO NEED ASSISTANCE AND/OR SUPERVISION

For those individuals capable of self-administration of medication with assistance and/or supervision, the following procedure is recommended. Remember, that through this procedure efforts should be directed to encouraging and giving the individual every opportunity to do as much as possible.

PROCEDURE	**KEY POINTS**
1. Compare the MAR with drug label.	To ensure right individual, right medicine, right dose.
2. Assemble equipment: medication record, drinking glasses, straws, water, paper towels.	Equipment should be clean and dry.
3. Have individual come to designated area.	Individual's room or area where medication is kept.
4. Be sure individual washes hands before starting procedure.	Clean technique.
5. If able, have individual select proper container from shelf. If not able to identify container, employee will.	**"Rule of Three"--Read label three times:** **1. Before removing container from medicine cabinet.** **2. Before pouring drug dose.** **3. Before returning container to the medicine cabinet.**
6. Watch individual open container and remove correct dosage using proper equipment (medicine cup or container can to hand).	Helpful for individual if non-childproof caps or blister cards are used.
7. Remain with individual until medication is taken.	
8. Record medication administration on the MAR	OR observe individual complete the recording.
9. Observe individual for reaction.	

PROCEDURE FOR ADMINISTRATION OF MEDICATIONS TO INDIVIDUALS WHO ARE NOT ABLE TO SELF-ADMINISTER

PROCEDURE	KEY POINTS
1. Compare the MAR with medication label.	To ensure right individual, right drug, right dose, right method, and right time.
2. Assemble equipment, medication, record, drinking glasses, straws, water, paper towel.	Work alone, prevent distractions or interruptions and have good lighting.
3. Wash hands thoroughly before measuring or preparing medication.	Maintain clean technique throughout procedure.
4. Read medication record. for each dose of medicine, read the label three times.	Minimize opportunity for error. **"Rule of Three" - Read the label:** 1. Before removing container from medicine cabinet. 2. Before pouring the measured amount of drug. 3. Before replacing the container in the medicine cabinet.
5. Pour the accurate dose.	
LIQUIDS	
A. **Shake liquids** well. If solution has settled, shake until returned to suspension.	To make sure the dose is accurate
B. Pour liquid medication from the bottle **on the side opposite of the label.**	To avoid soiling or defacing label, always place label against palm of hand and wipe outside of bottle before returning bottle to storage site.
C. Hold medicine cup at **eye level**, on a **flat surface**, with the thumbnail marking the desired dosage and **read at lowest level** of fluid surface.	 

PROCEDURE	KEY POINTS
D. Pour liquid medication directly into calibrated cup.	Liquid may also be administered with teaspoons, but measurement is not as accurate.

TABLETS OR CAPSULES

A. Pour correct number into cap of container.	May pour back and forth to get the correct number of pills
B. Empty cap into container such as a small paper cup.	Do not touch medication with fingers.
C. Place each dose of medicine in a separate container.	Avoid mixing medications unless so ordered or unless individual is used to taking more than one medication at a time.

Administration of Poured Medications

A. Identify individual and medication. Read the information on MAR	Make sure you give the right medication to the right individual.
B. Explain the procedure to the individual.	Ensures cooperation and helps in teaching the individual.
C. Individual should be in upright position.	Facilitates swallowing.
D. Check pulse, blood pressure, etc., if indicated.	
E. Check time.	
F. Check route (correct route).	
G. Hand medication and water to individual. If indicated, assist individual to take medication.	
H. Remain with individual until medication is taken.	Check to see if individual has swallowed medication.
I. Observe individual for reaction.	Reaction may not occur until after drug is absorbed (one or two hours later).

J. Document medication administration on the **MAR** The medication administration record can now be signed. Never sign the medication record until **after** the drug has been given.

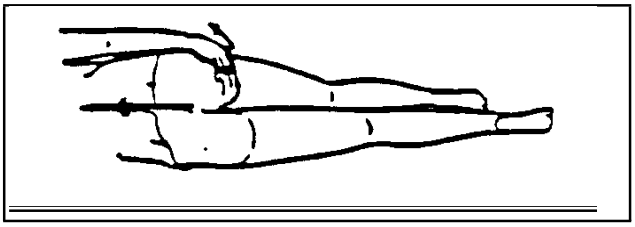
CLEAN-UP:

A. Discard used medicine cups in a waste container.

B. Wash hands.

Washing hands between individuals is adequate to maintain clean technique.

<u>Procedure for the Administration of Rectal Suppositories</u>



1. Wash hands.

2. Compare the order on the MAR to the label on the medication container.

3. Remove the outer wrap from the suppository.

4. Lubricate the pointed end of the suppository with a **water based** lubricant. Place the suppository on a tissue and avoid handling it as melting begins rapidly at **body temperature.**

5. Position the person on their **left side** in the privacy of their own room. Position the top leg up toward the abdomen.

6. Put on latex gloves.

7. Gently insert the lubricated tip of the suppository into the rectum the full length of your finger. The angle of insertion should be toward the umbilicus. Push the end of the suppository so that it touches the wall of the colon. It is not effective if inserted into the stool.

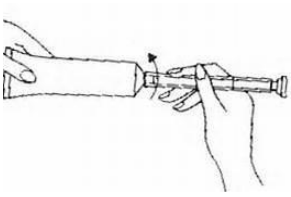
8. Remove gloves and dispose of them.

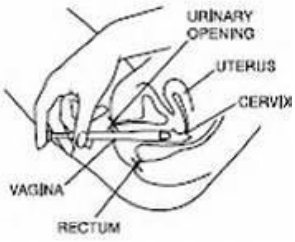
9. Wash hands.

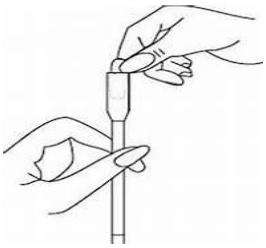
10. Document on the medication record. Also, document any results from the suppository.

Procedure for the Administration of Vaginal Suppositories or Creams

1. Wash hands
2. Compare the order on the medication record to the label on the medication container.
3. Prepare the medication. Remove the wrap from suppository and/or load the applicator according to its instructions.
4. Have the individual go to her room and have her lie on her back.
5. Put on latex gloves.
6. Grasp the barrel of the applicator slightly downward, insert the applicator into the vagina as far as it will comfortably go. Now push the plunger with the index finger. Remove the applicator.
7. Instruct the individual to remain lying down for 15-30 minutes for absorption of the medication.
8. Separate the applicator, the barrel and the plunger
9. Remove gloves and dispose of them.
10. Wash hands.
11. Document on the MAR







Dorsal Recumbent Position

MEDICATION ADMINISTRATION RECORD (MAR)

The medication record is part of the individual's permanent record. It is an important record since it describes the medications used by the individual, the doses, the routes, and the times medications were taken.

Each agency will have a medication record which meets their specific needs. In general, a medication record will contain the following information:

1. The name of the agency or an identification code. (May also contain the address of the agency.)

2. The name of the individual taking the medication.

3. The month and the year the record is being kept for.

4. The name of the primary physician.

5. The names of the medications and how they are to be taken, as ordered by the physician.

6. The time the medications are to be taken.

7. Any drug sensitivities and allergies. If the individual has no allergies, then none noted or NKA (no known allergies) should be listed.

8. The initials of the CMA (Certified Medication Attendant) who assist or administers medication. The initials must be placed for each day and dose of medication given.

9. The signatures of all CMA (Certified Medication Attendant) who assisted/administered the meds.

10. The signature of the nurse who reviewed the record.

THE PRN MEDICATION RECORD

This section describes the procedures to be used in filling out the medication record or PRN or "as needed" medications. "As needed" medications are those medications prescribed by the individual's physician which are not taken on a set and specific schedule, but are to be **taken when needed**. Psychotropic drugs should not be given on an as needed basis.

Each time a **PRN** medication is taken, the name of the medication, the dosage, the date and time taken and the initials and or signature of the staff person are to be recorded on the **PRN** medication record. A copy of the **PRN** record can be found at the end of this section**. PRN results must also be documented.**

MEDICATION ERRORS

You have completed the study of the process of medication administration. However, at times no matter how strict we are in following procedures, an error can occur. The most important aspect to remember is, when an error occurs, **immediately report and record the error.**

A medication error occurs when any one or more of the "Six Rights" of medication administration is violated. For example:

- the wrong individual was given a medication
- the wrong medication was given to an individual
- the wrong dosage was given to an individual
- a medication was administered at the wrong time to an individual, or a medication was not given at all, and
- a medication was administered by the wrong route

If a medication error occurs, you should call your supervisor and/or other personnel as designated by the policy and procedures of your agency.

Most agencies require some form of documentation describing the error. When you report the error, both by phone and in writing, be sure to include the following information.

WHO - the individual and staff member involved in the error
WHAT - what type of error was made
WHEN - when the error occurred

WHEN NOT TO GIVE MEDICATIONS: There may be occasions when it is the appropriate time to administer medications, **BUT** unusual circumstances require that you do **NOT** proceed. For example:

Discrepancy with Medication Label and/or Medication Record. If medication administration record is incomplete and/or the medication label is not readable, **STOP**. Contact your supervisor for further directions.

Individual Exhibits a Dramatic Change in Status. If the individual is showing signs of seizures, unconsciousness, difficulty in breathing, or other changes which appear to be health-threatening, do not administer the medication. Follow the instructions given for reporting an emergency or non-emergency health-threatening situation.

Wrong Individual, Medication, Time, Route. If you have any doubt that you have the right individual, right medication, right dosage, right time, or right route, get assistance from another staff member or call your supervisor before administering the medication.

Individual Refuses to Take Medication. Explain to the individual why it is important to take the medication as prescribed by the physician and encourage the individual to cooperate. If individual still refuses, do not force him or her to take the medication. Remember, the individual has the right to refuse medication. Call your supervisor and follow his or her instructions and document the situation.

QUESTIONS YOU SHOULD BE ASKING ARE:

"What physical and behavioral changes are occurring which may be a result of the medication/s?", and last but not least, "Is the medication working?"

The process of administering medications is an on-going cycle of observation, recording, reporting, physician and pharmacy visits, documentation, storage of medication, and on and on. Each staff member, whether he/she administers medications or not, has responsibilities in this medication cycle.

The MAR Exercises

Note placement of each on the following sample MAR.

A. The name of the agency or identification code.
B. The name of the individual taking the medication and diagnosis.
C. The month and the year the record is being kept for.
D. The name of the primary physician.
E. The name of the medication and how they are to be taken.
F. The time the medications are to be taken
G. Any drug sensitivity and allergies. If the individual has no allergies then NKA should be listed.
H. The initials of the CMA.
I. The signatures of all CMA's who assisted/administered medications.
J. The signature of the nurse who reviewed the record.

Review the following on the **sample MAR** for the client John Smith.

Agency: XYZ
Client: John Smith
Physician: Dr. J. Needles

Medication Ordered: phenytoin 100mg tid po

Date:	July 7, 2016	Note agency policy dictates times, XYZ Agency Policy states 8a, 12p, 8p as tid times.
Date:	July 15, 2016	Physician changed phenytoin to 100mg bid po after morning dose.
Date:	July 20, 2016	Physician added Lithium 5mg bid po. Note XYZ agency policy states bid times as 8a and 8p.
Date:	July 25, 2016	Physician discontinued phenytoin 100mg bid after morning dose.
Date:	July 28, 2016	John Smith c/o headache and was given two tablets of Tylenol 325mg at 7pm. This order was obtained from the physician standing order list of PRN medications. Note: Documentation of PRN results.
Date:	July 29, 2016	Physician orders Benadryl 25mg po q 6 hours PRN for itching.

MEDICATION ADMINISTRATION RECORD

CLIENT: Smith John   DATE OF BIRTH: ____ ____________

MEDICATIONS	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
phenytoin 100mg	8A							JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ																
take one by mouth								JJ																								
three times daily	12N							JD	JD	JD	JD	JD	JD	JD	JD		7/15/16 Frequeny changed see below															
7/7/2016	8P							BB	BB	BB	BB	BB	BB	BB	BB																	
Lithium 5mg	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
take one by mouth	8A																				JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ
twice daily																																
	8P																				BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	BB	BB
7/20/2016																																
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
phenytoin 100mg	8A																JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ	JJ						
take one by mouth																																
twice daily																				7/25/16 Discontinued												
7/15/2016	8P															BB	BB	BB	BB	BB	BB	BB	BB	BB	BB							
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Benedryl 25 mg	P																															
take one by mouth every six hours	R																															
for itching as needed	N																															
7/29/2016																																
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

DOCTOR'S ORDERS, MEDICATION NOTES, AND INSTRUCTIONS ON REVERSE SIDE

CHARTING FOR: DATE:	THROUGH:
PHYSICIAN: Dr. J. Needles	TELEPHONE NO. 555-555-5555
ALLERGIES: NKA	
DIAGNOSI S Bipolar Disorder, Seizure Disorder	Agency: XYZ Agency ____________

SIGNATURE OF EMPLOYEES ADMINISTERING MEDICATION (INCLUDE INITIALS)			
John Jones	JJ		
Jane Doe	JD		
Betty Boop	BB		

MEDICATION ADMINSTRATION PRN NOTES

DATE	TIME GIVEN	MEDICATION & DOSAGE	REASON	RESULTS OR RESPONSE	TIME NOTED	STAFF SIGNATURE
7/7/2016	8:00 AM	phenytoin 100mg	Initialed in wrong box			JJ
7/28/2016	7:00 PM	Tylenol 325mg, 2 tabs	headache	relieved	8 PM	BB

MEDICATION ADMINSTRATION NOTES

DATE	TIME	NOTES	SIGNATURE & TITLE

Add the following medications to your **exercise MAR** on the following page:

Date:	July 5, 2016	Erythromycin 250mg po tid x 7 days. Medication is received at 4 pm.
Date:	July 8, 2016	Depakote 500mg po bid and 1000mg hs. You receive 500mg tablets at 2 pm.
Date:	July 10, 2016	Mellaril 100mg po tid x 10 days then give Mellaril 100mg bid. You receive meds at 2 pm.
Date:	July 10, 2016	At 8 pm client refuses medications.

Additional Information:

Sometimes a physician will eliminate the medication from the client's medication regimen. This would be a **DISCONTINUATION** order and the medication would be **REMOVED** from the MAR. Remember to remove the medication from the client's medication supply and place it in medications to be destroyed.

Other times the physician will want to **change the amount** or the **number of doses** of medication the client is receiving. In this case the order is referred to as a **CHANGE**. The client will still receive the medication. **Only the dosage or number of times to be taken will be changed. The individual will still be taking the medication.**

Note above situations on the **Sample MAR.**

Answer Self-Test Questions - Lesson 6: Medication Administration

MEDICATION ADMINSTRATION RECORD

CLIENT: ______________________________ DATE OF BIRTH: ____________________

MEDICATIONS	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

DOCTOR'S ORDERS, MEDICATION NOTES, AND INSTRUCTIONS ON REVERSE SIDE

CHARTING FOR: DATE:	THROUGH:
PHYSICIAN:	TELEPHONE NO.
ALLERGIES: NKA	IF SELF-MEDICATED SIGN HERE:______________________
DIAGNOSIS:	

SIGNATURE OF EMPLOYEES ADMINISTERING MEDICATION (INCLUDE INITIALS)

______________________	____	______________________	____
______________________	____	______________________	____
______________________	____	______________________	____

MEDICATION ADMINSTRATION PRN NOTES

DATE	TIME GIVEN	MEDICATION & DOSAGE	REASON	RESULTS OR RESPONSE	TIME NOTED	STAFF SIGNATURE

MEDICATION ADMINSTRATION NOTES

DATE	TIME	NOTES	SIGNATURE & TITLE

INSTRUCTIONS FOR

CHART SIDE	NOTES SIDE
1. INITIAL APPROPRIATE BOX AFTE MEDICATION IS GIVEN	1. STATE REASON FOR REFUSAL OF MEDICATION
2. CIRCLE INITALS WHEN MEDICATION IS REFUSED	2. STATE REASON AND RESULTS FOR PRN MEDICATIONS

LESSON 6

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 7: DOCUMENTATION

OBJECTIVES

At completion of this lesson, you will be expected to:

1. List the general rules of charting.
2. List the rules for charting medications.
3. Know what an individual stop order is.
4. Know what observations are important to chart.

The chart provides a medical profile of each individual and is admissible as evidence in court. It is very important that documentation be done accurately and immediately after the administration of any medication.

It is also important that when charting, all staff members chart in the same manner. This allows for accurate tracking of the individual's health since all staff members are consistent in what and how they chart.

A doctor's order is required before any member of the residential staff can administer a medication. The medication order must contain eight basic parts for it to be valid. It is the responsibility of the personnel administering medications to follow the written orders. However, you have the right and responsibility to question any medication order you are not comfortable following. When in doubt, contact your supervisor about this order.

I. Contents of the Chart -- (see agency policy)

II. General Rules of Charting

A. Legibility is very important--write or print so the information you chart can be read easily by others.

B. Use durable ink--the color will be determined by agency policy.

C. **Never erase or obliterate an entry**--when you make a mistake, draw a single line through the incorrect words, write "error" or "void" above them, and initial the entry. Correction fluid (White Out) is <u>not</u> allowed. You must be able to see what was originally written.

Void KC

Ex: Administered ~~two~~ pills. Administered one pill

D. Chart in time sequence--do not leave blank space or lines between entries.

E. Be accurate and concise--be sure the date on your entry is correct and include the time if it is significant to the care of the individual.

F. If you use medical terminology, be sure it is spelled correctly and accurately describes what you observe, and use only approved abbreviations.

G. Chart what you see, hear, smell, or touch, not what you think or feel. Do not chart opinions. Do not make diagnoses.

H. Chart the individual's response or lack of response to a medication.

I. Sign your entry with your complete name or your first initial and last name. Use the method designated by your agency.

III. Rules for Charting Medications

A. Chart as soon as possible after a medication is administered.

B. Every medication given must be charted for the correct individual and include the following information:

1. Name and dosage of medication
2. Time of administration
3. Route of administration

C. Routine medications are usually charted by putting your initials in the appropriate box on the medication record, and by signing your complete name and title in the appropriate space on the medicine sheet.

D. The effects of PRN medication must be charted after an appropriate period of time. For example, an hour or so after a pain medication is given, observe and chart the individual's level of pain. (See agency policy)

E. Chart medication omission according to agency policy (for example: with a circle "O" In the appropriate square on the medication sheet with your initials inside the circle "O") and chart the reason for omission on the back of the medication sheet. Whenever you see a circle “O” on the front of the MAR there is an explanation on the back.

F. Medications are charted **after** they are given **NOT BEFORE**.

IV. Administering Medications Appropriately Requires

A. Knowledge of expected drug actions.
B. Knowledge of possible adverse effects.
C. Knowledge of agency policies and charting.
D. Charting accurately and legibly.
E. Spelling correctly.

REMEMBER: IF IT IS NOT CHARTED AND LEGIBLE, IT IS NOT CONSIDERED DONE!

V. Parts of an Order (Documentation by Physician)

A. Individual's name
B. Name of medication
C. Route of administration
D. Frequency of administration (may include time of day)
E. Dosage
F. Duration (for how long, number of doses)
G. Doctor's signature
H. Miscellaneous information (number of refills, take on an empty stomach, do not take with milk products, etc.)

VI. Individual Stop Orders

A. A medication may be ordered for a specific time or number of doses and must be documented, such as:

1. Amoxil 250 mg. q6h x 28 doses
2. Septra Tab qd x 14 days

B. Giving an extra dose and giving a dose at the wrong time are errors.

Answer Self-Test Questions - Lesson 7: Documentation

LESSON 7

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

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INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 8: INTRODUCTION TO USE OF MEDICATION REFERENCES

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. List 3 sources for obtaining additional information about prescription and over-the-counter drugs.

2. Know how to appropriately use additional sources.

Several sources are available for obtaining additional information about prescription and over-the-counter drugs. These references include:

1. Online resources
2. Package Brochures will be included in over-the- counter medications
3. Your Pharmacist and Agency Nurse
4. Medication Guides accompanying prescription medications

I. ONLINE RESOURCES

a. **Drugs.com** - is the most popular, comprehensive and up-to-date source of drug information online. Providing free, peer-reviewed, accurate and independent data on more than 24,000 prescription drugs, over-the-counter medicines & natural products.

b. **www.fda.gov/Drugs/default.htm**- online information provided by the U.S Food and Drug Administration providing information on drugs and health issues.

II. PACKAGE BROCHURES

Before a new drug is marketed, the manufacturer develops a comprehensive but concise description of the drug, indications and precautions in clinical use, suggestions for dosage, known adverse actions, contraindications and other pharmacologic information relating to the drug. In addition, **Federal Law requires that a brochure accompany each package of the product.**

The brochure must be **approved by the FDA** before the product can be released for marketing.

III. YOUR PHARMACIST AND AGENCY NURSE

Valuable resources within your agency are your pharmacist and agency nurse. They can provide information and answer questions that you may have about medications.

IV. MEDICATION GUIDES - Medication Guides are **paper handouts that come with many prescription medicines.** The guides address issues that are specific to particular drugs and drug classes, and they contain Food and Drug Administration (FDA)-approved information that can help patients avoid serious adverse events. The FDA requires that Medication Guides be issued with certain prescribed drugs and biological products when the FDA determines that:

- certain information is necessary to prevent serious adverse effects
- patient decision-making should be informed by information about a known serious side effect with a product, or
- patient adherence to directions for the use of a product are essential to its effectiveness.

Prior to administering medications it is important for the CMA to have knowledge of the medication's therapeutic effect, potential side effects and any medication or food interactions.

Answer Self-Test Questions - Lesson 8: Introduction to use of Medication References

LESSON 8

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

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COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 9: MEDICATION CLASSIFICATIONS - OVERVIEW

OBJECTIVES

At the completion of this lesson you will be expected to:

1. Define classification
2. Give the action, use, adverse effects and special considerations for each drug classification.
3. Give two examples of each drug classification.

Classification is defined as a means to arrange or put in a class on the basis of resemblances or differences. A drug may be classified by the chemical type of the **active ingredient** or by the way it is used to treat a particular condition.

Medications are classified according to the therapeutic effect they have on a particular system of the body.

Overview/Medication Classifications

A. Gastrointestinal system

1. Antacids

a. **Action**--neutralize acidity by chemical reaction
b. **Uses**--treat indigestion, ulcers
c. **Examples**
   i. Gaviscon®
   ii. Maalox ®
   iii. Riopan ®
   iv. Mylanta ®
   v. Di-Gel ®
   vi. Gelusil ®
d. **Adverse effects**--may cause mild constipation or diarrhea

2. Proton Pump Inhibitors

a. **Action**—reduces the production of acid in the stomach
b. **Uses**—gastroesophageal reflux disease (GERD) and ulcers
c. **Examples**
   i. Protonix ®
   ii. Nexium ®
   iii. Aciphex ®
   iv. Prilosec ®
   v. Prevacid ®
d. **Adverse effects** - headache, diarrhea, constipation, pain, flatulence

e. **Special Considerations:** Because drug can interfere with absorption of vitamin B12, monitor for anemia. Be aware that long-term use of medication may increase the risk of gastric carcinoma**.**

3. H2 Receptor Antagonists

a. **Action—** inhibits histamine at the H2 receptors and leads to a reduction in secretion of gastric acid

b. **Uses**—gastroesophageal reflux disease GERD and gastrointestinal ulcers

c. Examples

i. Zantac ® (ranitidine)
ii. Pepcid ® (famotidine)
iii. Tagamet ® (cimetidine)

d. **Adverse effects** - abdominal pain (or stomach pain), constipation, and diarrhea

e. **Special Considerations**: Administer with meals for prolonged effect; antacids one hour before or after dose.

4. Antidiarrheals

a. **Action**--stops diarrhea
b. **Use**--treat diarrhea
c. **Examples**
   i. Pepto-Bismol ® (bismuth subsalicylate)
   ii. Imodium AD ® (loperamide)
   iii. Kaopectate ® (kaolin/pectin mixtures)
   iv. Lomotil ® (diphenoxylate HCL)
d. Adverse effects
   i. Drowsiness
   ii. Fatigue
   iii. Rash
   iv. Constipation and fecal impaction

5. Laxatives

a. Saline laxative
   i. **Action**--increase fluid in the intestine
   ii. **Use**--promote bowel action
   iii. **Example**
      aa. Milk of Magnesia ® (magnesium salts)
      bb. Fleet Enema ® (sodium bisphosphate)
   iv. **Adverse effects**
      aa. Diarrhea
      bb. Cramping
b. Bulk laxative
   i. Action--increase bulk in the stool
   ii. **Use**--promote bowel action

iii. **Examples**
  aa. Metamucil ® (psyllium fiber)
  bb. Mitrolan ® (calcium polycarbophil)
iv. **Adverse effects**
  aa. Nausea and vomiting
  bb. Diarrhea
  cc. Laxative dependence

c. Stool softeners
  i. **Action**--soften fecal material
  ii. **Use**-treat constipation
  iii. **Examples**
    aa. Docusate sodium (Colace ®, Doxinate ®)
    bb. Sometimes combined with other drugs (Senokot-S ®, Doxidan®, Dialose-Plus ®, Peri-Colace ®)
  iv. **Adverse effects**
    aa. Mild cramping
    bb. Laxative dependency
  v. **Special considerations**
    aa. Give with milk or fruit juice
    bb. Do not crush medication

d. **Lubricants**
  i. **Action**--make stool slippery
  ii. **Use**-treat constipation
  iii. **Examples**
    aa. Mineral Oil
    bb. Haley's M.O. ®
    cc. Glycerin suppository
  iv. **Adverse effects**
    aa. Nausea
    bb. Abdominal cramps
    cc. Incontinence

e. Stimulant laxatives
  i. **Action**--stimulate bowel lining
  ii. **Use**--increase peristalsis, bowel training
  iii. **Examples**
    aa. Dulcolax ® (bisacodyl)
    bb. Senokot ® (senna)
    cc. Dulcolax ® Suppository
  iv. **Adverse effects**
    aa. Diarrhea
    bb. Cramping
  v. **Special consideration**--tablet must be swallowed without chewing.

B. Musculoskeletal System

1. Steroid medications

a. **Action**--decreases inflammation
b. **Uses**--treat arthritis, dermatitis, chronic respiratory conditions
c. **Examples**
   i. Decadron ® (dexamethasone)
   ii. Sterapred ®, Deltasone ®, (prednisone)
   iii. Medrol ®, Depo Medrol® (methylprednisolone)
   iv. Cortef ® (hydrocortisone)
   v. Kenalog® (triamcinolone diacetate)
d. **Adverse effects**
   i. Weight gain from increased appetite and edema
   ii. Mood swings
   iii. Night sweats
   iv. Increased blood sugar and electrolyte imbalance
   v. Masks symptoms of infection
   vi. Slows healing
   vii. Elevates blood pressure
   viii. Ulcers
   ix. Muscle weakness
   x. Hair loss
   xi. Cushing Syndrome (caused by too much cortisol in the body)
   xii. Prolonged bleeding and bruising
e. **Special considerations**
   i. Watch diabetic individuals for change in urine glucose or fasting blood sugar.
   ii. Withdrawal symptoms occur if medication is stopped abruptly.

2. Nonsteroidal anti-inflammatory drugs (NSAIDs)

a. **Action**--anti-inflammatory analgesic and antipyretic effects
b. **Uses**--arthritis, bursitis, tendonitis, gout
c. **Examples**
   I. Indocin® (indomethacin)
   ii. Advil ®, Motrin ® (ibuprofen)
   iii. Meclomen ® (meclofenamate)
   iv. Aleve ®, Anaprox ® (naproxen sodium)
   v. Aspirin (A.S.A., Bayer ®, Ecotrin ®)
d. **Adverse effects**
   i. Nausea and vomiting
   ii. Headaches
   iii. Gastrointestinal bleeding
   iv. Dizziness
   v. Heartburn

vi. Rashes
vii. Decreased appetite
viii. Prolonged bleeding and bruising
ix. Tinnitus

e. **Special consideration**--observe individual for blood in the stool which may indicate gastrointestinal bleeding. Blood will initially appear as black, not red in color. Individual may vomit substance resembling "coffee grounds".

C. Skin System (Dermatomucosal medications)

1. **Action**--cleanse and medicate skin
2. **Uses**--treat blemishes, prevent new blemishes, and prevent scarring
3. **Examples**
   a. **Topical**
      i. Benzoyl peroxide (Benoxyl ®, Oxy-5 ®)
      ii. Tretinoin ® (retinoic acid)
      iii. Antibiotic lotions
   b. **Systemic**
      i. tetracycline
      ii. prednisone
      iii. ibuprofen
4. **Adverse effects**
   a. Peeling skin
   b. Allergic contact dermatitis
5. **Special considerations** for benzoyl peroxide
   a. Many preparations are available without prescription.
   b. Start with a 5% preparation, applying once a day in the morning.
   c. This drug inactivates retinoic acid--do not use these 2 drugs at the same time.

D. Sensory system

1. Lubricants (eye medication)

a. **Action**--soothe and lubricate dry eyes
b. **Use-**-treat decreased tear production
c. **Example**--artificial tears (Restasis ®, Liquifilm® Tears ®)
d. **Adverse effect**--localized irritation and burning sensation
e. **Special considerations**
   i. Use with caution in individuals with glaucoma.
   ii. Do not touch any surface of the eye with the end of the dropper.
   iii. Crust forming on the eyelids and eyelashes indicate an eye infection.

2. **Ear medications**
    a. **Action**--relieve pressure, reduce inflammation, and reduce pain in the ear
    b. **Use-**-external otitis, pain
    c. **Examples**
        i. Auralgan® (benzocaine)
        ii. Cortisporin Otic®
    d. **Adverse effects**--irritation or itching
    e. **Special consideration**
        i. Do not rinse dropper after use.
        ii. Insert cotton into the ear canal after applying the drops and allowing the drops to drain into the inner ear. (Monitor cotton in ear and remove as needed).
        iii. Many of these medications are used in combination with oral antibiotics, analgesics, and anti-inflammatories: watch for drug interactions.

E. Urinary system (Urinary antiseptics)

1. **Action**--prevent growth of disease-producing organisms in the urinary tract
2. **Use**--to treat urinary tract infections
3. **Examples**
    a. NegGram® (nalidixic acid)
    b. Furadantin ® (nitrofurantoin)
    c. Macrodantin® (nitrofurantoin)
4. **Adverse effects**
    a. Drowsiness
    b. Headache
    c. Nausea and vomiting
    d. Dizziness
    e. Skin rash
5. **Special considerations**
    a. Individual should avoid exposure to sunlight.
    b. May cause a false-positive Clinitest. (This test shows how much (glucose) in a person's urine)
    c. Individual should report vision problems.
    d. Drink plenty of water (6-8 glasses per day).
    e. Avoid cola and caffeine drinks.

F. Cardiovascular system (Antihypertensives)

1. Ace Inhibitors
    a. **Action**—works by relaxing blood vessels so that blood can flow more easily.
    b. **Use**--treat hypertension and heart failure
    c. Examples
        i. Prinivil ®, Zestril ® (lisinopril)

d. **Adverse effects**
   i. Dizziness and irregular heartbeat
   ii. Cough, sore throat
   iii. Ankle swelling
   iv. Elevated potassium levels (should be checked frequently)

2. **Beta adrenergic blocking agents**
   a. **Action**-block sympathetic stimulation of the heart reducing systolic blood pressure, heart rate and output.
   b. **Use**- treat angina, control abnormal heart rhythms and to reduce high blood pressure
   c. **Examples:**
      i. Tenormin ® (atenolol)
      ii. Toprol XL ® (metoprolol)
   d. **Adverse effects**
      i. impairs thinking or reaction time
      ii. decreased sex drive, impotence, or difficulty having an orgasm
      iii. sleep problems and insomnia
      iv. tired feeling
      v. anxiety or nervousness

2. Diuretics
   a. **Action**--decrease blood pressure and increase urinary output
   b. **Uses-**-treat congestive heart failure, hypertension, and severe edema
   c. **Examples**
      i. Aldactone ® (spironolactone)
      ii. Diuril ®, Hydro Diuril ® (chlorothiazide)
      iii. Lasix ® (furosemide)
      iv. Aldactazide ® and Dyazide ® (combinations containing hydrochlorothiazide)
   d. **Adverse effects**
      i. Dizziness
      ii. Weakness
      iii. Nausea and vomiting
      iv. Hypotension
      v. Tremors

G. Respiratory system--Antihistamines
1. **Action**--combat the effects of histamine, which is released by the body in an allergic reaction
2. **Use-**-treat motion sickness and allergic reactions
3. **Examples**
   a. Benadryl ® (diphenhydramine)
   b. Chlor-Trimeton ®, Teldrin® (chlorpheniramne)

c. Phenergan ® (promethazine)
d. Claritin ® (loratidine)
e. Dimetapp ®

4. **Adverse effects**
   a. Drowsiness (most common)
   b. Dizziness
   c. Loss of appetite
   d. Dry mouth
   e. Urinary retention
5. **Special considerations**
   a. Do not give with alcohol or other depressants.
   b. Individuals can develop a tolerance to the medication.

H. Endocrine system (Oral contraceptives)

1. **Action**--inhibit ovulation
2. **Use**--regulation of menstrual cycle, prevent pregnancy
3. **Example**--estrogen with progesterone (Ortho Tri-Cyclen ®, Estrostep ®)
4. **Adverse effects**
   a. Headache
   b. Weight gain
   c. Hypertension
   d. Thrombophlebitis
   e. Edema
   f. Breast tenderness
   g. Vaginitis
   h. Nausea

I. Nervous system

1. Stimulants (Caffeine)

a. **Action**--increase mental and physical alertness and activity
b. **Use-**-increase activity
c. **Examples**--coffee, caffeine drinks, some aspirin compounds
d. **Adverse effects**
   i. Nervousness
   ii. Headache
   iii. Insomnia
e. **Special considerations**
   i. Sudden discontinuation may cause headaches and irritability.
   ii Psychological dependence or tolerance may develop.

2. Depressants

a. Analgesics

i. **Action**--decrease sensitivity of nervous system
ii. **Use**--relieve pain

iii. **Examples**
aa. Duramorph ®, Epimorph ® (morphine sulfate)
bb. Codeine
cc. Demerol ® (meperidine HCl)
dd. Tylox ®, Percocet ®, Percodan® (oxycodone HCL)

iv. **Adverse effects**
aa. Constipation
bb. Nausea and vomiting

v. **Special considerations**
aa. Addictive
bb. A bowel management system should be followed.

b. Non-narcotic analgesics

i. **Action**--decrease sensitivity of nervous system
ii. **Use**--relieve pain
iii. **Examples**
aa. Darvon® (propoxyphene)
bb. Darvocet N-100 ®
iv. **Adverse effects**
aa. Dizziness and confusion

c. Analgesic-antipyretics

i. Action--decrease sensitivity of nervous system
ii. **Use**--relieve pain and normalize body temperature
iii **Examples**
aa. Aspirin, ASA (acetylsalicylic acid)
bb. Tylenol ® (acetaminophen)
aa. Bleeding
bb. Stomach distress
cc. Dizziness
dd. Tinnitus (ringing in the ears)

3. Anti-Parkinson's medications

a. **Action**--relieve symptoms of Parkinson's Disease
b. **Use**--relieve tremors and muscular weakness, treat extrapyramidal effects of major psychotropic medications
c. Examples
i. Cogentin ® (benztropine mesylate)
ii. Artane ® (trihexyphenidyl HCl)
iii. Akineton ® (biperiden)
iv. Sinemet ® (levodopa-carbidopa)
d. **Adverse effects**
i. Incoherence
ii. Hallucinations
iii. Nausea

iv. Heart irregularities
v. Constipation
vi. Muscle weakness
vii. Lethargy

e. **Special consideration**--many of these drugs are given in combination with other drugs to achieve the best results.

J. Nutritional deficiencies (Vitamins)

1. Thiamine HCL (Vitamin B_1)
   a. **Action**--necessary for carbohydrate metabolism
   b. **Uses**--treat alcoholism, gastrointestinal disease, and cirrhosis
   c. **Adverse effects**
      i. Hypotension
      ii. Nausea
      iii. Sweating
      iv. Anaphylactic reaction
      v. Diarrhea
      vi. Restlessness

2. Pyridoxine HCl (Vitamin B_6)
   a. **Action**--required for amino acid metabolism
   b. **Use**--in combination with isoniazid (INH) therapy, which causes B_6 deficiency
   c. **Adverse effects**--drowsiness
   d. **Special consideration**--do not give to an individual receiving Levodopa

3. Ascorbic Acid (Vitamin C)
   a. **Action**--necessary for collagen formation and tissue repair
   b. **Uses**-burns, increase healing of fractures and wounds, may prevent viral infections
   c. **Adverse effects**
      i. Diarrhea
      ii. Renal calculi

4. Folic Acid (Vitamin B_9)
   a. **Action-**-necessary for normal erythropoiesis and nucleoprotein synthesis
   b. **Uses-**-treat liver disease, alcoholism
   c. **Adverse effects**
      i. Rash
      ii. Malaise
      iii. Bronchospasms as an allergic reaction

5. Niacinamide (Vitamin B_3, Nicotinic Acid)
    a. **Action**--necessary for fat metabolism
    b. **Uses-**-lowers cholesterol, treat Meniere's Disease, vasodilator
    c. **Adverse effects**
        i. Headache
        ii. Facial flushing
        iii. Itching
        iv. Jaundice
        v. Postural hypotension
    d. **Special consideration**--give with meals and cold liquids.

6. Multivitamin products--contain a combination of vitamins and minerals
    a. **Action**--source of vitamins
    b. **Use-**-supplement diet
    c. **Examples**
        i. Becotin-T ®--contains several B vitamins and Vitamin C
        ii. Multicebrin ®--contains Vitamins B, C, E, A, and D
        iii. Theragram ®--contains Vitamins A, B complex, C, D, & E
    d. **Adverse effects**
        i. Itching
        ii. Diarrhea
        iii. Nausea
    e. **Special consideration**--do not crush medication.

EXAMPLES OF DRUGS WITHIN CLASSIFICATIONS

Some drugs are in two or more classifications since they can be used for more than one condition.

ANALGESICS
aspirin
Darvon Compound 65 ®
Tylenol ®
Tylenol with codeine ®

ANTACIDS
Gelusil ®
Maalox ®
Milk of Magnesia ®
Mylanta ®

ANTIBIOTIC AND ANTIBACTERIALS
ampicillin
erythromycin
Garamycin ®
Keflex ®
tetracycline

ANTICONVULSANT
Dilantin ®
Neurontin ®
Tegretol ®
Valium ®

ANTHELMINTICS
Stromectol ®
Albenza ®
Vermox ®

ANTIASTHMATICS AND BRONCHODILATORS
Advair Diskus ®
Epinephrine®
Xopenex ®

ANTIDIARRHEAL PREPARATIONS
Imodium AD ®
Lomotil ®
Pepto Bismal ®

ANTIHISTAMINES
Actifed ®
Benadryl ®
fexofenadine
Zyrtec ®

ANTIPYRETICS
aspirin
APC Compound Tablets ®
Tylenol ®

DIURETICS
Diuril ®
Hydrodiuril ®
Lasix ®

LAXATIVES
Dorbane
Dulcolax ® Tablets and Suppositories
Glycerin Suppositories
Peri Colace ®
Mira-Lax ®
Senokot ®

ANTIDEPRESSANTS
Prozac ®
Lexapro ®
Celexa ®

ANTIDIABETIC AGENTS
glipizide
Metformin ®
Actos ®

OPTHALMIC PREPARATIONS (Eye)
Cortisporin Ophthalmic Ointment ®
Restasis ®
Visine Eye Drops ®

OTIC PREPARATIONS (Ear)
Auralgan Otic Drops ®
Cortisporin Otic Drops ®
Debrox Otic Drops ®

STIMULANTS
Adrenalin ®
Dexedrine ®
Ritalin ®

TRANQUILIZERS AND SEDATIVES
trazodone
Ativan ®
hydroxyzine
Lorazepam ®
phenobarbital
Thorazine ®
Valium ®
Vistaril ®

Answer Self-Test Questions -- Lesson 9: Medication Classification Overview

LESSON 9

INSTRUCTOR'S NOTE

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

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LESSON 10: MEDICATION CLASSIFICATIONS

SECTION 1. VITAMINS AND MINERALS

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Recognize the role diet plays in supplying vitamins and minerals.
2. List four (4) situations when supplemental vitamins and minerals may be required.
3. State your responsibility when administering vitamins and minerals.
4. Define Hematinic medications.
5. List two (2) side effects of Hematinics.
6. Describe two (2) ways to reduce side effects of Hematinics.

VITAMINS AND MINERALS

Vitamins are substances that regulate body processes. You probably know them by their letter names: A, B-complex, C, D, E, and K. Vitamins help to build strong teeth and bones, promote growth, aid normal body functioning, and strengthen resistance to disease.

Minerals help build tissues, especially bones and teeth. They also regulate body fluids, such as blood and digestive juices. The minerals we need in our daily diet include calcium, phosphorus, sodium, potassium, iodine, iron and fluoride.

Vitamins and minerals are present in a wide variety of foods. A balanced diet usually provides enough vitamins and minerals and it is not necessary to take additional vitamins. However, there are some periods when it is necessary to take additional vitamins and minerals, such as during times of:

- Poor Nutrition
- Illness
- Pregnancy
- Periods of Growth

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING VITAMINS AND MINERALS:

The best situation is to encourage individuals to eat a nutritionally sound diet. However, if a physician orders vitamins and minerals for an individual, your major responsibilities are:

- **FOLLOW LABEL DIRECTIONS.**
- **STORE VITAMINS IN A COOL, DARK PLACE.**
- **FOLLOW DOSAGES EXACTLY AS ORDERED. OVERDOSAGE CAN CAUSE TOXICITY**.

HEMATINICS

Iron is a mineral which is very important in the formation of hemoglobin. Of all the minerals, supplemental iron will probably be the one required most. Iron preparations fall into the medication classification **HEMATINICS**.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING HEMATINICS:

As with most medications, Hematinics have some common side effects which include:

- **ABDOMINAL CRAMPING, AND**
- **CONSTIPATION**

These side effects can be reduced if Hematinics are given right after meals and the individual is encouraged to drink a minimum of six glasses of fluids per day.

Hematinics will cause the stools to turn a tarry black color. This is harmless, but it is important to **tell the individual** that this will occur. In addition, liquid iron preparations should be given through a straw, as they can stain the teeth.

Answer Self-Test Questions - Lesson 10: Section 1, Vitamins and Minerals

LESSON 10
SECTION 1

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #2 FOR ADDITIONAL INFORMATION ON VITAMINS, MINERALS AND NUTRITIONAL DEFICIENCIES.

RECOMMENDATIONS:

DISCUSS WITH CLASS THE IMPORTANCE OF PROPER DIET. IT IS ESSENTIAL THAT THE MENUS PREPARED BY THE DIETITIAN BE UTILIZED AS WRITTEN.

IF THERE ARE ANY QUESTIONS REGARDING DIET SUBSTITUTIONS, THE DIETITIAN SHOULD BE CONTACTED.

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LESSON 10: MEDICATION CLASSIFICATIONS

SECTION 2. MEDICATIONS THAT AFFECT THE RESPIRATORY SYSTEM

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the respiratory system.
2. Given a specific medication classification, state at least two (2) side effects.
3. State responsibilities, other than observation, for side effects when administering medications in these classifications.
4. Discuss allergic response in terms of its development and symptoms.
5. Define anaphylactic shock and list four symptoms.
6. State the emergency medication used in anaphylactic shock.

The medication classifications which will be discussed in this section are:

- **ANTIHISTAMINES** - Medications that reduce the effects of histamine, relieving allergy symptoms. May also be used to prevent motion sickness.
- **EXPECTORANTS** - Medications that break up mucous, and facilitate its expulsion from the lungs.
- **ANTITUBERCULARS** - Medications that are used to treat tuberculosis.
- **ANTITUSSIVES** - Suppresses cough reflex.

IMMUNITY AND ALLERGIC RESPONSE - An allergic response may occur when a person comes in contact with a substance not normally present in the body, such as bacteria, pollen or medications. These substances are called antigens. Development of immunity depends on the body's ability to identify antigens, then produce antibodies to protect itself. You may develop immunity in different ways:

1. **Natural Immunity** - you are borne with the immunity
2. **Acquired Immunity** - you become immune after having a disease or being given a vaccine.

ALLERGIC RESULTS

When a person who has a tendency to become allergic first comes into contact with a specific antigen, antibodies are formed. When he comes in contact with this antigen again, an antigen-antibody reaction occurs. This results in the release of **histamine.**

It is histamine that causes the typical symptoms of an allergic response.

- Red, Watery Eyes
- Sneezing
- Runny Nose
- Rash-Hives

With the exception of a skin rash and hives, these symptoms are the same as those of a common cold. However, another **more extreme reaction called anaphylactic shock** may occur. This is a life threatening, rapidly occurring allergic reaction.
In addition to allergic symptoms, **the person will become short of breath due to swelling in the throat and will become apprehensive**. If at this point there is no treatment, the allergic response becomes stronger and the symptoms will progress to:

- Neck & Facial Swelling
- Restlessness & Agitation
- Weak, Fast Pulse
- Low Blood Pressure

These symptoms **require emergency treatment**. The most common medication used is Epinephrine (Adrenaline), a very strong bronchodilator which is given by injection (see table on bronchodilators for more information).

Medications are the most frequent causes of anaphylactic shock. However, you may also have heard of people dying after being stung by a bee. This is a good example of anaphylactic shock. What has happened is that the person is highly allergic to the bee venom. People have also been known to develop serious reactions following ingestion of foods and/or medications.

Since people with a history of allergies are more likely to develop anaphylactic shock, it is imperative that any person with a past history of allergies be watched closely when receiving new medication.

ANTIHISTAMINES

The antihistamine medications act as **ANTAGONISTS** to prevent or reduce the symptoms of an allergy. They exert their greatest beneficial effect in nasal allergies. The antihistamines do not prevent or effectively relieve asthma. Problems usually relieved by antihistamines are:

- Common Colds
- Hives
- Insect Bites
- Medication Reactions
- Nasal Allergies

Some antihistamines are effective in preventing or relieving motion sickness. Many antihistamines are available in oral, topical or inhalant preparations.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTIHISTAMINES:

Antihistamines potentiate (strengthen) the actions of central nervous system (C.N.S.) depressants. Therefore, when an individual is taking an antidepressant, central nervous system depressants should be avoided. Some common C.N.S. depressants to avoid are alcohol, sedatives, and tranquilizers. The most common side effects are:

- Drowsiness
- Dry Mouth

Sucking hard candy or chewing gum will help prevent mouth dryness.

Table 2.1 lists some specific antihistamines and side effects.

Table 2.1

Antihistamines Medications

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
diphenhydramine (hydrochloride)	Benadryl®	Tablet & Liquid	Relieve symptoms of allergic reaction and motion sickness	Drowsiness, dry mouth, dizziness, nasal stuffiness, blurred vision	Use with caution if used with central nervous system depressants	Warn client against drinking alcohol, driving, and other activities which require alertness.
*chlorphiramine	Chlor-Trimeton®	"				
promethazine	Phenergan®	"				
*dimenhydrinate	Dramamine®	"				
meclizine	Bonine® Antivert®	"				

* Non-Prescription Medication

EXPECTORANTS AND ANTITUSSIVES

Expectorants are medications that affect the mucous membrane lining of the respiratory tract and **facilitate the expulsion of the mucous (sputum).** Some expectorants and antitussives contain codeine and morphine derivatives to depress the cough reflex. These medications are not given to individuals with tuberculosis, however, because coughing is desired to expel the sputum.

Antitussives are preparations that **depress the cough reflex**. Expectorants and antitussives are often combined and referred to as cough preparations.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING EXPECTORANTS AND ANTITUSSIVES:

Many of these cough preparations contain sugar and alcohol. Alcohol could produce a medication interaction and the sugar content may be a problem if the individual is a diabetic.

In general, side effects that may occur are:

- Drowsiness
- Nausea
- Vomiting

Also, it is best to advise the individual not to drink or eat anything for at least a half hour after taking these preparations and to administer cough preparations after other medications which may be ordered at the same time. Now review the following table for specific medications (Table 2.2)

Table 2.2

Expectorants & Antitussive Medications

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
guaifenesin	Robitussin AC® (with Codeine)	Liquid	Liquefies secretions and relieves cough.	Nausea, vomiting, drowsiness.	Many cause preparations contain sugar. Always use caution when giving to a diabetic.	Use with caution in head injury, seizures, alcoholism.
diphenhydramine	Benylin®	"			Hold food/fluid for one half hour after administering.	

BRONCHODILATORS

Asthma is a disease marked by recurrent spasms of difficult labored breathing with sneezing, coughing and a sense of chest tightening due to constriction of the bronchial tree. In many cases, this condition is an allergic reaction produced as a result of an antigen-antibody reaction. Bronchodilators relax the constriction of the bronchial tree.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING BRONCHODILATORS

Some side effects that may occur when taking bronchodilators are:

Nervousness	Restlessness
Vomiting	Nausea
Headache	Sweating

Table 2.3 will provide you with additional information on bronchodilators.

Table 2.3

Bronchodilator Medications

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
epinephrine	Adrenaline®	Injection, Inhalation, Liquid	Asthma, Emphysema Allergic Responses; as in hay fever.	Nervousness, Nausea, vomiting, headache, flushed face, increase pulse, increased voiding, dizziness	Tricyclic anti-depressants potentiate the actions of Bronchodilator.	Use with caution in diabetics these medications may increase blood sugar.
theophylline	Aminophylline®	Rectal Suppository	Chronic Bronchitis, Emphysema	"		Aminophylline is a CNS stimulant and is widely used for many conditions. It has different classifications.
isoproterenol	Isuprel® Isonorin® Medihaler®	Inhalation		Palpitation, sweating, flushing		Reassure individuals who are upset by the "pounding" in the chest.

ANTITUBERCULAR

The last classification of medications to be discussed in relation to the respiratory system is the anti-tubercular medications that are used to treat tuberculosis.

Tuberculosis (TB) is a chronic infection most commonly associated with the lungs. In this country, TB is less common than it used to be. However, due to increased immigration, it has become more common and individuals who have TB require long term treatment.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTITUBERCULARS--Side effects which may occur are:

- Nausea
- Fever
- Vomiting
- Rash

These medications should be given after meals which helps reduce the nausea and vomiting that may occur. See Table 2.4 for antitubercular medications.

Table2.4

Antitubercular-Agents

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
para-amino salicylic acid	PAS ®	tablet	Tuberculosis	Nausea, vomiting, fever, skin rash	Give after meals to reduce gastric upset.	Supplements of vitamin B_6 are often used.
isoniazid	INH ®			In addition to above some numbness in hands and feet		INH is destroyed by light.

NOTE: The antibiotic streptomycin may be given in conjunction with PAS ® and INH ®.

Answer Self-Test Questions - Lesson 10: Section 2 --Medications That Affect the Respiratory System

LESSON 10

SECTION 2
INSTRUCTOR'S NOTE

SEE SUPPLEMENT #3 FOR STRUCTURES AND DISORDERS OF THE RESPIRATORY SYSTEM

EACH OF THE SECTIONS PERTAINING TO MEDICATIONS THAT AFFECT THE VARIOUS BODY SYSTEMS SHOULD BE PRECEDED BY A BRIEF OVERVIEW OF THE ANATOMY AND PHYSIOLOGY OF THE SYSTEM

RECOMMENDATIONS:

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LESSON 10: MEDICATION CLASSIFICATIONS
SECTION 3. GENERAL AND LOCAL ANTI-INFECTIVES

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classification of medications used as anti-invectives.
2. Given a specific medication classification, list at least three (3) side effects.
3. State responsibilities, other than observation for side effects, when administering medications in these classifications.
4. Describe the difference between broad and narrow spectrum antibiotics.
5. Describe how to determine if an individual has a history of allergies.
6. List foods/liquids which should be avoided by a person taking antibiotics.

The medication classifications which will be discussed in this Section are:

- **ANTIBIOTICS** - Medications that are used to destroy or control bacteria.
- **ANTIFUNGALS** - Medications that are used to treat fungus infections.
- **AMEBICIDES** - Medications that destroy protozoa.
- **ANTHELMINTICS** - Medications that are used to rid the body of worms.
- **TRICHOMONACIDES** - Medications that destroy Trichomona.

INTRODUCTION:

Infection may be **local and visible**, such as an infected cut. The signs would include redness, swelling and pain around the cut. Infection may also be **general or systemic**, involving more than one area in the body, such as pneumonia. Signs of a general infection may include elevated temperature, cough, "rundown" feeling, poor appetite, and shortness of breath.

When individuals demonstrate any signs or symptoms of an infection, they should be seen by a physician. The physician may order antibiotics, medications that destroy or control bacteria.

ANTIBIOTIC MEDICATIONS

There are literally thousands of types of bacteria; therefore, it is necessary to have many different antibiotic medications. It is important to know that **some antibiotics are bacterial specific (Narrow Spectrum) and the bacteria should be identified before an antibiotic is prescribed.** The procedure for bacterial identification involves obtaining a specimen from the infected area (throat, urine, mucous from lungs) and sending the

specimen for laboratory analysis. The laboratory technician will determine whether the bacteria is **gram positive** or **gram negative** because each type produces different infections which respond to different antibiotics.

Each antibiotic has its own characteristic range (spectrum) of activity against various bacteria. Antibiotics that are effective for both gram positive and gram negative bacteria have a broad range of activity and are called broad spectrum.

Broad Spectrum Antibiotics they are effective against both Gram Positive and Gram Negative Bacteria

Narrow Spectrum Antibiotics effective against specific families of bacteria either Gram Positive or Gram Negative.

Broad spectrum, narrow spectrum, gram positive and gram negative are ways of defining the usefulness of a specific antibiotic. Identifying bacteria is by a process called Bacteria Gram staining. In a **Gram** stain test, **Gram**-positive **bacteria** retain the crystal violet dye, while a counterstain (commonly safranin or fuchsine) added after the crystal violet gives all **Gram**-negative **bacteria** a red or pink coloring.

In an ideal situation, when a person has signs of an infection, the physician orders a specimen sent to the laboratory and waits for the results before ordering a specific antibiotic. However, this often presents problems because a report may take several days to be done. Therefore, when a person is seriously ill, the physician may immediately start the individual on a broad spectrum antibiotic. When the lab report comes back, it may be necessary for the doctor to order a different antibiotic or the initial antibiotic may still be the medication of choice.

Toxic Reactions are Rare, but usually are Serious When They Occur--Signs of toxic reactions that may be observed are:

- Decreased Urinary Output
- Change in Skin Color
- Lack of Energy
- Hearing Impairment

ADMINISTRATION AND CARE OF ANTIBIOTICS

Before administration of an antibiotic, you **must** determine if the individual has ever had an allergic reaction to an antibiotic. Ask the individual:

- Have you ever taken antibiotics?
- After taking pills, have you ever had itching or a rash?

If there is any indication that the individual has ever had an allergic reaction, you should seek guidance.

The general care and storage of antibiotics is very important. All antibiotics break down with age, heat and moisture. Their effectiveness can change if improper storage occurs. Always read the label for storage directions, such as:

- **"Refrigerate" or "Store in a Dry, Cool Area"**
- Antibiotics always have an expiration date:
  - Check Expiration Date, and
  - Never Use after That Date

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTIBIOTICS:

The discovery of antibiotics was a great breakthrough for medicine and the medications were often referred to as "miracle medications." However, there are some cautions for prescribing and administering antibiotics.

Antibiotics should be restricted to use in serious infections only. They should never be given for minor infections because with frequency or prolonged use the body tends to become resistant to the antibiotic activity and, in the event of a serious infection, antibiotics may not be as effective.

Major cautions to be aware of in connection with antibiotics are as follows:

ALLERGIC REACTION

Allergic reaction (as discussed in Section 2) is any abnormal response or reaction to a foreign substance. An antibiotic is a foreign substance to the body. An allergic reaction can occur immediately after the person takes the antibiotic or after the person has been on the medication for several days.

The allergic response may range from mild to life-threatening, such as an inability to breathe and low blood pressure that can lead to circulatory collapse and coma. This is called anaphylactic shock and is a life or death emergency. The key word is **shock** and the immediate treatment is according to first aid principles.

TOXIC REACTIONS

Another important reason why antibiotics are prescribed with caution is toxic reactions. Toxic means **poisonous** or **dangerous**, which means certain antibiotics can be very dangerous to some **organs** in the body. In general, antibiotics produce few toxic effects, but because the toxic effects can be life-threatening or leave permanent damage, it is important to be aware that a toxic reaction can occur.

In general, when a person begins to take antibiotics, he/she feels better and symptoms begin to subside. However, this does not mean the person is cured. The **entire prescription** should be taken unless the doctor orders it is to be stopped. In summary, your responsibilities when administering antibiotics include:

- Observe for toxic reactions, allergic reactions and other infections.
- Inquire for history of allergies.
- Read label for storage directions and expiration date.
- Give antibiotics on time.
- Use entire prescription unless orders are changed.

As you recall from previous content, there are many varieties of bacteria that cause infection. Consequently, different infections require different antibiotics. Table 3.1 will describe the penicillins.

Table 3.1

Penicillins

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
ampicillin	Amcill ® Omnipen® Polycillin ®	Capsules, Liquid	Broad Spectrum	Gastric Upset, nausea, vomiting	Some foods lower effectiveness, AVOID caffeine, tomatoes, fruit juices, cola drinks, pickles	Give at least two hours after or one hour before a meal.
Oxacillin sodium penicillin G, potassium G	Bactocill ® Pfzerpen ® K-Cillin-500 ® Pentids ®	Capsules Tablets & Injections				
penicillin V, potassium	V-Cillin K ® Veetids ® Pen-Vee-K ®	Tablets & Liquid				

ERYTHROMYCINS

These medications work against many gram-positive infections. Because they kill many of the same germs as penicillin, erythromycins are a good substitute to use for people with penicillin allergies. Allergic reactions to erythromycins are rare, and side effects are limited to nausea and vomiting. Examples of trade name preparations of erythromycins are Illosone ®, Erythrocin ®, E-mycin® and E.E.S. ®.

CEPHALOSPORINS

This group of antibiotics are similar to the penicillins. They are broad-spectrum medications used mainly for penicillins in cases of allergy or resistance and in the treatment of certain gram negative infections. The cephalosporins should be given at least one hour before or two hours after eating (Table 3.2)

Table 3.2
Cephalosporins

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
cephalexin	Keflex ®	Tablets & Liquids	Respiratory & UrinaryTract infections	Nausea, vomiting, headache, diarrhea, genital & anal itching.		Use cautiously in those with history of sensitivity to penicillin, Tell patient to take with food or milk to lessen GI discomfort.
cefuroxime	Ceftin ®	Tablets & Injection				

MISCELLANEOUS ANTI-INFECTIVES

Antibiotics are not useful for all types of infections. There are some miscellaneous anti-infective agents developed to treat other specific infections.

ANTIFUNGAL

Antifungal agents are used to treat infections of the hair, skin, nails, mouth and vagina. These medications produce a selected spectrum of activity and only affect certain fungi. Review Table 3.3 to determine side effects and your responsibilities when administering these agents.

Table 3.3
Antifungal Agents

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
amphotericin B	Fungizone ®	Lotion & Injection	Broad spectrum for fungi in the gastro-intestinal system.	Headache, Anorexia, diarrhea & burning at site of injection	Rare	
nystatin	Mycostatin ®	Liquid & Vaginal suppository	Mouth wash for thrush, & suppository for vaginal infections	Large oral dose may cause nausea & vomitting.		Oral solution-individual swishes in mouth & swallows. Teach individual to insert vaginal suppository.

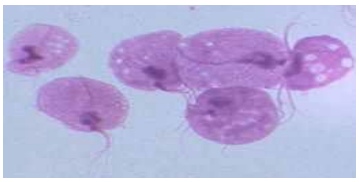
AMEBICIDES AND TRICHOMONACIDES

Amoeba are micro-organisms which are responsible for producing dysentery in humans. This infection gains access to the body through contaminated food and water. Dysentery is generally found in areas with low standards of hygiene. However, it may also be found in areas where there is overcrowding. Signs of dysentery will vary from mild to severe diarrhea, poor appetite, dehydration and fatigue.

Amebicides act to destroy **amoeba type** infections. Side effects may include: Nausea, Vomiting, Diarrhea.

Amebicides: Observe individuals on these medications closely. Encourage good hygiene.

TRICHOMONAS is a disease that is frequently transmitted through sexual intercourse. The signs and symptoms are more evident in the female and are a vaginal itch, burning and discharge. In the male, the only sign is a penile discharge. Treatment is the same for both sexes. Oral tablets may be ordered and/or suppositories to be inserted in the genital areas. Vaginal douches may be ordered for females.


Trichomona under the microscope

Trichomonacides act to destroy trichomonal infections. Side effects may include: Nausea, Headache, Diarrhea, Vaginal and Urethral Burning. **Responsibilities when administering these medications include:**

- Instructing individuals in douching.
- Teaching methods of vaginal suppository insertion.
- Encouraging individuals not to have sexual intercourse until infection is cleared.

Table 3.4 lists some common amebicides and trichomonacides.

Table 3.4

Amebicides and Trichomonacides

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
metronidazole	Flagyl ®	Tablets & Vaginal Suppository	Protozoal infection, Trichomoniasis	Nausea, Vomitting & topical skin irritations	Rare	Give tablet with food or milk.

ANTIPARASITIC DRUGS

Parasitic skin infections can be quite common in any environment. This is especially true in areas where many people live closely together. Parasitic skin infections include the following: Scabies, Body Lice (Pediculosis Corporis), Head Lice (Pediculosis Capitis), and Pubic Lice.

SCABIES: Scabies produce tiny red spots between the fingers, in the arm pits, on the genitalia and abdomen. Severe itching accompanies the red spots. The skin above the neckline is rarely affected because the parasite grows in warm, moist areas.

Products used to treat scabies are called ***scabicides*** because they kill scabies mites; some also kill mite eggs. Scabicides used to treat human scabies are available only with a doctor's prescription. **No "over-the-counter"** (non-prescription) products have been tested and approved to treat scabies.

Scabicide should be applied **to all areas of the body from the neck down to the feet and toes.** In addition, when treating infants and young children, scabicide also should be applied to their entire head and neck because scabies can affect their face, scalp, and neck, as well as the rest of their body. The scabicide should be applied to a clean body and left on for the recommended time before washing it off. Clean clothing should be worn after treatment. **The instructions contained in the box or printed on the label always should be followed carefully. Always contact a doctor or pharmacist if unsure how to use a particular medicine**.

HEAD LICE: Head lice are usually demonstrated by the presence of small, white dots called nits (eggs) in the hair. Pediculosis of the body and pubis is accompanied by itching. Signs of infestation may be: individual scratching, sore skin from scratching, and presence of eggs (nits).

Many head lice medications are available "**over-the-counter**" without a prescription at a local drug store or pharmacy. Each over-the-counter product approved by the FDA for the treatment of head lice contains one of the following active ingredients.

- **Pyrethrins** combined with piperonyl butoxide; Brand name products: A–200*, Pronto*, R&C*, Rid*, Triple X*, Licide
- ***Permethrin lotion, 1%**; Brand name product: Nix*.

NOTE: NEVER use shampoos or lotions on broken skin areas

FOLLOW LABEL DIRECTIONS EXACTLY. If crawling lice are still seen after a full course of treatment contact your health care provider.

CAUTIONS: If one individual has an infection, all individuals in close contact should be examined. All clothing and bedding should be machine washed or dry cleaned. Your agency may have a procedure for infestation. If so, follow the agency's direction.

ANTHELMINTICS: Anthelmintics are medications which **destroy worm infections**.

Parasitic worm infections are a major cause of disease throughout the world. However, in the United States the most frequently encountered parasitic infections are limited to pinworm, roundworm and tapeworm. These parasites gain access to the gastrointestinal tract when food or soil has been contaminated with worm eggs and is ingested. Symptoms of infection may be: diarrhea, nausea, loss of appetite and abdominal cramps. If the individual is heavily infected, you may see worm in the stools.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTHELMINTICS:

When an individual is taking anthelmintics, the following side effects may occur:

Nausea	Headache
Fever	Diarrhea

Usually laxatives are also administered to increase intestinal activity and facilitate bowel movements so that worms and eggs are excreted into the stools.
(See Table 3.5).

Table 3.5

Anthelmintics

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
tetrachioroethylene	same	Gelatin capsule	Hookworm	Nausea, Vomitting, Cramps, Diarrhea	Stomach upset can be reduced if given when the stomach is empty.	Remind client not to chew Gelatin Capsule as they have a very bitter taste.
thiabendazole	Mintezol ®	Tablet & Liquid	Hookworm, pinworms	Above symptoms plus confusion and drowsiness.		
hexylresorcinol	same	Tablet	All types of worms	Nausea, Vomitting, Cramps, Diarrhea		

Answer Self-Test Questions - Lesson 10: Section 3 --General and Local Anti-Infectives

LESSON 10
SECTION 3

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #4 INFLAMMATION, INFECTION AND IMMUNITY.

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 10: MEDICATION CLASSIFICATIONS
SECTION 4. MEDICATIONS THAT AFFECT THE CARDIOVASCULAR SYSTEM

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the cardiovascular system.
2. Given a specific medication classification, list at least three (3) side effects.
3. State responsibilities, other than observations for side effects, when administering medications in these classifications.
4. List three (3) signs that may indicate lack of potassium.
5. Describe the relationship between salt and hypertension.

The medication classifications which will be discussed in this Section are:

- **DIGITALIS PREPARATIONS** - Medications which slow and strengthen the heartbeat.
- **ANTIARRHYTHMICS** - Medications used to correct disorders of the heart rate and rhythm.
- **VASODILATORS** - Medications used to increase the size of blood vessels.
- **DIURETICS** - Medications used to increase urinary output.
- **ANTIHYPERTENSIVES** - Medications used to lower blood pressure.
- **ANTICOAGULANTS** - Medications which decrease clot formation.
- **COAGULANTS** - Medications which increase clot formation.

RELATED INFORMATION

The cardiovascular system may be thought of as a transportation system. It takes nourishment and oxygen to the cells and carries away waste products. The system is kept in motion by the force of the heartbeat. Disease which attacks any part of this system interferes with the overall function.

CARDIAC CYCLE

The cardiac cycle is what determines the pulse rate. Each time the heart beats, a pulsation may be felt in an artery. This pulsation is referred to as the pulse. Normal pulse rate will vary with the size, age, activity, and sex of the person. Average rate for adults (age 18 and over) is 60 – 100 beats per minute

When medications are given for cardiovascular disorders, it may be required that the individuals pulse and/or blood pressure is taken before the medication is given. The reason is that most of these medications in some way will affect the pulse and/or blood pressure.

PULSE

With each beat of the heart, blood is forced into blood vessels called arteries, causing an expansion of vessel walls. This can be felt by the fingers in certain places where the arteries lie close to the surface of the body. This expansion is called the pulse.

The number of beats per minute is the pulse rate. The spacing of the beats and time interval between beats is known as the rhythm. Rhythm is either regular or irregular. **All** irregularities should be reported to the nursing supervisor.

The pulse rate for infants and children is more rapid than for the average adult. As a child reaches adulthood the pulse rate decreases to approximately 70-72 per minute. The average pulse rate at various ages are as follows:

Age	**Pulse Rate (beats per minute)**
Newborn to eleven months	120
2 years	110
4-6 years	100
Children (ages 6 - 15)	70 – 100 beats per minute
Adults (age 18 and over)	60 – 100 beats per minute

HOW TO COUNT PULSE RATE

Pulse is counted before certain drugs are given.

1. Wash hands
2. Gather equipment: watch with a second hand, pencil, paper.
3. Identify individual and explain the procedure to the individual
4. Position individual. (Lie down or sit down and have palm of individual's hand facing down with arm supported.)
5. Place the tips of your index, second and third fingers on the palm side of your other wrist below the base of the thumb.
6. Press lightly with your fingers until you feel the blood pulsing beneath your fingers. You may need to move your fingers around slightly up or down until you feel the pulsing.

7. Use a watch with a second hand, or look at a clock with a second hand.
5. Count the beats you feel for one full minute
8. Record pulse rate immediately on paper. (Do not rely on memory)
9. If pulse rate is below 60 and/or any irregular beats or volume are noted, report immediately to person in charge.
10. Wash hands

BLOOD

If the blood vessels are the network of highways carrying nutrients and wastes, the blood may be thought of as the trucks and cars traveling along the highway. A person generally has 4 to 6 liters (quarts) of blood depending on size, sex, age, and general health. Both the quality and quantity of blood are indicative of health. There are two types of blood cells. They are: Red Blood Cells (RBC) which carry oxygen to cells and carbon dioxide away from the cells, and White Blood Cells (WBC) which protect the body from infection by destroying germs.

Disease conditions of any part of the circulatory system will have an effect on the total system. In general there are two main conditions for which the (heart) medications are used: heart failure and irregular heartbeat.

Heart "failure" means that the heart has failed as a pump. When a person is in good health, the heart accomplishes circulation without faltering. Thus, it does not allow an abnormal amount of blood to accumulate in the veins, in the heart chambers, or in the lungs. The rate of flow is sufficient to provide normality throughout. A failing heart may have such a handicap that it is unable to move blood satisfactorily. Digitalis preparations may be ordered which will change the rate, rhythm and strength of the heartbeat.

DIGITALIS PREPARATIONS

Medications used in the treatment of heart failure are obtained mainly from the digitalis family. The most common are: **digitoxin** and **digoxin** (Lanoxin ®). The primary action of these medications is to **slow** and **strengthen** the heartbeat.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING DIGITALIS PREPARATIONS

It must be emphasized that digitalis preparations are **extremely strong**. As with all medications, be absolutely sure you administer the correct **medication** and dose. These preparations sound alike and have similar spelling. In order to avoid errors, check the label and **look closely at the spelling and at the dose prescribed.**

As you remember, **the action of digitalis is to slow and strengthen the heartbeat.** Therefore, a major responsibility when giving a digitalis medication is to **count the pulse prior** to administering each dose. In adults, if the **pulse is below 60** the medication should be held and the physician or nurse notified immediately for further directions. Take pulse also before Inderal ® (propranolol) is administered.

The side effects of digitalis preparations may include:

- Loss of Appetite
- Nausea or Vomiting
- Visual Disturbances
- Headache
- Diarrhea

ANTIARRHYTHMIC MEDICATIONS

These medications regulate the heartbeat. **Always check the pulse rate** before administering these drugs. In adults, if the pulse is below 60 beats per minute, the **medication should be held** and the physician or nurse be notified immediately for further direction. Blood pressure should also be monitored and notify the nurse of any abnormal readings.

Table 4.1

Antiarrhythmic Medications

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
quinidine sulfate	Cin-Quin ® Quinidex ®	Tablet	Slows heart rate and increases strength	Diarrhea, Skin rash, loss of appetite, nausea, vomitting, confusion	May be given with food to decrease stomach upset.	Before giving medication, check pulse; if below 60 hold medication and notify nurse or physician.
procainamide hydrochloride	Pronestyl ®	Tablet		Occasional low blood pressure, mental depression		
propranolol	Inderal ®	Tablet		Constipation/ diarrhea	Give before meals. Food may decrease the effectiveness of the medication.	Smoking should be avoided.

DRUGS THAT AFFECT THE BLOOD VESSELS

Abnormal conditions affecting the arteries and veins are many in number and variety. Medications may be used to increase or decrease the size of the blood vessels and thus affect the flow of blood through them.

VASODILATORS

Vasodilators **increase the size of the blood vessel** which, in turn, increases circulation. Hardening of the arteries (arteriosclerosis) is a fairly common problem. Arteriosclerosis results in a decreased blood flow. This decrease in blood flow may cause severe chest pain (angina) and poor circulation to the extremities.

Vasodilators may be used routinely to prevent chest pain and increase circulation. However, you may also see them used during an attack of chest pain to reduce the severity of the pain. **Nitroglycerine is the most common medication used for chest pain and is administered sublingually**. (Tablet is held under tongue and allowed to dissolve). Nitroglycerin works very fast and the chest pain is relieved within seconds. If an individual is using nitroglycerin**, they should keep it with them or readily accessible**.

Individuals should be given specific directions and guidance if they carry the medicine with them. Nitroglycerine deteriorates readily and becomes inactivated by light, heat, air, moisture and age. The individual or the direct care giver should be responsible for proper storage of these medications. In addition, individuals should be instructed to report when they take the medication as they will help us to know:

- How often pain occurs?
- How much medication is taken?
- If medication relieves pains?
- When does individual get relief

Alcohol should be avoided when a person is taking vasodilators because alcohol can also act as a vasodilator and can potentiate (add to) the medication's action.

Nitroglycerine is also available as an ointment (Nitro-Bid ®). The ointment comes with a dose measuring applicator. The ointment can be applied to any convenient skin area, but most people use the chest area. Specific directions for application technique may be supplied by the pharmacist. Do not touch ointment with your fingertips. It is also available in a patch.

Side effects that may occur with vasodilators are:

*Headache	*Low Blood Pressure	*Nausea/Vomiting
*Dizziness	*Weakness	*Skin Rash

The following tables give additional information on vasodilators.

Coronary vasodilators are used for chest pain and peripheral vasodilators are used to increase circulation in the extremities (Tables 4.2 & 4.3).

Table 4.2

Coronary Vasodilators

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
amyl nitrite	Amyl Nitrite ®	Inhalation, Cloth covered ampule which is crushed and fumes inhaled	Acute chest pain	Flushed face, Headache, Pupil dilation, nausea, dizziness	Always avoid alcohol when taking these medications	Lie down when taking medication.
nitroglycerin	Nitro-Bid ® Glytrate ®	Sublingual Tablet-Relief in 1 - 2 minutes				If individual is independent in medication use we should know how often they use medication, whether relief is partial or complete and whether there are any side effects.
isosorbidedinitrate	Isordil ® Iso-Bid ®	Sublingual Tablet, Chewable Tablet				Avoid alcohol

Table 4.3

Peripheral Vasodilators

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
papaverine hydrochloride	Blupar ® Pavacot ® Pavabid ®	Tablet	Dilates peripheral vessels to improve circulation	flushed face, headache, nausea, vomitting, dryness of mouth and throat, arrhythmias, sweating	Give with meal to reduce stomach upset.	If urine turns very dark contact physician.

HIGH BLOOD PRESSURE (HYPERTENSION)

Hypertension, a condition in which blood pressure is abnormally high, is one of the leading causes of strokes, heart attacks, and kidney disease. An estimated 24 million Americans have hypertension disease. In the majority of hypertension cases (approximately 90 percent), the cause of hypertension is unknown; the goal of medication therapy is to lower the blood pressure without causing excessive side effects.

Before discussing medications used to treat hypertension, some information about **SALT** and **DIET** is important. Salt is a mineral necessary for good health. However, people tend to overuse salt. Salt can contribute to hypertension as it holds water in the body. The increased water content increases the blood pressure. Therefore, if foods high in salt are avoided, blood pressure will be lower. In addition to salt, overweight is a factor contributing to hypertension. So people who are overweight should be encouraged to lose weight.

There are two classifications of medications used to treat hypertension: diuretics and antihypertensives.

(See Tables 4.4 and 4.5)

ANTIHYPERTENSIVES

Antihypertensives are medications that are used to treat high blood pressure (hypertension).

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTIHYPERTENSIVE DRUGS

The major caution to observe with these medications is to monitor blood pressure. The possible side effects which may occur with antihypertensive medications are:

- Fatigue
- Nasal Congestion
- Loss of Appetite
- Dizziness
- Dryness of Mouth

In general, **nasal congestion and dryness of mouth** are most common when individuals begin taking these medications. Instructing the individual in good oral hygiene will help relieve mouth dryness. Review Table 4.4 for some common antihypertensives and specific side effects.

Table 4.4
Antihypertensives

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
hydralazine hydrochloride	Apresoline ®, Hydralazine ®	Tablet	Hypertension	Loss of appetite, headache, tachycardia, nausea, vomitting, diarrhea	Give with meals to increase absorption	Individual may become dizzy when first standing.
prazosin	Minipress ®					
clonidine	Catapres ®					
alpha methylodopa	Aldomet ®			Low pulse, rash, fever, fatigue		May darken urine.

NOTE: Minor tranquilizers may be given for high blood pressure.

DIURETICS--Diuretics increase urinary and salt excretion. They may cause a loss of potassium. Potassium is necessary for skeletal and heart muscle function.

Signs of potassium (K+) depletion are:

- muscle weakness
- fatigue
- leg cramps
- irregular heartbeat

To avoid potassium depletion, the physician may order to encourage the individual to eat foods that are high in potassium content or the physician may order a supplement. If signs of potassium depletion are noticed, notify your nurse.

Table 4.5
Diuretics

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
acetazolamine	Diamox,® Hydrazol ®	Tablet	High Blood Pressure	Potassium loss, nausea, dizziness, numbness of extremities, irritability, diarrhea, skin rash, loss of appetite, eyes sensitive to sun light.	Avoid monosodium glutamate (MSG) which is seasoning often used in Oriental food. May be taken with food to decrease stomach upset.	Tolerance after prolonged administration may necessitate an increase in dosage. No supplemental potassium.
chlorothiazide	Diuril ®					
hydrochlorothiazide	Hydrodiuril ®					
spironolactone	Aldactone ®	Tablet	Rid body of excess fluid and reduce blood pressure.			
furosemide	Lasix ®	Tablet & Injection				Consult with physician or dietitian to provide high potassium diet.

ANTICOAGULANTS--This group of medications are related to blood clotting. Blood clot formation is a process which is essential to life. Without this process, a person with a simple cut would hemorrhage and survival could be threatened. However, sometimes this mechanism of clot formation is inadequate and creates physical problems**.**

Anticoagulants are medications which decrease clot formation. The reverse of this is also possible. The clotting mechanism may be insufficient and the clotting process is inadequate. **Coagulants increase clot formation**.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTICOAGULANTS

The major caution to observe with anticoagulation therapy is the possibility of hemorrhage. The signs and symptoms related to hemorrhage are:

- Nose Bleeds
- Blood in the Stools
- Bleeding Gums
- Black and Blue Marks
- Blood in the Urine
- Change in Vital Signs

The most common anticoagulant is Warfarin sodium, see Table 4.6.

Table 4.6

Anticoagulant

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
warfarin sodium	Coumadin,® Panwarfin ®	No average dose, Dosage is ordered to correlate with blood test results, Tablets are available in 2, 2.5, 5, 7.5, 10, & 25 mg sizes.	Will not dissolve existing clots, but will help prevent new clots from forming.	Hemorrhagic accidents are the chief danger of anticoagulant therapy first signs that this may be occurring are: blood in urine, nose bleeds, bleeding gums. Individual will develop black & blue marks easily. Diarrhea, nausea, cramps, rash, loss of hair.	Medications which increase anticoagulant action = aspirin, quinidine, phenothiazides, chloral hydrate, thyroid preparations, alcohol, phenytoin, oral contraceptives.	Prothrombin times are the blood tests which are done routinely when individuals are on anticoagulants. Have individual use electric razor, give medication at same time each day.

Newer medications such as **Pradaxa ® and Xarelto ®** are also prescribed and can cause internal bleeding issues. Observe for coffee ground material in vomit or black tarry stools. If either is noted report to physician immediately. Easy bruising, dizziness, pale skin, and fatigue. These signs indicate internal bleeding.

Answer Self-Test Questions--Lesson 10: Section 4--Medications That Affect the Cardiovascular System

LESSON 10
SECTION 4

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #5 FOR STRUCTURE AND FUNCTION OF THE CARDIOVASCULAR SYSTEM

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 10: MEDICATION CLASSIFICATION
SECTION 5. MEDICATIONS THAT AFFECT THE URINARY SYSTEM

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the urinary system.
2. Given a specific medication classification, list at least two (2) side effects.
3. State responsibilities other than observation for side effects, when administering medications in these classifications.

RELATED INFORMATION

The urinary system is also referred to as the excretory system. As the name implies, the organs of this system produce urine (liquid waste) which is excreted from the body. The urinary system also helps to control the vital water and salt balance of the body. The organs of this system include: the kidneys, ureters, urinary bladder and urethra.

The medication classifications which will be discussed in this lesson are:

SULFONAMIDES

The sulfonamides were the first medications developed to combat infection. Antibiotics eventually replaced sulfonamides for general infections. However, Sulfonamides remains the medication of choice for urinary tract infections.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING SULFONAMIDES

- Increase fluid intake up to two quarts per day and avoid foods high in calcium.
- Side effects to watch for are:
    - Nausea
    - Vomiting
    - Diarrhea
    - Blood in Urine
    - Skin Rash

Please review Table 5.1 for additional information on sulfonamides.

Table 5.1

Sulfonamides

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
sulfisoxazole	Gantrisin ®	Tablet	Urinary Tract Infection	Nausea, vomitting, diarrhea, urinary tract stones, serious skin rash, blood in urine, sensitivity to sun light.	Avoid over use of calcium rich foods.	Increase fluid intake to up to two quarts per day to help avoid stone formation.

URINARY ANTISEPTICS

These medications are used to treat urinary tract infections. Many people who have had a urinary tract infection have recurrences following a period without symptoms. For this reason, they are often placed on long-term medication therapy. Most of the sulfonamides, as well as some systemic antibiotics such as the **erythromycins** may be used to treat these conditions.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING URINARY ANTISEPTICS

Some urinary antiseptics will change the color of the urine. Inform the individual that this may occur. Also, many of these medications may cause stomach upset, therefore, they should be administered with meals or food whenever possible. Some medications work best when the urine is strongly acid or basic; so depending on the medication, it may be necessary to either encourage or discourage fluids and foods high in acid. Your responsibilities include:

- Inform individual of color change in urine;
- Encourage fluid intake - 1-2 quarts/day;
- Find out if acid or base medium is desired

TABLE 5.2
Urinary Antiseptics

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
nitrofurantoin	Furadantin ®, Macrodantin ®	Tablet	Most Urinary tract infections	nausea, vomitting, diarrhea, loss of appetite	Encourage acidic fruit juices, particularly cranberry juice.	Give with milk to reduce stomach upset, alert the individual that urine color will be dark brown.
nalidixic acid	NegGram ®		Gram positive and gram negative bacteria.	Skin rash, blood dyscrasia, blurred vision		May cause false positive clini test (test for sugar in urine)
phenazopyridine hydrochloride (AZO)	Pyridium ®		Relieves pain associated with urinary tract infection	Ringing in ears, nausea, vomitting	Give with food or milk.	Turns urine red or orange.
sulfamethoxazole-trimethoprim	Bactrim ® Septra ®	Tablet & Liquid	Chronic urinary tract infections	sore throat, fever	Take 1 or 2 hrs. before meals for best absorption	Oral suspensions available for people who cannot swallow large pills.

OTHER DRUGS WHICH EFFECT THE URINARY SYSTEM

Urinary tract infections may be painful. Pyridium is an analgesic (reduces pain) and may be combined with various urinary antiseptics or used alone. The prefix **AZO** means that Pyridium has been added, i.e., **AZO** mandelamine. Review Table 5.2 for specific urinary antiseptics. Certain illnesses, and sometimes advancing age, cause the bladder function to become sluggish.

Urecholine ® is an oral medication used to relieve urinary retention. Side effects include:

- Cramping
- Diarrhea
- Headache

Study Self-Test Questions - Lesson 10: Section 5 -- Medications That Affect the Urinary
System

LESSON 10
SECTION 5

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #6 FOR STRUCTURE AND FUNCTION OF THE URINARY SYSTEM

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

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LESSON 10: MEDICATION CLASSIFICATIONS
SECTION 6. MEDICATIONS THAT AFFECT THE NERVOUS SYSTEM

OBJECTIVES

At completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the nervous system.
2, Given a specific medication classification, list at least three (3) side effects.
3. State responsibilities, other than observation for side effects, when administering medication in these classifications.
4. List three (3) measures other than medications which can be used to calm an individual.
5. Define epilepsy.
6. Describe observations to make when a seizure occurs.
7. List two (2) medications used to treat extra pyramidal symptoms.

The medication classifications which will be discussed in this lesson are:

CENTRAL NERVOUS SYSTEM STIMULANTS - Medications which **increase** central nervous system functions.

Sub-Classifications:

- **AMPHETAMINE & CAFFEINE** - Increase mental and physical activity
- **CHOLINERGIC BLOCKING MEDICATIONS** - Block or stop symptoms associated with Parkinson's disease and side effects of antipsychotic medications
- **CENTRAL NERVOUS SYSTEM DEPRESSANTS** - Medications which **decrease** central nervous system functions
- **SEDATIVE - HYPNOTIC MEDICATIONS** - Induce sleep and calm the body
- **ANALGESIC MEDICATIONS** - Relieve pain
- **NARCOTIC MEDICATIONS** - Relieve severe pain
- **NON-NARCOTIC MEDICATIONS** - Relieve mild-moderate pain

- **ANTI-INFLAMMATORY MEDICATIONS** - Relieve pain due to inflammation
- **ANTIPYRETIC MEDICATIONS** - Reduce body temperature
- **PSYCHOTROPIC MEDICATIONS** - Used to treat a variety of emotional disorders
- **ANTI ANXIETY MEDICATIONS** - Used to treat mild to moderate states of emotional upset
- **ATYPICAL ANTI PSYCHOTIC MEDICATIONS** - Used to treat aggressive and agitated behavior and older **TYPICAL ANTIPSYCHOTIC MEDICATIONS**
- **ANTIDEPRESSANT MEDICATIONS** - Used to relieve depression
- **ANTICONVULSANT OR ANTI EPILEPTIC MEDICATIONS** - Used to control seizures

RELATED INFORMATION

The nervous system controls and coordinates all voluntary and involuntary body activities, even the production of hormones. Sensory receptors of the nervous system, such as the eye and ear, enable us to be aware of our surroundings. Special parts of the nervous system are concerned with maintaining normal day-to-day functions while other parts act during emergency situations and others control voluntary activities.

NERVES:

Many small cells are bunched together to form nerves. Sensory nerves carry sensations to the brain and spinal cord. Feeling is lost when these nerve impulses are interrupted. Motor nerves carry impulses that cause body activity. Paralysis (loss of function) occurs when these nerves are damaged.

For easier understanding, the nervous system can be divided. Remember, though, that **the nervous system is one interwoven system**, and if one part of it is affected, all of it is affected.

THE CENTRAL NERVOUS SYSTEM: The term central nervous system (C.N.S.) refers to the brain and spinal cord.

BRAIN: All mental activities, such as thinking, voluntary movements, interpreting sensations, and emotions are carried out by brain cells. In general, the right side of the brain controls the left side of the body and vice versa.

SPINAL CORD: The spinal cord is a continuation of the brain and it is about 17 inches long, ending just above the small of the back. Nerves extend from the brain and spinal cord throughout the body.

AUTONOMIC NERVOUS SYSTEM (A.N.S.)

The autonomic nervous system is concerned with **involuntary body activities**. It is made up of two parts called the **sympathetic and parasympathetic systems**. The center of control is in the brain stem. Nerve fibers which carry impulses to control the usual functions of heartbeat, digestion, elimination, respiration, and glandular activity are called **parasympathetic.**

The **sympathetic nervous system (SNS)** controls the body's responses to a perceived threat and is responsible for the **"fight or flight"** response. In times of stress or danger, the heart beats faster, the lungs work harder, and certain glands increase their production. Blood pressure is increased as the body prepares for action. These activities are brought about by stimulation of the sympathetic system.

SENSORY RECEPTORS: These are the nerve endings found in the skin, joints, nose, mouth, ears, and eyes. All of these structures help relay information from the environment to the brain.

MEDICATIONS THAT AFFECT THE CENTRAL NERVOUS SYSTEM (C.N.S.)

In general, the medications that act on the C.N.S. may be divided into two groups: those that stimulate and those that depress its functions.

CENTRAL NERVOUS SYSTEM STIMULANTS--Medications which stimulate the C.N.S. These stimulants speed up all body functions; they:

- increase sharpness of sensation and perception
- increase body activity
- increase alertness and concentration
- suppress fatigue and inhibit sleep

C.N.S. stimulants are used for a variety of physical and mental problems. For example, many people start their day with a cup of coffee or tea. Both of these liquids contain caffeine which is a mild C.N.S. stimulant. During the course of a day when one becomes tired, one will have a cup of coffee or tea which "perks" one up. On the other hand, some people who have coffee late at night can't get to sleep.

In addition to caffeine being present in coffee, tea, chocolate and cola sodas, it is available as a medication. The side effects to be aware of include:

- inability to sleep (insomnia)
- restlessness - nervousness
- increased heart rate

Caffeine should be avoided by people who have stomach ulcers because it is irritating to the lining of the stomach.

AMPHETAMINES

The amphetamines are **C.N.S. stimulants**. They have the disadvantage of producing tolerance and medication dependency. Therefore, the dosage must continuously be increased in order to achieve the same effect. The amphetamines stimulate the C.N.S. to increase: **Mental and Motor Activity**

Amphetamines are occasionally used in the treatment of depression, however, more often used to treat hyper kinetic children. This may be confusing to you as you might wonder why a stimulant would be given to someone who is already overactive. It is not known why amphetamines calm some hyper kinetic children, but it is known that with some individuals who are hyper kinetic, amphetamines will calm them down.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING AMPHETAMINES

These medications have many side effects in addition to being habit-forming. They are medications which, when stopped, can cause severe depression. Common side effects are:

- Loss of Appetite
- Dry Mouth
- Fast Heartbeat
- High Blood Pressure
- Restlessness
- Inability to sleep

Amphetamines are also the base of many diet medications. However, because of dependency and side effects, they are not used for weight loss as much as they were in the past.

Review Table 6.1 for common C.N.S. stimulants.

Table 6.1

Central Nervous System Stimulants

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
amphetamine sulfa	Benzedrine ®	Tablet	Narcolepsy disease where people fall asleep throughout the day.	Restlessness, dry mouth, loss of appetite, high blood pressure		
Amphetamine and dextroamphetamine	Adderall ®	"	ADHD		Avoid caffeine drinks, as caffeine will make these medications stronger.	
methylphenidate	Ritalin ® and Concerta®	"	Hyperkinetic children		"	

There will be more discussion of C.N.S. stimulants when we describe psychotropic medications, which are medications used for mental disturbances.

CENTRAL NERVOUS SYSTEM DEPRESSANTS (C.N.S.)

C.N.S. depressants have the opposite effects of the stimulants. They decrease the central nervous system's activity:

- decreases sharpness of sensation and perception of stimuli, lessens or slows body
- activity
- decreases alertness and concentration
- promotes drowsiness and sleep

There are various sub-classifications of C.N.S. depressants. However, regardless of the sub-classifications, it is important to remember that they work by depressing activity.

SEDATIVE-HYPNOTIC MEDICATIONS

Though these terms are often used interchangeably, there is a difference in them. A hypnotic is a medication **used to provide sleep**, whereas a **sedative quiets and relaxes** a person without producing sleep. However, due to the fact that a person who is relaxed is likely to go to sleep, hypnotics and sedatives will be described together.

There are two major classes of sedative hypnotic medications known as **barbiturates** and **non-barbiturates**. The non-barbiturates were developed in an effort to produce a sedative-hypnotic which did not have adverse effects (e.g., addiction) associated with the barbiturates. So far this goal has not been achieved. In general, both the non-barbiturates and barbiturates produced the same activity.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING SEDATIVES AND HYPNOTICS

The side effects associated with the sedative-hypnotic medications are an extension of their therapeutic action.

- Drowsiness
- Lethargy
- dry mouth
- poor balance

These side effects can be collectively referred to as **"hangover symptoms."** Elderly individuals are particularly sensitive to side effects, especially **loss of memory.**

A major caution with these medications is the possibility of **addiction**. Prolonged use of sedative-hypnotics may result in increased tolerance and physical dependence. Once this develops the medication must be used continuously to avoid the onset of withdrawal symptoms.

When possible it is best for individuals to sleep without sedation. At times you may be able to calm and help an individual relax without medication. Some measures include: providing a quiet environment; glass of warm milk, and reassurance. There are many medication interactions associated with sedative hypnotic agents. They potentiate the actions of other depressant medications, leading to greater C.N.S. depression, low blood pressure and muscle relaxation. Some medication classifications which interact with sedatives and hypnotics are:

Anti-hypertensive	Antihistamines
Tranquilizers	Alcohol

- Alcohol is a **depressant** and should never be used with sedative- hypnotics, as the combination of the two may lead to serious depression of the C.N.S.

- Sedative-hypnotics **reduce** the effectiveness of anticoagulants and oral contraceptives.

- Because of these numerous medication interactions, as with all medications, it is important to let the physician know what medications the individual is taking.

Life threatening side effects may occur and include:

*Slurred Speech *Tremors *Depressed Respirations

If you observe any of these side effects, it is very important to notify the physician or nurse and not give the medication until further directed.

Newer hypnotic medications are Ambien ® and Restoril ®.

Table 6.2 describes some common sedatives and hypnotics

TABLE 6.2
SEDATIVE AND HYPNOTIC MEDICATIONS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
Barbiturates phenobarbital (also used as an anticonvulsant)	Luminal ®	Tablet	Induce and maintain sleep	Drowsiness, dry mouth, lethargy, hang over effect.	Will increase action of anti-hypertensive, antihistamines, tranquilizers, alcohol	Major caution! Medications can become addictive.
pentobarbital	Nembutal ®		"			
amobarbital	Amytal ®			"		
secobarbital	Seconal ®		"			
Non-Barbiturates						
chloral-hydrate	Noctec ®			"		
glutethimide	Dorlden ®		"			
flurazepam	Dalmane ®		"			Dalmane ® does not leave individual with hang over effect

Ambien ® (zolpidem) is a hypnotic agent with a chemical structure unrelated to benzodiazepines, barbiturates, or other drugs with known hypnotic properties.

Restoril ® (temazepam) affects chemicals in the brain that may be unbalanced in people with sleep problems

ANALGESIC (C.N.S. DEPRESSANTS)

Pain primarily functions as a protective signal. Pain may warn the individual of imminent danger (fire) or the presence of internal disease (appendicitis, tumors). Relief from pain is desired when the intensity or duration of pain interferes with a person's ability to function in the activities of daily living. **Analgesics are medications which relieve pain.**

There are two major sub-classes of analgesics:

- narcotic (strong analgesics)
- non-narcotic (mild analgesics)

NARCOTIC ANALGESICS

Narcotic analgesics are capable of altering or relieving severe pain and are primarily used to relieve pain of trauma, such as a broken leg, a heart attack, terminal illness and pain associated with surgery.

Narcotics are **controlled substances** and are placed in **Schedule II** of the Controlled Substance Act. You may wish to review the section on Care of Controlled Substances.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING NARCOTICS

Narcotics are derived from opium or synthetic preparation. Morphine sulfate is the strongest narcotic and is an opium preparation. Demerol is synthetic (man-made) and is almost as strong as morphine. Narcotics have some common side effects:

- slow respirations
- nausea
- vomiting
- constipation
- sweating (diaphoresis).

Before these medications are given, **the respiratory rate should be checked for 1 full minute. If respirations are below 12 breaths per minute, the medication should not be given**. If you are observing an individual on narcotics, your responsibility is to check the **RESPIRATORY RATE FREQUENTLY**.

Please see Table 6.3

ABLE 6.3
NARCOTIC ANALGESICS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
morphine sulfate (opium derivative)	Same	Tablet & Injection	Severe pain	Decreased respirations, sweating nausea, vomiting, constipation.-	Will increase activity of all CNS depressants	Respiration's are checked before giving and while individual is on medication.
meperidine hydrochloride (synthetic)	Demerol ®			In addition to above dizziness.		In general synthetic preparations have the same side effects but are less severe than opium derivatives.
oxycodone hydrochloride (synthetic)	Percodan® Percocet ®	Tablet				Give with milk or food
pentazocaine hydrochloride (synthetic)	Talwin HCL®	Tablet & Injection				Same as morphine
codeine sulfate (opium derivative)	Same		Analgesic and antitussive-they are part of many cough syrups			Analgesic and antitussive
propoxyphene hydrochloride (synthetic)	Darvon ® Darvocet ®					**NOTE: LIMIT ALCOHOL WITH ALL CENTRAL NERVOUS SYSTEM DEPRESSANTS**

NON-NARCOTIC ANALGESICS (MILD ANALGESICS)

- Mild Analgesics
- Antipyretics
- Anti-Inflammatory

- **Mild analgesics** relieve mild to moderate pain without altering consciousness or mental function. In particular these medications relieve pain associated with inflammation (arthritis and gout) and dull aches (headaches and muscle aches).
- **Antipyretics** are medications which reduce fever.
- **Anti-Inflammatory** are medications which reduce pain associated with inflammation.

One medication which can function in all three of these sub-classes is **aspirin (acetylsalicylic acid – ASA).** Aspirin is one of the most commonly used medications in the world. Salicylate is the base of aspirin and is a common preparation found in other medications.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING MILD ANALGESICS AND ANTIPYRETICS

In low doses these medications relieve pain, aches and fever. However, in order to relieve the severe pain associated with arthritis and gout, the medications are administered in larger doses for longer periods of time. Large dose therapy is more frequently associated with causing side effects.

The three most common side effects are:

- ringing in the ears (tinnitus)
- nausea
- headache

There is always the possibility of an allergic response and if you observe signs of this, you must notify the doctor or nurse as soon as possible.

Salicylate based medications are irritating to the stomach lining and should be administered with milk or after meals which helps decrease stomach irritation.

TABLE 6.4
MILD ANALGESICS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
*acetylsalicylic acid	Aspirin, Empirin® Anacin ®	Tablet, Liquid & suppositories	Analgesic antipyretic, anti-inflammatory	ringing in ears, nausea, vomiting, diarrhea	Give with milk to reduce gastric irritation. Increase effectiveness of anti-coagulants	Should be avoided if individual has gastric problems. Used for individuals who cannot take aspirin
acetaminophen	Tylenol ®		Analgesic, antipyretic	Drowsiness		

ANTI-INFLAMMATORY NON-STEROID MEDICATIONS

Anti-inflammatory medications are used primarily to relieve inflammation of one or more joints which accompanies problems such as arthritis, gout and bursitis.

Review Table 6.5 for specific information on anti-inflammatory medications. As you will note, side effects are similar to the salicylates.

TABLE 6.5
ANTI-INFLAMMATORY AGENTS (NON-STEROID)

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
ibuprofen	Motrin ®	Tablet	Rheumatoid arthritis, and Osteoarthritis	gastric upset, nausea, vomiting, constipation and/or diarrhea	Give with meals and milk to reduce gastric upset.	A non-steroid anti-inflammatory
phenylbutazone	Butazolidin ®	"	Arthritis, gout		Avoid antacids with high salt content.	Should not be given to individuals with a history of gastric ulcers.
indomethacin	Indocin ®			As above, plus: dizziness, depression, mental confusion.		

* Motrin ® is also used for pain associated with menstruation.

ANTI-ANXIETY MEDICATIONS (Minor Tranquilizers)

Anxiety, tension, and nervousness are symptoms caused by situations which are interpreted as being threatening or dangerous. These psychological (mental) conflicts can cause physiological (body) changes, such as trembling, sweating, nausea and increased heart rate. Most people, at some time in their lives, have experienced these uncomfortable feelings. When the cause of the conflict is removed, the body returns to a more relaxed state (autonomic nervous system controls this state). However, if for some reason the source if anxiety continues, the individual may develop a **neurosis** which is

defined as an **"accumulation of anxiety and tension."** Neurosis falls under the term "mental illness", which is a broad title covering a number of emotion disturbances involving changes in personality and behavior. **Psychosis,** defined as a "loss of contact with reality", is also a form of mental illness. In general, psychosis or psychotic state is more severe than a neurosis or a neurotic state.

Psychotropic is a term used to cover a broad range of medications.

Psychotropic medication:
Any medication capable of affecting the mind, emotions, and behavior. These medications are commonly referred to as tranquilizers **(minor and major)** and the two terms are used interchangeably. Psychotropics do not cure emotional disorders, but they do help to relieve anxiety, aggressive behavior, and depression. Once these symptoms are relieved, a person is more receptive to other forms of treatment.

Anti-anxiety medications are used to treat mild to moderate states of emotional upset. These agents are widely used -- sometimes for extended periods of time.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTI-ANXIETY MEDICATIONS

The actions of anti-anxiety medications resemble those of barbiturates but cause less drowsiness and confusion. Some of these medications are also used for their anticonvulsant properties and will be discussed later in this section.

All of these medications can cause mental and physical dependence. Because of this dependence, whenever these medications are discontinued it should be done on a gradual basis in order to prevent withdrawal symptoms.

Side effects which may occur will resemble those of many C.N.S. depressants: drowsiness, dizziness and constipation. In addition to these symptoms, others which may occur include:

- allergic reactions
- nausea/vomiting
- low blood pressure
- slurred speech

Nausea and/or vomiting can be reduced if these medications are given with or after meals.

See Table 6.6 for the more common anti-anxiety medications.

TABLE 6.6
ANTI-ANXIETY MEDICATIONS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
chlordiazepoxide hydrochloride	Librium ®	Tablet & Injection	Reduces anxiety and promotes a feeling of relaxation	Drowsiness, fatigue, nausea, constipation, confusion, excitement, slurred speech	Will increase the effectiveness of antihypertensives and all other CNS depressants including analgesics.	All of these medications can cause addiction.
diazepam	Valium ®		Also used for mild depressant and to relax muscles.			Use with caution in individuals with developmental disabilities.
zolam	Xanax ®	Tablet	Anxiety and panic disorders	Confusion tremors agitation	itraconazole ketoconazole	May be habit forming. Use with caution in glaucoma
escitalopram	Lexapro ®	Tablet	Anxiety depression	Headaches, confusion, fatigue constipation	SSRI medications	May cause irregular heart rate

NOTE: THE INDIVIDUAL SHOULD NEVER MIX ALCOHOL WITH THESE MEDICATIONS

ANTI PSYCHOTIC MEDICATIONS (Major Tranquilizers)

Anti- psychotic medications are a class of medicines used to treat psychosis and other mental and emotional conditions. They are used for the treatment of aggressive and agitated behavior. These medications are stronger than the minor tranquilizers so, in addition to some of the common side effects of C.N.S. depressants and mild tranquilizers, there are more severe side effects which may occur. **Typical** (older) antipsychotics and **atypical (newer)** antipsychotic drugs are used in the treatment of psychosis. **Typical** psychotic drugs belong to **first generation** antipsychotic whereas **atypical** psychotic drugs belong to **second generation** antipsychotic. Both of them are used in the treatment of psychiatric conditions.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTI PSYCHOTIC MEDICATIONS

Major tranquilizers are effective across a wide range of dosages. The dosage is usually increased gradually over a period of seven to fourteen days or until symptoms are controlled or side effects occur. Due to the physical and mental dependence on these medications, they should not be stopped abruptly because withdrawal symptoms may occur.

The major **(severe)** side effects which occur are grouped together and called **extra pyramidal symptoms (EPS)**. These symptoms collectively are uncontrollable muscle spasms and can be broken down to: tremors of hands and feet, shuffling walk, body rigidity, and restlessness.

Extra pyramidal symptoms, for the most part, can be stopped by discontinuing the anti-psychotics or if these medications can't be stopped, other medications may be used to treat these symptoms such as Cogentin® or Akineton®.

However, if these symptoms (EPS) are not corrected, the person can progress to **Tardive Dyskinesia** which is a combination of EPS and more severe, irreversible side effects. The most visible sign is around the mouth and jaws. The tongue has a snake like movement, jutting in and out. In addition, there are some internal changes which are life threatening. The liver and circulatory systems are prime areas for destruction. Visible signs of this damage may be: (1) liver damage - yellow color to the eyes and skin (jaundice), and (2) circulatory damage - blood disorders (dyscrasia).

A **blood dyscrasia** is either abnormal blood cell formation or absence of adequate production. The initial signs of a blood dyscrasia resemble those of a common cold: a tired, aching feeling, sore throat, fever and swollen glands in the neck.

If these signs appear and are due to a blood dyscrasia, the person needs immediate medical attention. Fortunately, most people who are on long-term anti- psychotic medications also have blood tests done on a regular basis. This helps to monitor any early liver and blood destruction which may be occurring.

Individuals taking anti-psychotics develop a sensitivity to sunlight. As much as possible, these people should avoid excessive exposure to sunlight and be encouraged to use a good sunscreen.

Table 6.7 will supply you with additional information on specific anti-psychotics.

TABLE 6.7

ANTI PSYCHOTIC MEDICATIONS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
Older First Generation Typical Antipsychotics						
chlorproinazine	Thorazine®	Tablets, liquids & suppositories	Restoration of emotional calm. relief of severe anxiety, agitation, and psychotic behavior.	Drowsiness, allergic, reaction, dry mouth, constipation, and low blood pressure.	Will increase effective ness of CNS depressants.	May cause photo sensitivity (change in vision) and skin sensitivity to the sun, encourage individual to use sunglasses and sunscreen.
fluphenazine	Prolixin ®	Table Injection Liquid	Psychotic disorders	EPS,TD,overactive reflexes, slurred speech, dizziness	Alcohol, apple juice,	Frequent tests to check kidney and liver function**.**
haloperidol	Haldol ®	Tablet, Injection	Psychotic disorders Tourette's Disorder	EPS,TD, Neuroleptic Malignant Syndrome, Blood Dyscrasia		Increased Mortality in Elderly Patients with Dementia-Related Psychosis
Atypical Antipsychotics						
aripiprazole	Abilify ®	Tablets	Psychosis, Depression, Autism	Weight gain, anxiety, blurred vision, N&V, TD, EPS, Insomnia, Hyperglycemia, dizziness, drooling	Alcohol	May increase suicidal thoughts in teens and young adults
risperidone	Risperdal ®	Liquid Tablets	Psychosis, Bipolar Disorder, Irritability in Autism, Depression	Gynecomastia, weight gain, TD, EPS, hyperglycemia	Alcohol	Avoid temperature extremes

ANTI DEPRESSANTS

Mental depression is a common disturbance that affects most people at one time or another. During depression there are noticeable changes in mood and behavior, along with feelings of frustration and hopelessness. **Decreased appetite** and **insomnia** are also common symptoms of depression. The depressed individual appears unable to cope with demands or stresses of living. In severe depression, the thought of suicide may be an acceptable solution. Early recognition and treatment is essential for prevention of the serious consequences of depression. **There are three (3) major types of depression.**

REACTIVE DEPRESSION

Caused by external factors (death, divorce, illness, change of environment and unemployment). This type of depression is time limited and may not require medication.

INTERNAL DEPRESSION

It is difficult to determine the cause of this depression. It may be intermittent or constant. Internal depression almost **always requires medication.**

MANIC DEPRESSION

Individual has alternating periods of elation and depression and is almost always treated with a specific medication called Lithium. (See next page)

Several different types of medications are available and they are generally referred to as antidepressants or mood elevators. However, they have an interesting action in that they may stimulate or depress the central nervous system. Therefore, they relieve depression and also relieve anxiety.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTIDEPRESSANTS

There are many different types of drugs used in the treatment of depression, including **selective serotonin reuptake inhibitors (SSRIs), atypical antidepressants**, **tricyclic antidepressants (TCAs), and monoamine oxidase inhibitors (MAOIs)**. The SSRIs (selective serotonin reuptake inhibitors) are the most commonly prescribed class of antidepressants. They act on a chemical in the brain called serotonin. The SSRIs include drugs such as Prozac ®, Zoloft ®, and Paxil ®.

The **SSRIs** are preferred over older classes of antidepressants such as tricyclic antidepressants and MAOIs because their adverse effects are less severe.

Common side effects of SSRIs include:

- Nausea
- Insomnia
- Dizziness
- Weight gain or loss
- Tremors
- Sweating
- Anxiety and restlessness
- Decreased sex drive
- Drowsiness or fatigue
- Dry mouth
- Diarrhea or constipation
- Headaches

Review Table 6.8 for additional information on SSRI Antidepressant Medications

TABLE 6.8
Selective Serotonin Reuptake Inhibitors

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
fluoxetine	Prozac®	Tablets Capsules	Major depression, OCD, bulimia, panic disorder	insomnia strange dreams; tremors or shaking, feeling anxious or nervous	Thioridazine, MAOIs,other antidepressants, blood thinners	Sometimes used in combination with olanzapine (Zyprexa)® for Bipolar Disorder. May cause suicidal thoughts
sertraline	Zoloft®	Tablets	Panic Disorders, Obsessive Compulsive Disorder, PTSD, Premenstrual dysphoric disorder	Drowsiness, dizziness, tired feeling, insomnia, weight gain	Any other antidepressant, cimetidine, phenytoin, St. John's wort	May cause suicidal thoughts in young adults
paroxetine	Paxil®	Tablets Capsules				

MONAMINE OXIDASE INHIBITORS (MAOI ANTIDEPRESSANTS)

These medications are **not as common** as the tricyclic antidepressants. However, under rare circumstances you may have to administer one of these medications.
Some significant points to remember with these medications are the Food/Medication Interactions. **Foods rich in tyramine** (wine, cheese, beer and canned fish) are restricted. Consuming these foods may cause extremely high blood pressure.

LITHIUM (Anti-Manic Drug)

Lithium is a drug which is used to treat people who have been diagnosed as having a particular mental disturbance known as manic-depressive behaviors. Lithium is highly individualized and there will be specific directions to follow when administering this medication. Also, individuals who take Lithium need to have routine blood tests, which helps the physician monitor the dosage of Lithium. Avoid situations of severe sweating if taking this drug. May result in toxicity. It is important to maintain adequate salt intake and fluid intake.

EPILEPSY & ANTICONVULSANT MEDICATIONS

Epilepsy means a tendency to have recurrent seizures. The seizures are not always accompanied by convulsions, but most do involve a temporary interruption of consciousness. The seizures reflect a sudden unruly pattern of brain waves which is manifested in several ways. An individual with epilepsy may always have the same type of seizure or he may experience a variety of types. An aura or warning is experience by about 50% of individuals with epilepsy.

The **aura** is an ill-defined sensation experienced through one of the following senses:

- Sight changes - seeing spots in front of one's eyes or a blinding light
- Taste - especially a bitter taste in the mouth.
- Hearing - hearing a strange noise.
- Smelling - smelling a distinctive odor.

There are three (3) major types of epilepsy. They are:

1. **Generalized Tonic-Clonic (grand mal)**

    a. aura
    b. loss of consciousness
    c. "tonic" phase - spasm of muscles
    d. "clonic" phase - alternate contraction and relaxation of muscles
    e. individual sometimes voids involuntarily during convulsion
    f. individual has no recollection of attack
    g. often followed by headache and exhaustion and frequently sleeps for several hours.

2. **Generalized Absence (petit mal)**

    a. brief interruption of consciousness
    b. sometimes accompanied by twitching of head, eyes or hand
    c. sometimes seizures are so brief that they go unnoticed
    d. more common among children than adults

3. **Complex-partial (temporal lobe or psychomotor)**

    a. autonomic, purposeless movements that may seem voluntary
    b. perceptual distortion, e.g., hallucinations
    c. emotional experience, e.g., sudden intense fear or elation
    d. memory distortions
    e. may show stereotyped behavior that is inappropriate for the situation
    f. individual is not aware of his action--will not remember them

The names in parenthesis had been in use for many years until new understanding brought about new terminology. It will be helpful for you to be familiar with both names, as people tend to use both the old and new names.

CARE OF INDIVIDUAL DURING A GENERALIZED SEIZURE:

When an individual has a **TONIC CLONIC** seizure, the biggest danger faced is injury during the fall or during the clonic phase of the seizure. It is your job to protect them from injury and call 911 **if necessary**. Call 911 if a seizure lasts for 5 minutes or longer, the person has an injury during a seizure, or for recurrent seizures one after the other (status epilepticus).

Care during a generalized tonic/clonic seizure:

- **Loosen any restrictive clothing such as ties, belts, unbutton tight collars**
- **Do not attempt to restrict movements. This can cause injury to the person**
- **Turn the person on their side to keep the airway open.**
- **NEVER put anything in the person's mouth**
- **Remain with the person until you are sure they are safe.**

OBSERVATIONS TO REPORT AND RECORD

- If there was an aura
- If there was a loss of consciousness
- If there was a fall and if so in what direction
- Describe the parts of the body that were involved (were there convulsions and whole body involved) tonic/clonic movements
- Describe eye movements e.g., open, closed staring, blinking, rolled back or to the side
- If there were breathing problems and if the person turned blue
- If there were any injuries
- Describe the person's condition following the seizure

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTICONVULSANTS

The anticonvulsant agents are used for the control of chronic seizures, involuntary muscle spasms or movements characteristic of certain neurological diseases. They are most frequently used in the treatment of epilepsy. Therapeutic agents cannot cure these convulsive disorders, but are used to control seizures without impairing the normal functions of the C.N.S.

Since there are many types of epilepsy, some medications are designed to control all types, while others are more individualized. Barbiturates and tranquilizers are effective anticonvulsants and may be used alone or in conjunction with other anticonvulsants. **Valium®** may be used as it is an effective muscle relaxer.

Anticonvulsant therapy begins with a small dose of medication which is then increased until either the seizures disappear or medication toxicity occurs. If one medication decreases the frequency of seizures, but does not completely prevent them, a second medication may be added. For example, phenobarbital, a barbiturate, is sometimes given with Dilantin ® (phenytoin-anticonvulsant). When you administer anticonvulsants, your responsibilities include observing for possible side effects:

- increased hair growth
- dizziness
- skin rash
- gastric distress
- gum overgrowth (gum hyperplasia)
- visual disturbances

The increased hair growth is most visible on the upper lip and about the face in the female individual. This is not a harmful side effect and there is little that can be done to prevent it. However, good oral hygiene will help prevent gum overgrowth and subsequent dental problems. Gastric distress can be minimized by **giving large amounts of fluid or giving the medication after a meal.**

Table 6.9 list some common anticonvulsants you may use in your agency.

Table 6.9
Anticonvulsants/Antiepileptic Medications

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
carbamazepine	Tegretol®	Tablets, capsules suspension	Seizures, nerve pain such as trigeminal neuralgia **and** diabetic neuropathy	Hyponatremia, dizziness, ataxia, blurred vision	Other anti-convulsants, zanax, trazodone,	May cause serious blood problems, bleeding, life threatening skin rash
lamotrigine	Lamictal ®	Tablets chewable and disintegrating	All types of seizures, Bipolar Disorder		Other anti-convulsants, Oral contraceptives	May cause serious skin rash Steven –Johnson Syndrome
phenytoin	Dilantin ®	Capsules	Seizure Disorder	Gum overgrowth, gastric upset, fever, headache		Good oral hygiene will help prevent gum overgrowth
valproic acid	Depakene ®	Tablets, Capsules	Seizure Disorder	Nausea, vomiting, constipation or diarrhea	Antihistamines, alcohol will increase dizziness	May cause severe liver damage
gabapentin	Neurontin ®	Gelatin Capsules	Partial Onset Seizures	Somnolence, dizziness	Opioids, Maalox®	Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS), also known as multiorgan hypersensitivity
ethosuximide	Zarontin ®	Liquid, Capsules	Seizure Disorder	Nausea, gastric upset gum overgrowth	Acetaminophen, Darvon, Alcohol	Blood dyscrasias
clonazepam	Klonopin ®	Tablets	Seizures/Panic Disorder	Chills, cough, dizziness Fever, Unsteady gait	Ambien, Adderall, Abilify, Alcohol	Some people may have suicidal thoughts

Other anti-epileptic medications that are currently used are:

- Valium ® (diazepam) and Diastat ® (administered rectally)
- Depakote ® (divalproex)
- Zarontin ® (ethosuximide)
- Neurontin ® (gabapentin)

MEDICATIONS BY CLASSIFICATION

A. **Anti- anxiety drugs (minor tranquilizers)**
   1. **Action**--relieve anxiety and tension
   2. **Uses**--central nervous system depressant, skeletal muscle relaxant, anticonvulsant
   3. **Examples**
      a. chlordiazepoxide HCl (Librium ®)
      b. clorazepate dipotassium (Tranzene ®)
      c. diazepam (Valium ®)
      d. lorazepam (Ativan ®)
   4. **Adverse effects**
      a. Hypotension
      b. Slurred speech
      c. Tachycardia
      d. Impaired reflexes
      e. Loss of mental activity
      f. Drowsiness
   5. **Special considerations**
      a. Possibility of abuse or addiction occurring
      b. Warning individual to avoid combining drug with alcohol or other depressants

B. **Antidepressants**
   Selective Serotonin Reuptake Inhibitors (SSRIs)
   1. **Action**- reduce symptoms of depressive disorders by correcting chemical imbalances of neurotransmitters in the brain.
   2. **Uses** - depression, generalized anxiety disorder, agitation, obsessive compulsive Disorder (OCD) and Bipolar Disorder
   3. **Examples:**
      a. fluoxetine (Prozac ®)
      b. sertraline (Zoloft ®)
      c. paroxetine (Paxil ®)
   4. **Adverse Effects**
      - Nausea
      - Dry mouth
      - Insomnia
      - Diarrhea
      - Nervousness, agitation or restlessness
      - Dizziness
      - Sexual problems, such as reduced sexual desire or (erectile dysfunction
      - Headache
      - Blurred vision
      - Drowsiness
   5**. Special considerations** - In some cases, children, teenagers and young adults under 25 may have an increase in suicidal thoughts or behavior when taking

antidepressants, especially in the first few weeks after starting or when the dose is changed.

Tricyclic Antidepressants

1. **Action**--increase the neurotransmitters norepinephrine or serotonin
2. Use--treat depression
3. **Examples**
   a. amitriptyline HCL (Elavil ®)
   b. doxepin HCl (Sinequan ®)
   c. imipramine HCl (Tofranil ®)
4. **Adverse effects**
   - Orthostatic hypotension
   - Constipation
   - Dry mouth
   - Blood disorders
   - Tinnitus
   - Confusion
   - Nightmares
   - Hallucinations
   - Restlessness
   - Increased risk of suicide
5. **Special consideration--**drug must be given for one to four weeks before an effect is noticed.

Monoamine Oxidase Inhibitors (MAO)

1. **Action**--decrease the amount of norepinephrine destroyed by metabolism and permits the level to increase in the brain
2. Use--treat depression
3. **Examples**
   a. phenelzine sulfate (Nardil ®)
   b. isocarboxazid (Marplan ®)
   c. tranylcypromine sulfate (Parnate ®)
4. **Adverse effects**
   - Heart irregularities
   - Diarrhea
   - Sweating
   - Constipation
   - Muscle Tremors

5. **Special consideration**--to prevent a hypertensive crisis when taking MAOI inhibitors, avoid foods that contain high amounts of tyramine, such as cheese, fish, liver, baked potatoes, yogurt, beer, wine.

C. **Typical Antipsychotics (major tranquilizers)**

1. **Action-**-blocks the neurotransmitter dopamine or affects the metabolism of serotonin
2. **Uses**--control nausea and vomiting, agitation in organic brain syndrome, symptoms of psychoses

3. **Examples**
    a. chlorpromazine (Thorazine ®)
    b. haloperidol (Haldol ®)
    c. thiothixene (Navane ®)
4. **Adverse effects**
    a. Abnormal movement of the tongue
    b. Involuntary muscle contractions that cause bizarre, uncontrolled movements of the face, neck, tongue, and back.
    c. Akinesia
    d. Akathisia
    e. Dyskinesia
    f. Tardive dyskinesia
    g. Urinary retention
    h. Respiratory distress
    i. Hypo/hyperglycemia
    j. Hypotension
5. **Special considerations**
    a. The most effective way to treat adverse effects (especially tardive dyskinesia) is to prevent it from occurring.
    b. Do not combine tranquilizers with alcohol.
    c. Some adverse effects are irreversible and life threatening, individuals on strong tranquilizers should be watched closely.

ATYPICAL ANTIPSYCHOTICS

1. **Action** - blocks receptors in the brain's dopamine pathways
2. **Uses**- Schizophrenia, Bipolar Disorder, Autism, Major Depressive Disorders
3. **Examples**
    a. (olanzapine) Zyprexa ®
    b. (risperidone) Risperdal ®
    c. (aripiprazole) Abilify ®
    d. (quetiapine) Seroquel ®
4. **Adverse Effects** - Although atypical antipsychotics are thought to be safer than typical antipsychotics, they still have severe side effects, including tardive dyskinesia, neuroleptic malignant syndrome, and increased risk of stroke, sudden cardiac death, blood clots, and diabetes. Significant weight gain may also occur.

D. **Anti-Manics**

1. **Action**--alters chemical transmitters in the central nervous system
2. **Use**--prevent mood swings of manic-depressive illness
3. **Example**--lithium carbonate (Carbolith ®, Lithotabs ®)
4. **Adverse effects**
    a. Tremors
    b. Thirst
    c. Drowsiness

ADDITIONAL INFORMATION CONCERNING PSYCHOTHERAPEUTIC DRUGS

A. Encourage the individual to drink fluids.

B. Provide for the individual's safety.

C. Observe the individual for tremors, convulsions, or insomnia.

D. Provide the individual with a calm environment.

E. Help reorient the individual as needed.

F. Chart and report accurately:
   1. Recent memory loss
   2. Abrupt changes in mood
   3. Changes in speech patterns
   4. Insomnia

G. Therapeutic response to the medication may take several weeks.

H. Can become sensitive to the sun.

ADDITIONAL INFORMATION CONCERNING COMMONLY ORDERED MEDICATIONS

A. chlordiazepoxide (Librium ®)--mild tranquilizer
   1. **Action**--thought to produce calming effect by enhancing action of one of the nerve transmitters
   2. **Use**--provide short-term relief of mild anxiety
   3. **Adult** dosage
   4. **Adverse effects**
      a. Expected--drowsiness, lethargy, unsteadiness
      b. Unexpected--allergic reactions (skin rash), dizziness, fainting, blurred vision, double vision, slurred speech, sweating, nausea
   5. **Special considerations**
      a. Should not be discontinued abruptly if taken continuously for more than four weeks
      b. If taken in conjunction with some over the counter drugs that contain antihistamines (allergy and cold preparations and sleep aids), can cause excessive sedation in some individuals.

B. diazepam (Valium ®)
   1. **Action**--suppresses the spread of seizure activity and depresses the central nervous system
   2. **Uses**--provide short-term relief of mild to moderate anxiety, relieve symptoms of withdrawal, relieve skeletal muscle spasm, and provides short-term control of certain types of seizures
   3. **Adverse effects**--allergic reactions, dizziness, faintness, blurred vision, double vision, slurred speech, sweating, nausea, menstrual irregularity
   4. **Special considerations**
      a. Do not discontinue drug abruptly if taken continuously for more than four weeks; dosage should be tapered off gradually.
      b. Combining diazepam with some over-the-counter drugs containing antihistamines (allergy and cold preparations, sleeping aids) can cause excessive sedation in some individuals.
      c. This drug can produce psychological and/or physical dependence if used in large doses for an extended period of time.

C. amitriptyline (Elavil ®)

1. **Action**--slowly restores to normal levels certain constituents of brain tissue that transmit nerve impulses
2. **Use-**-relieve symptoms associated with depression
3. **Adverse effects**--allergic reactions, swelling of face or tongue, headache, dizziness, fainting, tremors, peculiar taste in mouth, irritation of tongue or mouth, nausea, indigestion, breast enlargement, milk formation, swelling of testicles
4. **Special considerations**
   a. Psychological or physical dependence is rare and unexpected.
   b. Discontinue this drug gradually; abrupt withdrawal after long-term use can cause headaches, nausea and malaise.

D. haloperidol (Haldol ®)--strong tranquilizer

1. **Action**--not completely known but thought that this drug interferes with the action of dopamine as a nerve transmitter in the brain and thereby reduces anxiety and agitation and improves coherence and thinking
2. **Uses-**-control acute psychosis of unknown nature, treat hyperactivity in children, may be used to control Tourette's Syndrome.
3. **Adverse effects**
   a. Expected--mild drowsiness, low blood pressure, blurred vision, dry mouth, constipation, Parkinson-like reactions
   b. Unexpected--allergic reactions (skin rash, hives), dizziness, weakness, agitation, insomnia, loss of appetite, indigestion, nausea, vomiting, diarrhea, urinary retention
5. **Special considerations**
   a. Use smallest dose that is effective for long-term treatment.
   b. Use with caution in epilepsy (can alter pattern of seizures).

E. chlorpromazine (Thorazine ®)--strong tranquilizer

1. **Action**--not completely known, though to act to correct an imbalance of nerve impulse transmissions
2. **Use**--treat agitated depression and states of mental dysfunction
3. **Adverse effect**
   a. Expected--drowsiness, blurred vision, dry mouth, nasal congestion, constipation, impaired urination, discoloration of urine (pink or purple--not significant)
   b. Unexpected--allergic reactions (skin rash, hives, low grade fever), increased appetite and weight gain, weakness, agitation, insomnia, impaired vision, chronic constipation

4. **Special considerations**
   a. Many over-the-counter drugs react unfavorably with this drug, consult physician.
   b. Obtain prompt evaluation of any changes or disturbances in vision.

Answer Self-Test Questions--Lesson 10: Section 6--Medications That Affect the Nervous System

LESSON 10
SECTION 6

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #7 THROUGH #13 FOR ADDITIONAL INFORMATION ON PSYCHOTHERAPEUTIC MEDICATIONS, TRANQUILIZERS AND THE NERVOUS SYSTEM

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 10: MEDICATION CLASSIFICATION
SECTION 7. MEDICATIONS THAT AFFECT THE ENDOCRINE SYSTEM

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the endocrine system.
2. Given a specific medication classification, list at least two (2) side effects.
3. State responsibilities, other than observation for side effects, when administering medications for specific classifications.
4. Describe the difference between insulin shock and diabetic coma and your responsibilities for each.

The medication classifications which will be discussed in this lesson are:

- **INSULIN** - Medication by injection, used to treat diabetes mellitus.
- **ORAL HYPOGLYCEMICS** - Oral medications used to treat diabetes mellitus.
- **STEROIDS -** Medications used to decrease inflammation.
- **ORAL CONTRACEPTIVES -** Medications used to prevent pregnancy (birth control) and relieve problems associated with menstruation.

RELATED INFORMATION

Endocrine glands produce chemicals called hormones which enter the bloodstream directly and are quickly carried to all parts of the body. The hormones regulate and control body activities and growth. There are seven endocrine glands, some of which are in pairs.

There is a wide variety of medications which affect the endocrine system. The medications are prepared to duplicate the actions of hormones or to interfere with the hormonal activity. People who have some type of hormonal deficiency may require medication therapy. For example, the child who is born with a deficiency of growth hormones (produced by pituitary) may stay small in stature unless the hormone is replaced.

Medications which duplicate hormone activity may also be given to treat various body disorders. For example, a person who has arthritis may benefit frommedications called steroids. The actions of steroids resemble actions of the hormone, cortisone, which is produced by the pituitary gland.

The following chart (7.1) presents a brief description of some of the gland's activity specific medications, therapeutic use and side effects.

Gland Activity
Chart 7.1

Gland	Hormone Action	Medications	Therapeutic Use	Side Effects
Thyroid	Stimulates the metabolism. Lowers calcium and phospates	Prophylthiouracil ® Tapazole ®	Over active thyroid (Hyperthyroidism)	Weight loss, overactivity
		Thyroid ® Synthroid ®	Underactive thyroid, (hypothyroidism)	Weight gain, underactivity
Parathyroids	Regulates blood calcium level	Calcitonin ® Calcium salts	Muscle weakness	Headache, poor appetite, thirst
Testes	Development of sexual maturity	Testosterone	Immature sexual development, cancer in females.	When given to females may cause masculinization

DIABETES MELLITUS

Diabetes is a **metabolic** disease (condition that interferes with the use of nutrients after digestion). About twenty nine million people in this country are known diabetics. One out of four people are not aware they are diabetic. Eighty-six million people are
pre-diabetic.

Diabetes is a condition characterized by the body's inability to efficiently burn carbohydrates (starches and sugars). If the body does not burn carbohydrates, it is deprived of the energy needed to lead an active life.

In order for the body to burn sugar for energy, insulin must be present. Insulin is a substance which is produced by specialized cells in the pancreas called **the Islets of Langerhans**.

Insulin promotes five (5) bodily functions:

1) Transports sugar into cells
2) Controls the rate of sugar used for energy
3) Stores sugar in the body for use later
4) Assists with storage of fat
5) Stimulates protein tissue growth

When a person does not manufacture enough insulin, they will have symptoms of diabetes. The symptoms may be so gradual that the person may not realize anything is wrong. Occasionally, especially in children, the onset is dramatic. At one extreme the individual may complain of being chronically tired; at the other, the first sign may be a diabetic coma.

Common symptoms of diabetes:

- **Increased Urination***
- **Increased Thirst***
- Feeling very hungry - even though you are eating
- Extreme fatigue
- Blurry vision
- Cuts/bruises that are slow to heal
- Weight loss - even though you are eating more (type 1)
- Tingling, pain, or numbness in the hands/feet (type 2)

*** The most common symptoms are increased thirst and urine output.**

ORAL HYPOGLYCEMICS

Oral hypoglycemics are medications which resemble insulin activity. They are used primarily for adult onset diabetes (Type II). The reactions discussed in relation to insulin therapy are rare with oral hypoglycemics. However, the possibility of reactions does exist and one must always be alert for signs of shock or coma.

Side effects of oral hypoglycemics may include, stomach upset, itching, and hives. As with any side effects, they should be reported and documented.

TABLE 7.2
ORAL HYPOGLYCEMICS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Interactions Food/Drug	Comments
metformin	Glucophage®	Tablets Oral solution	Type II Diabetes/ weight loss	Nausea, vomiting flatulence, headache lack of energy	furosemide, alcohol, steroids Tagamet®	May cause pancreatitis and impair B12 absorption
	Glimepiride ®	Tablets	Type II Diabetes	Hypoglycemia, Headache, nausea	Cymbalta, Crestor diuretics	Do not take if sensitive to other Sulfa meds
Pioglitazone	Actos®	Tablets	Type II Diabetes	Headache, muscle pain, Cold symptoms	Insulin and other oral Hypoglycemic	May increase risk of bladder cancer

Individuals who take insulin or oral hypoglycemics should be instructed that these medications do not cure diabetes mellitus, they only control it. Diabetics should follow a prescribed diet, control their weight, be followed by a physician, and have a form of identification stating they are a diabetic such as a Medical Alert bracelet or necklace.

COMPARISON OF DIABETIC COMA AND INSULIN SHOCK

INSULIN SHOCK (Hypoglycemic reaction)		**DIABETIC COMA** (Hyperglycemic reaction)	
Causes:	too much insulin too little food excessive exercise vomiting	**Causes:**	too little insulin too much food illness-increased demand on body
Onset:	Sudden, within minutes	**Onset:**	slow, hours to develop
Signs:	Skin pale, moist, weak, hungry, nervousness, dizziness, headache, visual changes, alterations in consciousness, fainting, seizures, coma (late stages)	**Signs:**	Skin warm, flushed, dry, eyeball soft (appear sunken), respirations deep, rapid- (Kussmaul Respirations) fruity odor to breath, nausea, vomiting, abdominal pain alteration in level of consciousness, lethargic, coma (late stages)
Blood Sugar :	Low, body lacks sugar	**Blood Sugar:**	High, too much sugar
First aid:	Treat for shock, orange juice, sugar by mouth*, candy under tongue	**First aid:**	immediate transfer to hospital

***Never give anything by mouth unless individual is awake and able to swallow.**

STEROIDS

The adrenal glands secrete the hormones which control inflammation. When irritation or inflammation is present anywhere in the body, there is an increase in the production of these hormones. If the inflammation is very severe, the adrenals may be unable to secrete an adequate supply to control the inflammation. Additional hormones, called **steroids**, may be needed when a person has rheumatoid arthritis, bursitis, allergic reactions and other problems. Steroids will not cure the problem, but merely suppress the symptoms. Upon stopping the medication, the symptoms may once again appear. Steroids are used to treat a wide variety of disease processes and do not necessarily affect only the endocrine system.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING STEROIDS

Steroids decrease inflammation and the body's resistance to infection. Therefore, one of your responsibilities is to be alert to signs of infection. Steroids should not be given to individuals with stomach ulcers, tuberculosis or other severe infections. If such a condition exist, contact nurse. When administering steroids, responsibilities include:

- Observe for signs of infection
- Administer steroid with milk or food
- Report any signs of stomach distress
- Give medication on time

There are a number of possible side effects if the individual is on steroids for a long period of time. Some side effects are:

- Puffy face "moon face"
- Changes in mood
- Muscular weakness
- Easy bruising of skin
- Abnormal hair growth
- Acne

Steroids tend to hold salt and water in the body. Therefore, the "moon face" may be a sign of fluid retention. This medication should not be stopped abruptly but dosage should be tapered. Check with nurse immediately should the individual refuse medication.

TABLE 7.3

ANTI-INFLAMMATORY MEDICATIONS

(Steroids)

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
cortisone acetate	Cordone acetate ®	ointment	arthritis, Bursitis, Skin Conditions, Acne, Muscle weakness	mood changes, abnormal hair growth	high in salt.	medications cause gastric distress. Antacids are sometimes ordered to be given. Also give these medications after meals and with milk. NEVER STOP MEDICATION ABRUPTLY.
hydrocortisone	Cortef ® Cortril ®			"		
prednisone	Deltason ® Meticorten ®		Delayed wound healing			
methyl-prednisolone	Medrol ®	Tablet	Hypertension, Peptic Ulcer			
triamcinolone	Aristocort ® Kenacort ®	Tablet & ointment				

BIRTH CONTROL MEDICATION

There are many different preparations available and each one has specific directions for use. When administering the medication, a major responsibility is to **read the label for directions**. Dangerous side effects to be alerted to are:

Abdominal Pain
Chest Pain
Headache
Eye Problems
Severe Leg Pain

A-C-H-E-S

The word **ACHES** will help you remember these symptoms as each symptom begins with the letters used to spell "aches".

Review Table 7.4 for additional information on birth control pills.

TABLE 7.4

BIRTH CONTROL MEDICATIONS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interaction	Comments
mestranol	Ortho-Novum®	Tablet	Inhibit ovulation by suppressing Estrogen secretion	Approximately 40% of women on These meds have side effects side effects: nausea, vomiting, weight gain, breast fullness, irregular menstruation, depression, vaginitis	Oral contraceptives effectiveness may be diminished when these medications are used: Dilantin Mysolin, INH, PCN Sulfonamides Oral contraceptives decrease effectiveness of: Anticoagulants, Anticonvulsants, Antihypertensives	Oral contraceptives should not be used if a person has: Cardiovascular Problems, cancer Liver Problems Pregnancy Hyper-tension Diabetes Gall Bladder Disease Over age 35 Asthma Seizure Disorder Depression Blood Disorders
medroxyprogesterone acetate	Depo-Provera	Injection	Inhibits ovulation	Nausea, bloating diarrhea, vomiting distention , fluid retention	Alcohol, seizure meds St. John's Wart, sleep meds, HIV meds	

There are numerous types of birth control medications. Always follow the doctor's orders. Individuals may also receive injections of Depo Provera every three months.

Answer Self-Test Question - Lesson 10: Section 7-- Medications That Affect the Endocrine System

LESSON 10
SECTION 7

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #14 FOR STRUCTURE AND FUNCTION OF THE ENDOCRINE SYSTEM

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

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INSERT SELF TEST ANSWERS FOR CLASS REVIEW
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LESSON 10 - SECTION 8
MEDICATION CLASSIFICATION
MEDICATIONS THAT AFFECT THE GASTROINTESTINAL SYSTEM

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the gastrointestinal System.
2. Given a specific medication classification, list at least two (2) side effects.
3. State responsibilities, other than observation for side effects, when administering medications in these classifications.
4. List three (3) common causes of constipation.

The medication classifications which will be discussed in this Section are

- **ANTACIDS** - Medications which are used to neutralize excess stomach acid.
- **EMETICS** - Medications used to cause vomiting.
- **ANTI EMETICS** - Medications which relieve nausea and vomiting.
- **CATHARTICS** - Medications used to relieve constipation.
- **ANTIDIARREHEALS** - Medications used to stop diarrhea.

PROTON PUMP INHIBITORS AND H2 RECEPTOR ANTAGONISTS are two additional medications we will discuss. **They are used in the treatment of Gastroesophageal Reflux Disease (GERD) and ulcers.**

The gastrointestinal system is also called the G.I or digestive tract. It extends from the mouth to the anus and is lined with mucous membrane. The organs of this system change food into simple forms able to pass through the walls of the small intestine into the circulatory system. The circulatory system carries the nutrients to the body. The non-digestible portions of what we eat are moved along the intestines until they are finally excreted from the body as feces. Many organs contribute to the digestive process.

ANTACIDS-- medications used to neutralize excess stomach acid. Hydrochloric acid produced in the stomach is necessary for proper digestion. Ordinarily the stomach lining is resistant to breakdown, but under certain conditions (e.g., excessive or prolonged

secretion of hydrochloric acid during period of worry or stress) a small area of the lining may break down and form a stomach ulcer. Antacids can be used to prevent ulcer formation as well as to treat ulcers and common indigestion referred to as heartburn. Excessive and frequent heartburn may be an indication that the person has **Gastro Esophageal Reflux Disease (GERD).**

Signs and symptoms of excess stomach acid include:

- burning in stomach
- burping
- upset stomach

As you may recall, many medications are irritating to the stomach and the doctor may order an antacid to help reduce stomach irritation. However, it is important to note that antacids may also decrease the absorption of a medication which may change the medication's effectiveness. Do not give water after medication is administered.

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTACIDS

These medications are available in liquid or tablet form. Liquid preparations are generally more effective.

Side effects are minimal, but constipation and/or diarrhea has occurred when antacids are used over an extended period. Responsibilities include giving the medications on time and in proper relationship to meals.

Table 8.1 list specific antacids.

TABLE 8.1
ANTACIDS
(Non-prescription medications)

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
aluminum hydroxide	Amphojel ®	Tablet & Liquid	Treatment and/or prevention of gastric ulcers.	Rare, but may cause constipation	Given between or before meals.	Should only be used when prescribed by a physician.
aluminum hydroxide & magnesium trisilicate	Gelusil ®		Also used for indigestion	"	Antacids may interfere with absorption of other medication.	Tablet preparations are to be chewed.
aluminum magnesium hydroxide	Maalox ®			"	Many antacids contain salt. Individuals on low salt diets should only use low salt antacids.	

Proton Pump Inhibitors (PPIs)

These medications reduce the production of stomach acid. They are used to treat gastroesophageal reflux disease (GERD) and ulcers.

See table 8.2 below for commonly prescribed PPIs

TABLE 8.2

Proton Pump Inhibitors

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
esomeprazole	Nexium ®	Capsule Tablet	Treatment of GERD and gastric ulcers.	Headache, diarrhea, constipation, flatulence, pain	Warfarin, Iron preparations	May be linked to kidney failure. May increase your risk of bone fracture in the hip, wrist, or spine.
pantoprazole	Protonix ®	Tablet Injection, .I.V.	"	"		
hydroxide omeprazole	Prilosec ®	Tablet Capsule		"		

H2 Receptors Antagonist

These medications inhibit histamine at the H2 receptors which leads to a reduction in the secretion of stomach acid. They are used to treat gastric ulcers, gastroesophageal reflux disease (GERD) and gastritis. See table below 8.3

TABLE 8.3

H2 Receptor Antagonist

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
ranitidine	Zantac ®	Tablet, Effervescent Tablet, Granules Injection	"	"	Alcohol	May increase risk of developing pneumonia
hydroxide omeprazole	Prilosec ®	Tablet, Capsule		"		

EMETICS

Emetics are used to cause vomiting and are used primarily as a first aid measure when prompt emptying of the stomach is essential, as with accidental poisoning.

The use of emetics should be avoided in cases of corrosive poisoning since tissue damage of the mouth and throat is increased by the second passage of material over these structures. Most cleaning agents are corrosive and have directions if accidental swallowing happens.

One medication which can be used is **Syrup of Ipecac**. This medication works quickly. Directions for dosage are on the label and should be read very carefully. Many people with children keep Ipecac on hand for emergencies.
Contact Poison Control Center, based on agency policy, should you suspect poisoning before any action is taken.

ANTI EMETICS

These medications relieve nausea and vomiting. Numerous preparations have been used, but ordinarily the most effective treatment must be chosen with due respect to the cause of nausea. Some medications previously discussed in the respiratory and nervous system sections may be used as anti-emetics.

Some antihistamines, such as Phenergan and Dramamine are also used as anti-emetics.

Compazine which is a mild tranquilizer is also used as an anti-emetic. In general, side effects of anti-emetics are:

- drowsiness
- dry mouth

Nausea and vomiting may also be treated with **household remedies, such as coca cola and warm tea.**

CATHARTICS AND LAXATIVES

Cathartics and laxatives are used interchangeably. **Laxatives are milder, cathartics stronger.** These medications are used in treatment of constipation, which is the condition that occurs when fecal material remains too long in the large intestine. The feces becomes hard and causes distention in the lower bowel.

Constipation usually results from one or more of the following causes:

- improper diet
- poor fluid intake
- tension and worry
- lack of exercise

In most cases, the correction of one or more of these simple health rules will take care of the constipation problem. In other cases, however, cathartics may be ordered. It is important to remember that there is no set time limit between bowel movements.

CAUTION AND/OR RESPONSIBILITIES WHEN ADMINISTERING CATHARTICS AND LAXATIVES

These medications should never be given if an individual is complaining of abdominal pain, nausea or vomiting. These signs could indicate more serious problems than constipation, such as appendicitis.

Cathartics and laxatives may cause the following side effects:

- abdominal cramps
- nausea
- abdominal pain

Review Table 8.2 on cathartics and laxatives.

TABLE 8.2
CATHARTICS & LAXATIVES
(All are non-prescription medications)

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
dioctyln sodium	Dialose ® Colace ®	Tablet	Constipation	Rare, with over use could cause diarrhea	May interfere with adequate nutrition.	Takes 8-10 hours to work.
dioctyl calcium	Surfax ®				When individuals are taking any CNS depressants, they may also be ordered to take Dialose or Colace which reduces constipation due to depressants.	
psyllium hydrophilic	Metamucil ®	Granules				
bisacodyl	Ducolax ®	Tablets & Suppositories		Abdominal cramps		Suppositories work faster than tablets.

ANTIDIARRHEALS

Antidiarrheals are used to treat diarrhea, which is a symptom of a disorder of the bowel associated with rapid passage of feces.

Some causes of diarrhea are:

- contaminated or partially digested food; intestinal infection
- nervous disorder
- circulatory disturbances
- certain allergic disorders

In view of these numerous causes, the treatment of diarrhea varies greatly. In some cases, a cathartic that brings about emptying the entire contents of the bowel may be the means to relieve diarrhea because it removes the irritating material.

Simple diarrhea is most frequently due to:

- poor eating habits
- emotional stress

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING ANTIDIARRHEALS

The best situation is to try and prevent or rectify the cause of diarrhea. However, medications treatment may be necessary. Most of the antidiarrheals are relatively non-toxic to organs other than the intestines because they are not absorbed into the general circulation. The most frequent side effect produced by antidiarrheal medications is constipation.

Antidiarrheals should not be administered for more than a few days. Many of these medications are non-prescription.

Review Table 8.3.

TABLE 8.3

ANTIDIARRHEAL AGENTS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/Medication Interactions	Comments
diphenoxylate	Lomotil ®	Tablet & liquids	Treat diarrhea	Fatigue, Vertigo	Increases action of CNS depressants.	If over used may cause constipation.
bismuth subsalicylate	Pepto-Bismol®	Liquids				
kaolin & pectin	Kaopectate® Par-gel		"			
kaolin, pectin, mixtures	Donnagel ®				"	

Answer Self-Test Questions - Lesson 10: Section 8 -- Medications that Affect the Gastrointestinal System

LESSON 10
SECTION 8

INSTRUCTOR'S NOTE

SEE SUPPLEMENT # 16 FOR STRUCTURE, FUNCTION AND DISORDERS OF THE GASTROINTESTINAL SYSTEM

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 10: MEDICATION CLASSIFICATIONS

SECTION 9
MEDICATIONS THAT AFFECT THE SKIN AND MUCOUS MEMBRANES

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the skin and mucous membranes.

2. Given a specific medication classification, list at least one (1) side effect.

3. State responsibilities when administering various topical medications.

RELATED INFORMATION

The skin tells us much about the general health of the body. A fever may be indicted by unusual redness or flushing of the skin. Pallor (less color than normal) is a sign associated with many conditions. The oxygen content of the blood can be noted quickly by the color of the skin. When the oxygen content is very low, the blood is darker and the skin appears bluish (cyanotic).

STRUCTURE AND FUNCTION

The skin is one of the most important organs in the body. The integumentary system includes the skin and accessory structures, the hair, nails, nerves, and the sweat and oil glands. The top layer is constantly being washed or worn away as it is renewed from the lower layer.

MUCOUS MEMBRANES

The mucous membranes are continuous with the skin and line all body openings. The mucous membranes secrete mucous, which tends to cover the surface of the membranes, protecting them from foreign bodies and waste materials.

Medications applied to the skin serve many functions and may be intended either for a local effect or for a general effect following absorption through the skin and/or mucous membrane. Medications absorb rapidly across the mucous membrane.

The medications may conveniently be divided into the following classifications. Medication described in each classification are available without a prescription.

EMOLLIENTS

Oily substance applied to soothe the skin or mucous membranes. The oily layer protects the skin from irritants and makes the skin softer due to penetration of the emollient into the surface layer. Some commonly used emollients are **Vaseline ®, various lotions, and cold creams.**

DEMULCENTS. These protective agents are used primarily to alleviate irritation, particularly of mucous membranes. They are generally applied to the surface in a thick (viscid) preparation. Demulcents may be incorporated in lozenges to soothe oral and throat mucous membranes. A common demulcent base is **glycerin** which is found in many external lotions and is a base in some cough syrups and drops.

ASTRINGENTS. Astringents are medications which have a tendency to lessen secretions and stop minor bleeding. They shrink swollen and inflamed tissues. **Witch Hazel and rubbing alcohol** are two common astringents and are used as a base in many skin preparations.

COUNTER IRRITANTS. Counter irritants are medications which are used to irritate unbroken skin areas in order to relieve pain in deeper tissues. Common examples are **Ben-Gay ®**, and **Oil of Wintergreen.**

ANTIPRURITICS. Antipruritics are agents that relieve itching. Various preparations are used, but the cause of itching determines the medication to be used. For example, the itching caused by poison ivy can be relieved by **Calamine Lotion ®.**

LOCAL ANESTHETICS. Agents which numb a specific area. Many ointments contain local anesthetics and are applied topically for minor conditions, such as: sunburn, insect bites, as well as for more serious conditions, such as burns and hemorrhoids. Some examples are**: Surfacaine ®, Benzocaine ®** and **Nupercaine ®.**

ANTISEPTICS. Agents that destroy or prevent the growth of bacteria on the skin. Some antiseptics may be used to treat a skin infection and/or prevent an infection from occurring.

CAUTION AND/OR RESPONSIBILITIES WHEN APPLYING SKIN PREPARATIONS

Most skin preparations can be obtained without a prescription, but this does not negate the seriousness of these preparations. **Always read the labels for directions**. The major caution is that they are external medications and should never be taken internally. Most of the labels will include directions in case of accidental swallowing. In addition, you should be aware of the poison control number in your area.

Chart 9.1

ANTISEPTICS

Generic Name	Trade Name	Preparation	Therapeutic Use	Side Effects	Food/ Medication Interactions	Comments
bacitracin	Bacitracin ®	Antibiotic ointment	Infections of the skin	Rare, may include skin rash, redness and pruritus		Should never be taken by mouth.
gentamicin	Garamycin®	"	"	"		
benzoin tincture	Benzoin®	Ointment & Liquid	Promotes healing			
boric acid	Boric Acid	Ointment, solution & powder	Skin antiseptic			May be used to irrigate eyes
hydrogen peroxide	Hydrogen Peroxide	Solution	Skin antiseptic			
iodine tincture	Iodine	Solution	Skin antiseptic			
providone-iodine	Betadine ®	Ointment & concentrate Liquid soap	Skin antiseptic			Ointment will stain clothes
phisoderm	Phisoderm		Skin antiseptic			

Answer Self-Test Questions - Lesson 10: Section 9 -- Medications that Affect the Skin and Mucous Membranes

LESSON 10

SECTION 9

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #17 FOR FUNCTIONS OF THE SKIN

RECOMMENDATIONS:

ONLY BLANK SELF TEST QUESTIONS ARE IN TRAINEE'S MANUAL

COMPLETION OF THE SELF TEST SHOULD BE GIVEN AS A HOMEWORK ASSIGNMENT

THE TEST WILL BE REVIEWED AT THE BEGINNING OF THE NEXT CLASS AND CORRECT ANSWERS GIVEN AT THAT TIME

INSERT SELF TEST ANSWERS FOR CLASS REVIEW
THE ANSWERS ARE FOUND AT THE END OF THE INSTRUCTOR'S MANUAL

LESSON 10 SECTION 10

MEDICATION CLASSIFICATIONS

MEDICATIONS THAT AFFECT THE EYE AND EAR

OBJECTIVES

At the completion of this lesson, you will be expected to:

1. Define the classifications of medications which affect the eyes.
2. Define the classifications of medications which affect the ears
3. Discuss procedure for administering eye drops.
4. Describe procedure for administering ear drops to an adult.

THE EYE

A number of medications are instilled in the eye via ointments and drops. There are also some medications used to irrigate the eyes in case of infection.

Proparacine (Ophytaine ®) is used for relief of pain. It is available in eye drops only.

Miotics are a group of medications which constrict the pupil. Miotics are used in the treatment of glaucoma (common eye problem in the elderly). Most miotics are administered as eye drops.

- neostigmine oromide Prostigmin ® eye drops
- carbachol Doryl ® eye drops
- physostigmine Eserine ® eye drops & tablets

OPHTHALMIC OINTMENTS

Many of the antibiotics are prepared as ophthalmic ointments. e.g., Bacitracin ®, Aureomycin® and Neosporin. ®

The major responsibilities are to be sure you are administering the drops to the designated eye and maintain clean techniques (washing your hands before and after administering any medication).

OS = Left Eye OD = Right Eye OU = Both Eyes

A. To instill ointment, pull down the lower eyelid as the individual looks upward. Squeeze the ointment **into** the lower eyelid. Avoid touching the tube to the eye or lid.

B. The individual should tilt face upward to receive an eye drop. Use an absorbent tissue to prevent excess drops and tears from flowing down the individual's face.

Procedure for Instilling Eye Drops and Ointments

1. Wash your hands and/or have the individual wash their hands.

2. Place the individuals head on a suitable support, such as a pillow. Direct his face toward the ceiling.

3. Instruct the individual to fix his gaze on a point above his head.

4. If secretions are present, remove them by gently wiping the eyelid from the inner corner to the outer corner.

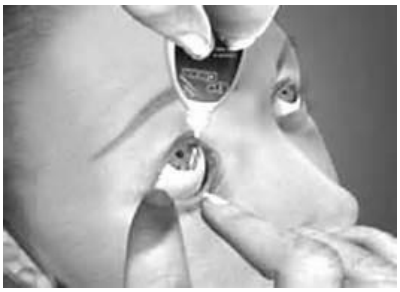
5. Apply gentle traction to the lid lashes at the bony rim of the eye; do not apply pressure to the eyeball.

6. Approach the eye from below with the dropper or ointment tube, outside of the individual's field of vision; do not touch the eye with the dropper or tube.

7. **FOR EYE DROPS**: Always warm drops to room temperature. (You may warm drops by holding bottle between your hands and rolling bottle back and forth) Always hold the dropper with the tip straight down. Release the prescribed number of drops into the **conjunctival sac**; do not allow drops to fall more than 1 inch. Avoid letting the drops fall onto the eyeball as this is painful.

Apply gentle pressure inward and downward against the bones of the nose for about 2 minutes. This prevents the medication from entering the lacrimal (tear) duct and being absorbed through the nasal cavity.

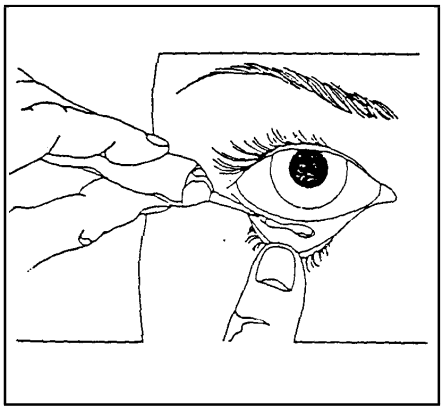
Discard any drops left in a dropper.
If the dropper touches the eye, wash it with soap and water



FOR EYE OINTMENT: Squeeze a small amount of medication along the **INSIDE** of the lower eyelid. Instruct the individual to keep eye closed for 1 - 2 minutes to allow the medicine to spread and be absorbed.

8. Wash hands.

9. Record on the medication record.



*Ointments are applied from **INNER** to **OUTER** canthus

THE EAR

Just as the eye is sensitive to light, the ear is sensitive to sound. The ear has three parts: the outer ear, the middle ear and the inner ear.

Since it is impossible to reach the inner ear due to the eardrum, conditions such as **otitis media** (infection in the inner ear) must be treated by oral antibiotics. However, the pain caused by external and middle ear infections may be treated with medications administered as ear drops. **Dibucaine ®** has an anesthetic action and is used to relieve ear pain. Some mild oral analgesics may also be ordered.

Nausea and vomiting are associated with problems in the inner ear. As you recall, this area helps us maintain a sense of balance. It is thought that the reason people develop motion sickness is due to a disturbance in the middle ear. Anti-emetics previously discussed, such as **Bonine ®** and **Dramamine®** may be used.

The primary responsibilities when working with ear drops are:

- Maintain clean technique.
- Warm ear drops to body temperature.
- Avoid touching the ear with the dropper.

Following the procedure will assure proper installation of ear drops.

Administration of Ear Drops

1. Allow drops to warm to body temperature by holding the bottle in your hand for a few minutes. Hold the bottle yourself it is unsafe for the individual to do so.

2. Have the individual lie on his side with the ear to be treated upward.

3. Shake the medicine, if required, and draw up into the dropper.

4. To allow the drops to run in:

a. **Adults** - pull the pinna (earlobe) **back and up** and allow the drops to fall in the external canal.

b. **Children** (under the age of 3) - pull the pinna (earlobe) **back and down** and allow the drops to fall in the external canal.

5. Do not insert the dropper into the ear and do not allow the dropper to come into contact with any portion of the ear.

6. Have the individual remain on his side for a few minutes to allow the medication to reach the eardrum.

7. Insert a soft cotton plug if ordered. Never pack the plug tightly into the ear.

   Caution: Monitor carefully so that individual does not tamper with cotton in ear.

Child

Adult

Answer Self-Test Questions - Lesson 10: Section 10 -- Medications that Affect the Eye and Ear

LESSON 10
SECTION 10

INSTRUCTOR'S NOTE

SEE SUPPLEMENT #18 AND #19 FOR MORE INFORMATION ON THE EYE AND EAR.

RECOMMENDATIONS:

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CERTIFIED MEDICATION ATTENDANT COURSE

PART II

GLOSSARY

REVISED – 1998
REVISED FEBRUARY - 2018

GLOSSARY

A

Abdominal distention--Enlarged abdomen.

Absorption--The taking up of fluids or other substances by the skin, mucous surfaces, or absorbent vessels.

Acetylcholine--Chemical present in many organs and tissues of the body that has important physiological functions, i.e., transmission of a nerve impulse across a synapse - neurotransmitter.

Acne--A disorder of the hair follicles and oil-producing glands of the skin.

Adverse effect--Side effect of a medication; undesirable reaction.

Affective psychosis--Psychotic reaction in which a person exhibits wide swings in emotional feelings.

AIDS--Acquired Immune Deficiency Syndrome is a disease that affects the body's ability to fight infection. AIDS is spread through the body fluids of an infected person by sexual intercourse (vaginal, anal, oral), sharing IV needles, infected mothers passing the disease to the fetus, transfusion of blood or blood products.

Akathisia--Motor restlessness-inability to sit or lie down quietly. Continuous movement of the hands, mouth, picking at self, rocking in a chair, and drumming fingers, pacing the floor, rocking when standing.

Akinesia--Fatigue and weakness of the arms and legs. Apathetic, disinclined to initiate or to expend energy to complete a task.

Alcohol--Any beverage that contains ethyl alcohol (ethanol), the intoxicating sedative-hypnotic in fermented and distilled liquors. A CNS depressant, depending on the amount consumed, alcohol acts as an analgesic, tranquilizer, sedative-hypnotic, soporific, intoxicant, anesthetic, or narcotic.

Allergen--A substance that causes a hypersensitive reaction (an allergy).

Allergic effect--Sensitivity to any substance contacted by touch, inhalation, ingestion, or injections such as poison ivy, pollen, insect bites, foods, or medications; causes sneezing, itching, swelling, difficulty in breathing.

Anaphylactic reaction--Life-threatening allergic reaction caused by an allergen. Characterized by respiratory problems, fainting, itching, and welts on the skin.

Androgens--Male hormones.

Anemia--A condition in which the blood is deficient either in quantity or in quality.

Anesthetics--Medications that cause a loss of sensation.

Angina--Any disease in which spasmodic and painful suffocation or spasms occur.

Anorexia--Lack or loss of appetite for foods.

Antacid--Given to neutralize excessive acid in stomach. (Example: Maalox).

Antagonistic effect--An agent, such as a remedy or a drug, which tends to nullify the action of another agent.

Anthelmintic--Given to kill worms in gastrointestinal tract. (Example: Povan).

Antianxiety drugs--Minor tranquilizers, also used for prevention and treatment of convulsions.

Antiasthmatic and Bronchodilator--Given for asthma and lung congestion (example: Tedral, Isuprel)

Antibiotics--Substances produced by certain fungi, bacteria, and other organisms that are effective in inhibiting the growth of or destroying microorganisms--e.g. penicillin.

Antibiotic and Antibacterial--Given to control infections (example: Penicillin).

Anticonvulsants--Medications used to stop or prevent convulsions or seizures.

Antidepressants--Alleviate the symptoms of depression.

Antidiabetic agent--Given for treatment of diabetes (example: Metformin).

Antidiarrheal preparation--Given to control diarrhea (Example: Kaopectate, Paregoric).

Antiemetic--Drugs used to treat and prevent nausea and vomiting.

Antihistamines--Drugs that are used to reduce the effects associated with histamine production in allergies and colds.

Anti-inflammatory--Medications used to reduce swelling, pain, and tenderness caused by inflammation.

Atherosclerosis--A deposit or degenerative accumulation of cholesterol and lipoid material in the arteries.

Antipsychotics--Major tranquilizers, used to control symptoms of psychoses and organic brain syndrome; can change behavior but does not cure disease.

Antipyretic--Given to lower a temperature that is above normal (example: Aspirin, Tylenol).

Antiseptic--A substance that inhibits the growth of germs. Antiseptic solutions are used as cleaning agents to prevent the spread of infection.

Antitussives--Medications that relieve coughing.

Anuria--No urinary output.

Anxiety neurosis--Frequent feeling of uneasiness or fear with no apparent cause - associated with somatic symptoms and without organic disease.

Apathetic--Lack of concern or caring.

Aphasia--Defect or loss of the power of expression (speech, writing, or signs), or of comprehending spoken or written language, due to injury or disease of the brain centers.

Arrhythmia--A change in the time or force of the rhythm of the heartbeat.

Arteriosclerosis--Thickening and hardening of arterial walls caused by calcium build-up that interferes with blood circulation.

Arthritis--Inflammation of a joint.

Aseptic--Free of infection. Often refers to proper handwashing and other measures taken to prevent the spread of infection.

Aspiration--The taking of foreign matter (such as food) into the lungs during the respiratory cycle.

Assault and battery--The threat to use force upon another person and the carrying out of the threat.

Asthma--A chronic respiratory disease, often from allergies, and accompanied by labored breathing, chest constriction, and coughing.

Athlete's foot--A contagious fungus infection of the feet.

Atomizer--A device used to deliver a fine spray of medicine.

Atypical Antipsychotic - also known as second generation antipsychotics (SGAs)) are a group of **antipsychotic drugs** (antipsychotic drugs in general are also known as major tranquilizers).

Auditory canal--Tubular passages or ducts that assist in hearing or in the sense of hearing.

Autonomic Nervous System (ANS)--The division of the vertebrate nervous system that regulates involuntary action (intestines, heart, and glands) and makes up the sympathetic and parasympathetic nervous systems.

B

Blood pressure--The force exerted by the heart against the arterial walls when the heart contracts (systolic) or relaxes (diastolic).

Bradycardia--Slowness of the heartbeat; less than 50 beats per minute.

Back sinus--An air cavity in one of the cranial bones that connects with the nose.

Bronchitis--Inflammation or swelling of the bronchial tubes.

Bruise--Black and blue area caused by an injury to the surface of the skin.

Buccal--Medication is placed between the teeth and the mucous membrane of the cheek.

Bulbourethral glands--Small structures about halfway between the bladder and the end of the penis that secrete sperm protectant.

Burns--Injury to the skin by strong chemicals, electricity, high temperatures, or radiation.

Bursitis--Inflammation of a bursa, usually at the shoulder, elbow, or knee joints.

C

Caffeine--A white, bitter, crystalline substance that has stimulant effects and constricts blood vessels in the brain.

Caffeinism--Excessive ingestion of large amounts of caffeine, usually in coffee or tea, for prolonged periods.

Capsules--Medication in small cylinder-like containers.

Carbohydrates--Sugars, starches, and cellulose.

Cardiotonics--Medications used to strengthen the activities of the heart.

Cataracts--The lens or capsule of the eye loses its transparency or translucency causing partial or total blindness.

Chills--Shivering or shaking.

Chronic kidney failure--Reduction in kidney function.

Chronic Obstructive Lung Disease (COLD)--Chronic airway obstruction.

Cirrhosis--Chronic liver damage caused by previous disease.

Cocaine--From the coca plant, a short-acting but very powerful stimulant. Heavy usage can lead to `paranoid syndrome" in which the user is highly suspicious or nervous.

Code of Ethics--A voluntary set of rules that influence relationships between people.

Comatose--Cannot be aroused; unconsciousness.

Common cold--Communicable viral disease.

Competent--Well-qualified or capable.

Conjunctival sac--Mucous membrane that lines the inner surface of the lower eyelid.

Conjunctivitis--Inflammation of the mucus membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball.

Constipation--Difficult, incomplete or infrequent bowel movements.

Contaminated--When something is impure or dirty, when it has germs or bacteria on it that may cause disease or infection.

Contracture--Permanent shortening of a muscle that produces a deformity.

Convulsions--Abnormal, uncontrolled movement of all parts of the body.

Creams--Medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments.

Cumulative dose--If the body does not use all of drug does the drug may remain in the body and build up with each new dose; when the drug builds up it can lead to harmful and dangerous side effects that must be watched for. To help prevent this the resident should be given many liquids to drink. Also the regularity of bowel movements should be checked; if the person is constipated the drug may not be passing out the body like it should.

Cumulative effect--Build-up of medication in the body due to slow excretion that could lead to a toxic effect.

Cyanosis--A bluish discoloration of the skin caused by the lack of oxygen in the blood.

Cystitis--Inflammation of the urinary bladder.

D

Daydream--A dreamlike musing or fantasy while awake.

Decubitus ulcer--An open wound that is caused by the pressure of lying or sitting in one position for a long period of time. Also called a pressure sore or bedsore.

Dehydration--Excessive loss of water from the body.

Depressants--Medications used to decrease mental and physical activity.

Depression--A lowering or decrease of activity functioning with the following symptoms: lack of interest in life, insomnia, loss of appetite due to inability to cope with one's life.

Dermis--A layer of skin.

Desired effects--The normal effect of a drug; the reason for which the drug was given.

Diabetes--A disorder of carbohydrates, protein, and fat metabolism that prevents the body from properly converting foods into energy for carrying out vital functions.

Diarrhea--Frequent, loose bowel movements.

Disinfectant--Substance used to destroy microorganisms.

Diuretic--Given to rid the body of excess fluid by urination (Example: Diuril, Dyazide).

Dopamine--Chemical present in many parts of the body that has important physiological functions, i.e., transmission of a nerve impulse across of synapse - neurotransmitter. Dopamine is a product of norepinephrine.

Drug interaction--The action of one medication interferes with the action of another; the effects of two or more medications.

Duodenum--The first portion of the small intestine.

Duty of Care--Performance of services that meet common standards.

Dyskinesia--Abnormal movements of the body such as a dramatic onset of spasms, oculogyric crisis (begins with a stare, rolling of eyes, tilting of head, facial expressions), protrusion of the tongue, stiff neck, inability to swallow, stammering speech (dysarthria), labored breathing, and involuntary muscle movements.

Dyspepsia--Indigestion.

Dysphagia--Difficulty in swallowing.

Dyspnea--Difficulty in breathing.

Dysuria--Painful or difficult urination.

E

Eczema--A noncontagious inflammation of the skin, marked mainly by redness, itching, and the outbreak of lesions that discharge fluid and become encrusted and scaly.

Edema--Swelling caused by large amounts of fluid in the tissues.

Emaciated--Thin, underweight.

Emesis--Vomiting.

Emphysema--A condition of the lungs resulting in labored breathing and increased susceptibility to infection.

Enema--Used to cleanse the lower bowel, relieve constipation; some types relieve gas or act as an emollient (soothing irritated tissues of the colon), and administer medication.

Epidermis--The outer protective layer of the skin.

Epididymis--Coiled structure that stores and matures sperm cells.

Epilepsy--Chronic disorder characterized by recurring seizures that last from a few seconds to several minutes and require specific medication for prevention and control.

Estrogen--Female hormones.

Excoriation--A scratch on the skin, usually covered with a scab.

Excretion--Eliminating waste, such as sweat, urine, or feces from the body.

Expectorant--Medication that assists in liquefying the mucus to make it easier to cough up.

Extrapyramidal--Outside of the pyramidal tracts.

F

Fecal impaction--A collection of `putty-like' or hardened feces in the rectum.

Feces--Waste excreted from the bowels

Fever--Body temperature above normal.

Fibrillation--Very rapid irregular contractions of the muscle fibers of the heart resulting in the heartbeat and the pulse not beating simultaneously.

Flushing--Redness of the skin.

Flutter--Very rapid rhythmic contractions of the heart muscles.

Fracture--Broken bone.

Friction--The rubbing of one thing against another. For example, when you wash your hands aseptically you create friction by rubbing them together in a brisk, back-and-forth motion.

G

Gallbladder--Sac in which the bile from the liver is stored.

General effects or Systemic effects--Caused by drugs that circulate in the bloodstream through the entire system and effect the whole body.

Generic--Commonly available drugs that are not protected by trademark.

H

H_2 antagonists- also called **H_2 blockers**, are a class of medications that block the action of histamine at the histamine H_2 receptors of the parietal cells in the stomach. This decreases the production of stomach acid. They are used to treat peptic ulcer disease and gastroesophageal reflux disease.

Hematemesis--Vomiting blood.

Hemiplegia--Paralysis on only one side of the body.

Hepatitis--Inflammation of the liver.

Histamine--A white crystalline compound found in plant and animal tissue. It is a stimulator of gastric secretion, and is used medicinally as a vasodilator to increase the blood supply to the brain.

Hives--Red, swollen, itchy areas.

Hormone--A chemical substance secreted into the body fluids by an endocrine gland, which has a specific effect on the activities of other organs.

Hyperglycemia--An abnormally high level of sugar in the blood.

Hypertension--High blood pressure.

Hypnotics--Medications used to produce sleep.

Hypoglycemia--An abnormally low level of sugar in the blood.

Hypokalemia--An abnormally low level of potassium in the blood.

Hypotension--Low blood pressure.

I

Idiosyncrasy--Unusual or unexpected effects from a medication.

Immunity--Resistance of the body to a particular disease.

Incident report--Written account of an error in documentation or medication administration, injury to an individual, or injury to a staff member or visitor.

Incontinence--Loss of bladder and/or bowel control.

Infection--Activity of disease-producing bacteria, virus, or fungus in the body and the reaction of the body to the microorganisms and their products.

Infectious hepatitis--Contagious infection of the liver.

Inflammation--Localized heat, redness, swelling, and pain as a result of irritation, injury, or infection.

Influenza--An acute highly contagious infection. Flu.

Inhalation--To draw in by breathing.

Inhaler--A device used to administer medication by the act of breathing in.

Initial or Attack Dose of Medication--This is the first main dose of a drug given to the person; this dose may be larger than the ones that follow it.

Inner canthus--The corner of the eyelid closest to the nose.

Insertion--Medication is placed into a specific area of the body, usually with the fingers.

Insomnia--Inability to sleep.

Instillation--The process of administering a liquid - usually drop by drop.

Insulin--A preparation derived from the pancreas of the pig, ox, or developed from semi-synthetic human insulin that is used in the medical treatment of diabetes.

Iron deficiency anemia--Low iron levels in the blood due to inadequate diet or blood loss.

Ischemia--Temporary decrease in the amount of blood being delivered to a part of the body; mainly due to the contraction of the blood vessel.

J

Jaundice--Yellowish discoloration of tissues and body fluids with bile pigment caused by any of several pathological conditions in which normal processing of bile is interrupted.

K

Ketoacidosis--Result of fat being used for energy resulting in an acidotic state. Form of acidosis in which sodium, potassium, and ketone bodies are lost in the urine; found in individuals who have diabetes mellitus.

L

Labia--Folds of skin or mucus membrane that surround the vagina.

Laceration--A wound made by tearing.

Laxative--Given to cause a bowel movement (example: Ex-Lax®,

Senokot®).

Lethargic--Not alert, drifts off into sleep, drowsy, sluggish.

Libel--Any written statement that damages a person's character.

Liniment--A solution used as a vehicle to distribute medication.

Liver--organ of the body that secretes bile and causes changes in many of the substances in the blood.

Local action--Medication acting at the site of administration, on the skin or mucous membrane.

Lotions--Watery preparations that contain medication; are to be patted on, not rubbed in.

M

Maintenance dose of medication--The doses following the initial dose.

Malpractice--Improper, injurious or negligent professional treatment or care of an individual.

Marijuana--The dried leaves and flowering tops of the pistillate hemp plant that yield THC and is usually smoked.

Medical asepsis--Cleaning measures taken to prevent the spread of infection in a doctor's office, hospital, or long-term care agency.

Medication--Any substance used in the diagnosis or treatment of disease or the relief of pain or other symptoms.

Medicine dropper--A small glass or plastic tube usually capped by a hollow rubber bulb at one end that is used for measuring and administering medication.

Metabolism--The physical and chemical processes involved in the maintenance of life.

Miotics--An agent that causes contraction of the pupil of the eye.

Mons pubis--Soft fatty tissue covering the joint of the pubic bones.

Mood stabilizers--Used to stabilize mood swings (elation or depression).

Mucous membrane--The inner lining of the mouth and labia minora.

Muscle relaxant--Medication that helps muscle tissue relax and be less tense and painful.

Muscle spasm--Condition of the muscles in which there is a sudden and violent tightening of the muscle.

Muscle strain--Condition in which the muscle is stretched.

Mydriatics--A drug that produces dilation of the pupils.

N

Nausea--Feeling the need to vomit.

Negligence--Omission or neglect of any reasonable precaution, care, or action.

Neuron--A nerve cell.

Neurotransmitters--Chemical substances that assist an electrical nerve impulse to travel across the synapse.

Nonsteroidal anti-inflammatory agents (NSAIA)--Medications used to reduce symptoms of inflammation.

Norepinephrine--Chemical present in the adrenal glands.

O

Obese--Extremely overweight.

Ointment--Mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature.

Oliguria--Secretion of a diminished amount of urine in relation to the fluid intake.

Ophthalmic medication--Medication that is used exclusively in the eyes.

Oral--By mouth.

Oral-hypoglycemics--Stimulate specialized cells in the pancreas to produce insulin.

Orthopnea--Inability to breathe except in an upright position.

Osteoporosis--Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Otic Preparation--Any medication placed in the ears, usually to clean the ear or to treat ear infections (example: Cortisporin Otic Drops)

Outer canthus--The outer corner of the eyelid.

P

Pallor---Paleness of the skin.

Pancreas--A large gland that secretes digestive enzymes and the hormone insulin.

Paranoia--Slower, progressive psychosis characterized by suspicions or ambition and delusions of persecution or of grandeur.

Paraplegia--Paralysis of the legs and lower part of the body; caused by disease or injury to the spine.

Parenteral--Introducing medication or food into the body by injection.

Parkinsonism--Varying degrees of loss of associated movements--rigidity of limbs, tremors, gait and posture disturbances, drooling, and skin changes.

Pediculosis--A contagious infestation of the hair, body, and pubic area caused by lice.

Penis--Cylinder-shaped vascular structure on the outside of the male body. Houses the external portion of the urethra, and is the male organ of copulation.

Perineal--The area between the thighs that includes the anus and vulva in the female and the anus and penis in the male.

Pernicious anemia--Vitamin b_{12} deficiency.

Perineum--The area between the anus and the posterior part of the external genitalia.

Petechia--A small spot on the body surface caused by a minute hemorrhage.

Phlebitis--Inflammation of a vein.

Phobia--A persistent, illogical, or intense fear of something.

Physical dependency--State in which withdrawal of a drug produces specific symptoms such as muscle cramps, vomiting, or tremors.

Pneumonia--An acute or chronic disease marked by inflammation and infection in the lungs.

Polyuria--Large amounts of urinary output.

Powder--Solid medication that has been ground into fine particles and used in that form.

Primary effect--Reason a medication was ordered.

Prostate--Doughnut-shaped gland, in the male, composed of muscular and glandular tissue that surrounds the urethra at the bladder and adds alkaline substance to sperm.

Proton Pump Inhibitors - a group of drugs whose main action is a pronounced and long-lasting reduction of gastric acid production. Within the class of medications, there is no clear evidence that one agent works better than another. They are the most potent inhibitors of acid secretion available

Psoriasis--A chronic, noncontagious disease characterized by inflammation, reddened lesions, and white scaly patches.

Psychological dependency--An emotional need or craving for a drug.

Psychosis--any severe mental disorder, with or without organic damage, characterized by deterioration of normal intellectual and social functioning and by partial or complete withdrawal from reality.

Psychotropics--Drugs that affect moods.

Pulse--Rhythmical throbbing of the arteries caused by the heartbeat.

Pyelonephritis--Inflammation of both the kidney and the lining of the pelvis.

Pyorrhea--Inflammation of the gum and tooth sockets leading to loosening of the teeth.

R

Range of motion--Moving a joint its full range in an attempt to prevent muscle contractions and joint deformity.

Rash--A skin eruption, usually reddened and raised.

Rationalization--To devise self-satisfying but incorrect reasons for one's behavior.

Reasonable care--Doing only those things that you have been trained to do; acting as others would act in the same or similar situations.

Rectum--The lowest or last, segment of the large intestine that ends at the anus.

Regression--Returning to an earlier less mature behavior pattern.

Respiration--Process of breathing.

Rhinitis--Inflammation and swelling of the lining of the nose.

Rubella--Known as German Measles; an acute infectious disease spread by droplet infection.

S

Scabies--A contagious skin condition caused by mites that burrow under the skin; characterized by tiny, thread-like blisters that itch.

Schizophrenia--Sever emotional disorder, characterized by misinterpretation, retreat from reality, experiences of delirium, hallucination; individual loses ability to tell fact from

imagination.

Sclera--White tissue covering all of the eyeball except the cornea.

Scrotum--Sac-like structure, located behind the penis, which holds the testicles.

Secondary effect--Additional effect of the medication besides the one for which it was intended.

Sedative--A drug having a calming effect, relieves anxiety and tension, being replaced by tranquilizer (less likely to cause drowsiness or dependency).

Sediment--Solid particles in the urine.

Seminal vesicles--Pouch-like structures, behind the bladder, which store sperm.

Sensory system--Receives outside sensations and relates these sensations to the proper nerves.

Side effects--Effects other than the effects for which a drug was given. These effects can be normal and expected or they can be abnormal and dangerous. Side effects can range from drowsiness to rashes, swelling, and vomiting.

Sinus--Air cavities in the skull that open into the nasal cavities.

Slander--A malicious statement of report.

Somnolence--Drowsiness, sleepiness.

Sprain--Wrenching of a joint, with partial rupture of its ligaments. More severe than a strain and requires longer recuperation.

Standard of Care--A description of conduct that illustrates what a reasonably prudent person would have done, or would not have done, under similar circumstances.

Sterile--When it has no germs or bacteria on it.

Stimulant--An agent that promotes the activity of a body system of function (example: amphetamines and caffeine).

Strep throat--A severely inflamed and infected throat.

Stress--Circumstances, physical or mental, that cause strain or tension.

Suppositories--a solid medication designed to melt within a body cavity other than the mouth.

Syncope--A brief loss of consciousness.

Systemic action/infection--Affecting the entire body.

T

Tablet--Dried, powdered medication pressed into shape.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 per minute.

Tardive Dyskinesia--Involuntary, repetitive useless movements such as spasms, oculogyric crisis, protrusion of the tongue, stiff neck, and inability to swallow that occur almost continuously during waking hours but cease during sleep.

Testicles--Also called testes, produces testosterone and sperm cells for reproduction.

Tetanus--Know as Lockjaw; an acute infectious disease often caused by puncture wounds. Often fatal.

Thrombophlebitis--Inflammation of a vein that results in the formation of a clot.

Tic Douloureux--Spasm of a nerve in the face.

Tinnitus--A sound in the ears, such as buzzing, ringing, or whistling.

Tolerance--The ability to withstand the effects of a drug, after single or multiple administrations, without showing adverse effects.

Topical--pertaining to a particular spot; local.

Toxic effect--Effects of medications that become poisonous to the body.

Trade name--The name, given to a manufacturer, by which a medication is known.

Tranquilizers--A drug that produces a calming effect, relieving anxiety and tension.

Transdermal patch--Adhesive bandage containing medication.

Tremor--Involuntary trembling or shaking.

Tuberculosis--Communicable acute or chronic infection caused by mycobacterium tuberculosis.

Turgor--Normal fullness and elasticity of the skin.

U

Universal precautions--Treatment of all blood and bodily fluids as if they were

contaminated
(blood and bodily fluid isolation), proper disposal of needles.

V

Vagina--The canal leading from the vulva to the uterus in the female.

Vas deferens (ductus deferens)--Tube that caries sperm to the seminal vesicles.

Vasodilators--Drug that increases the blood supply to the brain and other parts of the body.

Vertigo--Dizziness.

Voiding--Eliminating urine.

W

Withdrawal--The physiological readjustment that takes place upon the discontinuation of a medication.

CERTIFIED MEDICATION ATTENDANT COURSE

PART III

SELF-TEST STUDY GUIDES

REVISED – 1998
REVISED FEBRUARY – 2018

INTRODUCTION

SELF TEST QUESTIONS

TRUE OR FALSE

_____ 1. The CMA may only administer those medications ordered by a physician or dentist.

_____ 2. The CMA may administer medication by Intramuscular, intravenous and subcutaneous routes.

_____ 3. The CMA may receive and assume responsibility for reducing to writing oral or telephone orders from a physician.

_____ 4. The CMA should record in the client's chart, doses delivered to and/or administered to client.

_____ 5. The CMA is responsible to chart dry effects and side effects: obtain vital signs as indicated or ordered.

_____ 6. The CMA may not administer medication by the oral inhalant route unless administering a pre-measured dosage unit provided by the manufacturer.

_____ 7. The CMA may deliver pro-re-nata, PRN, as needed, medications when authorized by a licensed physician, dentist or registered nurse. This documentation must be documented in writing within 24 hours.

_____ 8. The CMA may not alter medication doses as delivered from the pharmacy unless authorized by a physician or dentist.

_____ 9. The CMA may administer medication in an acute care unit funded or operated by the Louisiana Department of Health and and/or Department of Social Services.

RESPONSIBILITIES IN THE AREA OF MEDICATION ADMINISTRATION AND LEGAL MANDATES

SELF-TEST QUESTIONS - Lesson 1

1. Malpractice is _____

_____

2. Negligence is _____

_____

3. List the six medication "Rights"

_____

_____

_____

_____

_____

_____

4. List three conditions that can cause medication errors.

_____

_____

_____

5. Your signature on a chart means that _____

_____

6. Give four words that describe ethical behavior. _____

_____

7. The **firs**t things to do if you make an error is _____and

_____.

8. _____ are medications that produce or sustain either mental or physical dependence.

9. There are many commonly used medications which _____ alike and _____.

BASIC PHARMACOLOGY

SELF TEST QUESTIONS - Lesson 2

1. _____is the commonly used name for a drug.

2. _____is the manufacturer's name.

3. Medication Therapy may be defined as the use of substances that

_____,_____,_____and

_____disease.

4. Name the four sources of medication: _____, _____,

_____and _____.

5. Name the three systems of measurement used when ordering medication

_____, _____and _____

6. Match the following:

a)	p.o.	1)	1 cc
b)	stat	2)	by mouth
c)	1 ml	3)	1 tsp
d)	5 ml	4)	immediately
e)	1000 ml	5)	1 quart
f)	30 cc	6)	1 grain
g)	60 mg	7)	1 fluid ounce

7. The only tablets which may be broken are those that are _____.

8. _____ tablets are treated so they can pass through the stomach unchanged and then disintegrate in the intestine.

They must NEVER be _____.

9. Match the following:

a)	bid	1)	four times a day
b)	tid	2)	everyday
c)	qid	3)	every other day
d)	qd	4)	before meals
e)	hs	5)	twice a day
f)	qod	6)	after meals
g)	ac	7)	three times a day
h)	pc	8)	at bedtime
i)	qhs	9)	every night at bedtime

10. Match the following

a)	qh	1)	if necessary, one time only
b)	q2h	2)	every three hours
c)	q3h	3)	as needed, usually ordered with a certain time interval
d)	q4h	4)	every hour
e)	ad lib	5)	every four hours
f)	s.o.s.	6)	every two hours
g)	prn	7)	as desired
h)	gtt	8)	nothing by mouth
i)	mg	9)	blood pressure
j)	mcg	10)	milliter
k)	ml	11)	drop
l)	NPO, npo	12)	microgram
m)	gr	13)	milligram
n)	B/P	14)	grain
o)	ss	15)	one half

11. Most drugs are metabolized in the _____.

12. List four factors which may result in a change of dosage of a medication.

_____

_____

FUNDAMENTALS OF MEDICATION THERAPY - SELF-TEST QUESTIONS - Lesson 3

1. The most common routes of administration are _____and _____.

2. Define Capsule: _____

_____

3. Never _____, _____, or _____timed released capsules before administration.

4. Define Tablet: _____

_____

5. Suspensions must be _____before use.

6. Define Suppository: _____

_____

_____

_____

7. Suppositories melt at _____ temperature.

8. Define Lotions: _____

_____

9. Define Desired Effect: _____

_____

10. Define Side effects: _____

_____

11. Side effects may be _____or _____

12. If medications do not appear to work, the _____ should be notified.

13. Food/Medication interactions can be the same as _____

_____

14. Define Synergistic: _____

_____

15. Define Antagonistic: _____

_____

16. Define Medication Allergy: _____

_____

17. Define Cumulation: _____

_____

18. Define Addictive Effect: _____

_____

19. A medication may be stopped but effects can last _____

PRINCIPLES AND FUNDAMENTALS OF ADMINISTERING MEDICATIONS

SELF TEST QUESTIONS - Lesson 4

1. Describe the RULE OF THREE

_____

_____

_____

2. Chart medications only _____ you have given them.
3. Obtain ordered vital signs _____administering medications.
4. List three precautions that aid in preventing errors when administering medications:

   _____

   _____

   _____

   _____

5. List three precautions that aid in preventing errors when preparing medications.

   _____

   _____

   _____

   _____

6. The omission of a medication should be reported to the nurse _____

   _____

7. Describe the procedure to follow when an individual refuses medication:

   _____

   _____

   _____

8. State at least four reasons other than refusal when medications might be omitted.

_____

_____

_____

9. Never flush wasted or contaminated controlled substances:
_____True _____ False

10. Medication must be stored in a _____ cabinet.

11. Topical/external medications must be stored _____ from oral medications.

12. Suppositories are to be stored in_____

_____

13. Medications stored in the refrigerator must be kept in a _____

14. Labels on medication bottles must always be _____ and _____ .

15. When receiving medications from the pharmacy you must _____, check it against the list of medications _____and _____ them correctly.

16. Never pour medication into your _____.

17. After pouring a liquid medication always _____the outside of the bottle with a clean wet cloth.

18. The single most important step to take to prevent the spread of infection is

_____

19. Define Universal Precautions:

_____

_____

_____

20. The best means of protection from direct exposure to blood or visibly contaminated body fluids is to wear _____.

21. Gloves shall be _____ and _____ after contact with each client.

22. Scientific evidence indicates that only _____ contact with semen, vaginal secretions, blood, or visibly blood contaminated body fluids carries a potential risk for HIV transmission.

THE MEDICATION CYCLE
A. OBSERVING FOR PHYSICAL AND BEHAVIOR PROBLEMS AND/OR CHANGES

SELF TEST QUESTIONS - Lesson 5-A

1. The individuals who have the most contact with the clients are:

   _____

2. Define:

   Objective Symptoms: _____

   Subjective Symptoms: _____

3. When observing the individual report_____ to the staff nurse

4. When charting an Axillary temperature add_____after the reading.

5. When charting the general appearance of the client's skin color, note:

   _____

   _____

   _____

6. When charting the emotional status of an individual, it is always important to describe in detail his _____.

THE MEDICATION CYCLE
B. REPORTING AND RECORDING PHYSICAL AND BEHAVIOR PROBLEMS AND/OR CHANGES

SELF TEST QUESTIONS-Lesson 5-B

1 List some emergency conditions: _____

_____

_____

_____

2. Get_____, but stay with the individual until _____arrives.

3. Can you think of some non-emergencies? _____

_____

_____

_____

4. If you are in doubt as to whether a situation is an emergency, your best bet is to:_____

_____

5. When should an emergency situation be reported?

_____

THE MEDICATION CYCLE
C. ASSISTING IN VISIT TO THE PHYSICIAN AND PHARMACIST

SELF TEST QUESTIONS-Lesson 5-C

1. List information you need to tell and/or give the physician:

   _____

   _____

   _____

   _____

2. List questions you should ask about a medication:

   _____

   _____

   _____

   _____

3. Describe Unit Dose: _____

   _____

Refer back to Clara Barton, Prescription Label and answer the following questions:

4. Is phenytoin a generic or trade name? _____
5. How many times a day does Clara receive her medication? _____
6. How many capsules does Clara take each time? _____
7. How many capsules will be given per day? _____
8. How many times can the prescription be refilled? _____
9. List some questions you may have to ask the pharmacist about the medication _____

   _____

   _____

10. List some ways to assure the individual receives medication when out of the residence: _____

_____

_____

THE MEDICATION CYCLE

D. RECORDING AND STORAGE OF MEDICATIONS

Self-Test Questions-Lesson 5-D

1. Drug supplies for each individual must be stored under the proper conditions of: _____, _____, _____ _____and_____.

2. Bottles must always be _____when not in use to prevent deterioration of the medicine.

3. List the 3 conditions which must be met before over the counter drugs may be administered:

   (1) _____

   (2) _____

   (3) _____

4. Any drug container having a detached or unreadable label must be:

   _____

5. The area in which medications for external use are stored, must be marked:

   _____.

MEDICATION ADMINISTRATION

SELF-TEST QUESTIONS - Lesson 6

1. List the "Six Rights" of Medication Administration:
   (1)_____
   (2)_____
   (3)_____
   (4)_____
   (5)_____
   (6)_____

2. Describe procedure to determine right individual:
   _____
   _____
   _____

3. Describe procedure to determine right medication:
   _____
   _____

4. Describe procedure to determine right dosage:
   _____
   _____

5. Medications should be administered as _____

6. If a medication is to be administered at 9:00 a.m., it can be given from _____ to _____

7. Describe procedure to determine right route:
   _____
   _____

8. Documentation that a medication was given is done: _____administration.

9. List some DO's and DON'Ts of medication administration:

_____

_____

_____

_____

_____

_____

10. The _____ is a record that describes the medications used by the individual, the dose, the route and the times the medication is to be taken.

11. A medication that is given "as needed" is a _____medication.

12. When a medication error occurs you must _____and _____the error.

13. A medication error occurs when any one or more of the_____ of medication administration is violated.

14. List examples of violations in medication administration which result in medication errors: _____

_____

_____

_____

15. List four occasions when not to give medications:

(1)_____

(2)_____

(3)_____

(4)_____

DOCUMENTATION

SELF-TEST QUESTIONS - Lesson 7

T or F 1. Legibility is not very important on the chart.

T or F 2. You may use white out or liquid paper on the record.

T or F 3. The date and time of an entry are very important parts of the record.

T or F 4. Chart what you see, hear, smell, touch and what you think or feel.

5. Every medication given must be charted for the correct individual and include the following information:

   1. _____
   2. _____
   3. _____

6. Name the parts of a medication order.

   _____

   _____

   _____

   _____

   _____

7. Routine medications are charted by putting your _____ in the appropriate box on the medication record, and by _____ your complete name and title in the appropriate space.

8. The effects of _____ medications must be charted after an appropriate period of time.

9. If a medication is not charted and legible, it is _____

   _____

INTRODUCTION TO THE USE OF MEDICATION REFERENCES

SELF-TEST QUESTIONS - Lesson 8

1. List three sources of information regarding medications:

_____

_____

_____

2. What information should the CMA have knowledge of prior to administering a medication to an individual?

_____

_____

_____

_____

3. What are two on-line resources for obtaining information about medications?

_____

_____

4. A package brochure must accompany each package of the drug product and be approved by the _____before the product is released for marketing.

MEDICATION CLASSIFICATIONS - OVERVIEW

SELF-TEST QUESTIONS - Lesson 9

1. Define the term classification: _____

2. Give the **action** of the following classifications:
   a. antacids _____
   b. steroids _____
   c. urinary antiseptics _____
   d. diuretics _____

3. List two **adverse effects** of the following classifications:
   a. antidiarrheals _____
   b. saline laxatives _____
   c. non-steroidal anti-inflammatory agents _____
   d. adrenergic blocking agents _____

4. Give the **classification** for each drug:
   a. Propoxyphene (Darvon) _____
   b. Nalidixic acid (NegGram) _____
   c. Furosemide (Lasix) _____
   d. Magnesium salts (Milk of Magnesia) _____
   e. Levodopa-carbidopa (Sinemet) _____
   f. Auralgan _____
   g. Methyldopa (Aldomet) _____
   h. Diphenhydramine (Benadryl) _____
   i. Folic Acid _____
   j. Kenalog _____
   k. Indomethacin (Indocin) _____
   l. Dexamethasone (Decadron) _____
   m. Loperamide (Imodium) _____
   n. Meperidine HCl (Demerol) _____
   o. Ortho-Novum _____

MEDICATION CLASSIFICATIONS - SPECIFICS

VITAMINS AND MINERALS

SELF-TEST QUESTIONS - Lesson 10, Section 1

1. Eating a _____diet will provide adequate vitamins and minerals.

2. List four periods when additional vitamins and minerals may be required.

_____

_____

_____

_____

3. List your responsibilities when administering vitamins and minerals.

_____

_____

_____

4. Define:
Hematinic: _____

_____

5. List two (2) side effects of Hematinics.
1._____
2._____

6. Side effects can be reduced if: _____

_____

_____

7. Liquid iron preparations should be given through a_____.

MEDICATIONS THAT AFFECT THE RESPIRATORY SYSTEM
SELF-TEST QUESTIONS - Lesson 10, Section 2

1. List the symptoms of an allergic response: _____

_____

2. Symptoms of anaphylactic shock are: _____

_____

3. Anaphylactic shock may be caused by_____

_____

4. Define Antihistamine: _____

_____

5. Antihistamines are used for: _____

_____

6. Most common side effects of antihistamines are: _____

_____

7. Define Expectorant: _____

_____

8. Define Antitussives: _____

_____

9. Two cautions to observe: _____

_____

10. List three (3) side effects of cough preparations:

    (1)_____

    (2)_____

    (3)_____

11. Define Bronchodilators: _____

    _____

    _____

12. List the side effects of bronchodilators: _____

    _____

    _____

13. Antitubercular medications are used to treat: _____

14. List side effects of antitubercular medications _____

    _____

15. The possibility of nausea and vomiting may be_____by giving medications _____meals.

MEDICATION CLASSIFICATIONS

GENERAL AND LOCAL ANTI-INFECTIVES

SELF-TEST QUESTIONS - Lesson 10, Section 3

1. Antibiotic medications are used to _____or control bacteria.

2. Some antibiotics are_____for certain bacteria.

3. Bacteria can be gram _____or gram_____.

4. Broad spectrum antibiotics have a _____of activity.

5. Narrow spectrum antibiotics have a narrow _____of activity.

6. If an individual is seriously ill, he/she may be given a _____ antibiotic prior to lab results.

7. Always read label for _____directions.

8. Before giving_____ check the_____ date

9. Antibiotics should not be used for _____infections. With frequent use of antibiotics a body can become_____.

10. An allergic reaction is the body's reaction to _____substance.

11. Toxic effect can be _____ and leave permanent_____.

12. Toxic reactions are_____but are _____when they occur.

13. Possible signs of toxic reactions are: _____

_____

_____

14. Never administer an antibiotic unless you are sure the individual has never had a _____ reaction.

15. If an individual has had an _____ it must be _____ and reported.

16. List responsibilities when administering antibiotics:
_____
_____
_____

17. Define Antifungal Agents: _____
_____

18. Define Amebicides: _____
_____

19. Define Trichomonacides: _____
_____

20. List responsibilities when administering:
(a) Amebicides: _____
_____
(b) Trichomonacides: _____
_____

21. Lotions and shampoos for treating lice should never be used on _____ areas of the skin.

22. What are the available forms of medications used for treating scabies and lice?
_____

SELF-TEST QUESTIONS - Lesson 10, Section 3

23. When using medications to treat lice and scabies, always _____

_____

24. List cautions of lice and scabies infestations: _____

_____

_____

25. Define Anthelmintics _____

_____

List side effects of Anthelmintics: _____

_____

MEDICATION CLASSIFICATIONS
MEDICATIONS THAT AFFECT THE CARDIOVASCULAR SYSTEM

SELF-TEST QUESTIONS - Lesson 10, Section 4

1. What is the action of Digitalis? _____

2. Digitalis preparations have_____ spelling.

3. If the pulse is below _____, you should request further guidance before administering Digitalis preparations.

4. List side effects of Digitalis preparations: _____
_____

5. Define Antiarrhythmic medications: _____
_____

6. Two responsibilities when administering antiarrhythmic medications include:
_____
_____

7. List possible side effects of Antiarrhythmic medications: _____
_____

8. Vasodilators may be used to prevent _____pain and increase
_____

9. Define Sublingual: _____

10. List side effects of Vasodilators: _____
_____

11. Salt can contribute to_____

12. Diuretics _____urine and salt excretion.

13. Potassium is necessary for _____and _____function.

14. Signs of potassium depletion are: _____

_____

15. Responsibilities when administering diuretics are: _____

_____

16. Define Antihypertensives: _____

17. Major caution with Antihypertensives is to monitor_____

18. List possible side effects of Antihypertensive medications: _____

_____

19. Two Most common side effects are: _____

_____

20. a. Anticoagulants are medications which _____

_____

b. Coagulants _____clot formation.

21. Signs of hemorrhage are: _____

_____

22. When an individual is on_____therapy, _____ should be done routinely and whenever stopping and starting another medication.

MEDICATION CLASSIFICATIONS
MEDICATIONS THAT AFFECT THE URINARY SYSTEM

SELF-TEST QUESTIONS - Lesson 10, Section 5

1. Sulfonamides are used to treat _____

2. List two responsibilities: _____

3. List side effects: _____

4. Once an individual has urinary tract infection, it is likely to _____

   _____

5. Urinary antiseptics may _____ the color of urine and cause stomach _____.

6. List your responsibilities:

   _____

   _____

   _____

7. When a urinary antiseptic has AZO before the name, _____

   has been added.

8. Urecholine _____ urinary retention.

9. Side effects associated with Urecholine include:

   _____

   _____

MEDICATION CLASSIFICATIONS
MEDICATIONS THAT AFFECT THE NERVOUS SYSTEM

SELF-TEST QUESTIONS - Lesson 10, Section 6

1. C.N.S. stimulants will:

   Increase_____
   Increase _____
   Increase _____
   Suppress._____

2. Caffeine is a mild _____stimulant.

3. List side effects of Caffeine: _____

   _____

4. Amphetamines are _____stimulants.

5. Amphetamines may be used to treat_____, but are more often used for _____children.

6. List common side effects of amphetamines: _____

   _____

7. Central Nervous System depressants will:

   Decrease_____ Lessen
   Decrease_____ Promote

8. Define:
   Hypnotic: _____
   Sedative: _____

9. List side effects of sedative-hypnotics: _____
   _____

10. The major caution associated with sedative-hypnotics is: _____
    _____

11. Can you think of ways to calm an individual other than drugs?
    _____
    _____

12. Sedative-hypnotics will interact with _____
    _____

13. Alcohol is a C.N.S_____

14. Sedative hypnotics reduce effectiveness of: _____
    _____

15. Major life threatening side effects of sedative hypnotics:
    _____
    _____

16. If you observe life threatening signs, immediately_____the physician or nurse.

17. Define analgesics: _____

18. Two classes of analgesics are: _____

_____

19. Narcotic analgesics are capable of _____ severe pain.

20. Common side effects of narcotics are: _____

_____

21. When individuals are taking narcotics, the_____rate should be checked.

22. Define: Antipyretics: _____

_____

Anti-inflammatory_____

_____

23. List side effects of analgesics: _____

_____

24. When possible, administer salicylates with_____

or after_____.

25. Define Anti-Anxiety Medications: _____

_____

26. Anti-Anxiety Medications can cause _____and

_____dependence.

27. List side effects of Anti-Anxiety Medications: _____

_____

28. When taking antianxiety medication, stomach distress can be minimized by:

_____

29. Define Antipsychotic Medications: _____

_____

30. List the severe side effects of antipsychotics: _____

_____

_____

31. Define Tardive Dyskinesia _____

_____

32. List some signs of a blood dyscrasia: _____

_____

_____

33. Antidepressants will relieve_____and _____

34. List side effects of Antidepressants: _____

_____

35. _____should be avoided when an individual is taking MA0I medications.

36. _____is a medication used for individuals who are diagnosed as manic-depressives.

37. Anticonvulsants are used to control: _____

38. List side effects of anticonvulsants: _____

_____

39. A way to decrease gum overgrowth is: _____

40. Always give anticonvulsants with large amounts of _____ or after _____

MEDICATION CLASSIFICATIONS MEDICATIONS THAT AFFECT THE ENDOCRINE SYSTEM

SELF-TEST QUESTIONS - Lesson 10, Section 7

1. Define Diabetes Mellitus: _____

   _____

2. List the functions of insulin: _____

   _____

   _____

   _____

3. List the most common signs of Diabetes Mellitus: _____

   _____

4. Complete the Chart:

   Causes of Insulin shock: _____

   Onset: _____

   Signs: _____

   _____

   First aid measure for shock: _____

   _____

   Causes of Diabetic Coma: _____

   Onset: _____

   Signs: _____

   _____

5. Oral hypoglycemics resemble _____activity.

6. List side effects of oral hypoglycemics: _____

_____

_____

7. Steroids may be used for: _____

8. Define Steroids: _____

_____

9. List responsibilities when administering steroid medication:

_____

_____

10. List side effects of steroids:

_____

_____

_____

11. When giving birth control medications, always _____ label for directions.

12. List dangerous side effects of the birth control pills:

_____

_____

_____

_____

MEDICATION CLASSIFICATIONS
MEDICATIONS THAT AFFECT THE GASTROINTESTINAL SYSTEM
SELF-TEST QUESTIONS - Lesson 10, Section 8

1. Define Antacid: _____

2. Signs of excess stomach acid are: _____

3. Define emetic: _____

4. Do not give emetics if the poison is: _____

5. Name a medication used to cause vomiting: _____

6. Define anti-emetic: _____

7. Antihistamines may be used as: _____

8. Side effects of antiemtics may include: _____
_____

9. Household remedies for nausea and vomiting are: _____
_____

10. Cathartics and laxatives are used for: _____

11. List causes of constipation: _____
_____

12. Cathartics and laxatives should not be given if individual complains of:
_____

13. List side effects of laxatives: _____

_____

14. List causes of diarrhea: _____

_____

15. Simple diarrhea is due to: _____

16. Most frequent side effects of antidiarrheal medications is:

_____

17. PPI s and H2 Antagonists are used to treat _____and _____.

MEDICATION CLASSIFICATIONS
MEDICATIONS THAT AFFECT THE SKIN AND MUCOUS MEMBRANES

SELF-TEST QUESTIONS - Lesson 10, Section 9

1. Medications applied to skin may have a _____or_____effect.

2. Define:
   Emollient: _____
   Demulcent: _____
   Astringent: _____
   Counterirritants: _____
   Antipruritics: _____

3. Define:
   Antiseptics: _____

4. Always read _____for directions.

MEDICATION CLASSIFICATIONS MEDICATIONS THAT AFFECT THE EYE AND EAR

SELF-TEST QUESTIONS - Lesson 10, Section 10

1. Define Miotics: _____

2. List two antibiotic ophthalmic ointments: _____
   _____

3. List your major responsibilities when working with eye medications: _____
   _____

4. _____ are used for ear infections.

5. Nausea and vomiting may be relieved by: _____

MEDICATION ADMINISTRATION COURSE

SELF-TEST STUDY GUIDE ANSWERS

REVISED – 1998
REVISED FEBRUARY - 2018

INTRODUCTION

ANSWERS TO SELF TEST QUESTIONS

TRUE OR FALSE

TRUE 1. The CMA may only administer those medications ordered by a physician or dentist.

FALSE 2. The CMA may administer medication by Intramuscular, intravenous and subcutaneous routes.

FALSE 3. The CMA may receive and assume responsibility for reducing to writing oral or telephone orders from a physician.

TRUE 4. The CMA should record in the client's chart, doses delivered to and/or administered to client.

TRUE 5. The CMA is responsible to chart drug effects and side effects: obtain vital signs as indicated or ordered.

TRUE 6. The CMA may not administer medication by the oral inhalant route unless administering a pre-measured dosage unit provided by the manufacturer.

TRUE 7. The CMA may deliver pro-re-nata, PRN, as needed, medications when authorized by a licensed physician, dentist or registered nurse. This documentation must be documented in writing within 24 hours.

TRUE 8. The CMA may not alter medication doses as delivered from the pharmacy unless authorized by a physician or dentist.

FALSE 9. The CMA may administer medication in an acute care unit funded or operated by the Louisiana Department of Health and/or Department of Social Services.

RESPONSIBILITIES IN THE AREA OF MEDICATION ADMINISTRATION AND LEGAL MANDATES

SELF-TEST QUESTIONS-Lesson 1

1. Malpractice is: **MALPRACTICE IS ANY IMPROPER OR INJURIOUS PRACTICE OR ANY UNSKILLFUL OR FAULTY MEDICAL TREATMENT.**

2. Negligence is: **PERFORMING AN ACT THAT A REASONABLE PRUDENT PERSON UNDER SIMILAR CIRCUMSTANCES WOULD NOT DO, OR FAILING TO PERFORM AN ACT THAT A REASONABLE PRUDENT PERSON UNDER SIMILAR CIRCUMSTANCES WOULD DO.**

3. List the "Six Medication Rights":
   GIVE THE RIGHT MEDICATION
   GIVE THE RIGHT DOSE
   GIVE THE MEDICATION TO THE RIGHT INDIVIDUAL
   GIVE MEDICATION BY THE RIGHT ROUTE
   GIVE MEDICATION AT THE RIGHT TIME
   PROVIDE THE RIGHT DOCUMENTATION

4. List three conditions that can cause medication errors.
   LACK OF CONCENTRATION, LACK OF KNOWLEDGE, FAILURE TO FOLLOW CORRECT PROCEDURE, POOR COMMUNICATION, PERFORMING A JOB BEYOND YOUR SCOPE OF DUTY.

5 Your signature on a chart means that **YOU ASSUME RESPONSIBILITY FOR THE ENTRY, YOU ADMINISTERED OR SUPERVISED THE ADMINISTRATION OF THE MEDICATION, MADE THE OBSERVATION, KNEW THAT THE CARE WAS GIVEN AS CHARTED.**

6 Give four words that describe ethical behavior: **HONESTY, SINCERITY, LOYALTY, DEPENDABILITY.**

7. The first things to do if you make an error is **REPORT TO YOUR STAFF NURSE** and **OBSERVE THE CLIENT FOR UNDESIRABLE EFFECTS.**

8. **CONTROLLED SUBSTANCES** are medications that produce or sustain either mental or physical dependence.

9. There are many commonly used medications which **LOOK** alike and **SOUND ALIKE.**

BASIC PHARMACOLOGY
SELF TEST QUESTIONS - Lesson 2

1. **GENERIC** is the commonly used name for a drug.

2. **TRADE NAME** is the manufacturer's name.

3. Medication Therapy may be defined as the use of substances that **CURE, RELIEVE, PREVENT, AND DIAGNOSE** disease

4. Name the four sources of medication: **ANIMAL, PLANT, MINERALS AND SYNTHETIC.**

5. Name the three systems of measurement used when ordering medication
   APOTHECARY, METRIC AND HOUSEHOLD SYSTEM.

6. Match the following:

a) p.o.	1) 1 cc **C**
b) stat	2) by mouth **A**
c) 1 ml	3) 1 tsp **D**
d) 5 ml	4) immediately **B**
e) 1000 ml	5) 1 quart **E**
f) 30 cc	6) 1 grain **G**
g) 60 mg	7) 1 fluid ounce **F**

7. The only tablets which may be broken are those that are **SCORED**

8. **ENTERIC COATED** tablets are treated so they can pass through the stomach unchanged and then disintegrate in the intestine. They must NEVER be **CRUSHED.**

9. Match the following:

a) bid	1) four times a day **C**
b) tid	2) everyday **D**
c) gid	3) every other day **F**
d) gd	4) before meals **G**
e) hs	5) twice a day **A**
f) qod	6) after meals **H**
g) ac	7) three times a day **B**
h) pc	8) at bedtime **E**
i) ghs	9) every night at bedtime **I**

10. Match the following

a)	qh	1) if necessary, one time only	**F**
b)	q2h	2) every three hours	**C**
c)	q3h	3) as needed, usually ordered with a certain time interval	**G**
d)	q4h	4) every hour	**A**
e)	ad lib	5) every four hours	**D**
f)	s.o.s.	6) every two hours	**B**
g)	prn	7) as desired	**E**
h)	gtt	8) nothing by mouth	**L**
i)	mg	9) blood pressure	**N**
j)	mcg	10) milliter	**K**
k)	ml	11) drop	**H**
l)	NPO, npo	12) microgram	**J**
m)	gr	13) milligram	**I**
n)	B/P	14) grain	**M**
o)	ss	15) one half	**O**

11. Most drugs are metabolized in the **LIVER**

12. List four factors which may result in a change of dosage of a medication.

CHANGES IN BODY WEIGHT

AGE

KIDNEY FUNCTION

ADDITIONS OR DELETIONS OF OTHER MEDICATIONS

FUNDAMENTALS OF MEDICATION THERAPY
SELF-TEST QUESTIONS Lesson 3

1. The most common routes of administration are **ORAL** and **TOPICAL**

2. Define:
   Capsule: **SMALL CYLINDRIC GELATIN CONTAINERS THAT HOLD DRY POWDER OR LIQUID DRUGS.**

4. Never, **CRUSH, OPEN** or **EMPTY** time released capsules before administration.

5. Define:
   Tablet: **POWDERED MEDICATIONS COMPRESSED INTO SMALL DISKS.**

6. Suspensions must be **SHAKEN WELL** before use.

7. Define:
   Suppository: **MIXTURES OF MEDICATIONS WITH A FIRM BASE, SUCH AS COCOA BUTTER, MOLDED INTO A SHAPE SUITABEL FOR INSERTION INTO A BODY OPENING**

8. Suppositories melt at **BODY** temperature.

9. Define:
   Lotions: **SOOTHING APPLICATIONS USED TO PROCTECT THE SKIN, RELIEVE RASHES AND ITCHING.**

10. Define:
    Desired effect: **WHEN THE MEDICATION IS WORKING CORRECTLY**

11. Define: Side effects: **EFFECTS PRODUCED BY THE MEDICATION OTHER THAN THE DESIRED EFFECTS**

2. Side effects may be **EXPECTEDAND PREDICTABLE or UNEXPECTED AND UNPREDICTABLE**.

13. If medications do not appear to work, the **PHYSICIAN** should be notified.

14. Food/Medication interactions can be the same as **MEDICATION INTERACTIONS**

15. Define:
    Synergistic: **ONE MEDICATION WILL INCREASE THE EFFECTS OF ANOTHER MEDICATION**

16. Define:
    Antagonistic: **ONE MEDICATION WILL DECREASE THE EFFECTS OF ANOTHER MEDICATION**

17. Define: Medication Allergy:
    A RESPONSE WHICH MAY BE IMMEDIATE AND LIFE THREATENING OR DELAYED AND SLOW TO APPEAR.

18. Define: Cumulation: **THE BODY DOES NOT ELIMINATE ONE DOSE OF A DRUG BEFORE ANOTHER DOSE IS GIVEN**

19. Define: Addictive effect: **THE PHYSICAL OR EMOTIONAL DEPENDENCE ON CERTAIN MEDICATIONS**

20. A medication may be stopped but effects can last **SEVERAL DAYS**

PRINCIPLES AND FUNDAMENTALS OF ADMINISTERING MEDICATIONS
SELF TEST QUESTIONS Lesson 4

1. Describe the RULE OF THREE
   FOR EACH DOSE OF MEDICATION, READ THE LABEL THREE TIMES
   1) BEFORE REMOVING CONTAINER FROM THE MEDICINE CABINET,
   2) BEFORE YOU POUR IT,
   3) BEFORE REPLACING CONTAINER IN MEDICINE CABINET.

2. Chart medications only **AFTER** you have given them.

3. Obtain ordered vital signs **BEFORE** administering medications.

4. List three precautions that aid in preventing errors when administering medications:
   ADDRESSING THE INDIVIDUAL BY NAME, REMAIN WITH THE INDIVIDUAL WHILE HE/SHE SWALLOWS THE MEDICATION, ALWAYS CHECK THE MAR TO MAKE SURE MEDICATION HAS NOT ALREADY BEEN GIVEN, DO NOT ALLOW ANYONE TO CARRY OR GIVE MEDICATION TO ANOTHER INDIVIDUAL, LISTEN TO CLIENTS' EXPRESSION OF CONCERN REGARDING MEDICATION, OBSERVE FOR UNDESIRABLE EFFECTS.

5. List three precautions that aid in preventing errors when preparing medications.
   NEVER ADMINISTER MEDICATION FROM AN UNLABELED CONTAINER, NEVER BORROW MEDICATIONS FROM ONE INDIVIDUAL TO GIVE TO ANOTHER, ALWAYS PREPARE MEDICATION WITH GOOD LIGHT, AND CHECK LABEL THREE TIMES.

6. The omission of a medication should be reported to the nurse
   AS SOON AS IT IS DISCOVERED.

7. Describe the procedure to follow when an individual refuses medication:
   LISTEN TO THE REASON, EXPLAIN WHY IT IS IMPORTANT THAT HE/SHE TAKES THE MEDICATION, DOCUMENT THE EXPLANATION AND NOTIFY THE NURSE.

8. State at least four reasons other than refusal when medications might be omitted.
   INABILITY OF THE INDIVIDUAL TO SWALLOW THE MEDICATION, WHEN THE CLIENT IS NPO, FOR CARDIOTONICS A PULSE BELOW 60, IF INDIVIDUAL HAS ALCOHOL ON HIS/HER BREATH.

9. Never flush wasted or contaminated controlled substance: **TRUE**

10. Medication must be stored in a **LOCKED** cabinet.

11. Topical medications must be stored **SEPARATELY** from oral medications.

12. Suppositories are to be stored in **THE REFRIGERATOR**

13. Medications stored in the refrigerator must be kept in a **LOCKED BOX**

14. Labels on medication bottles must always be **CLEAN** and **READABLE**

15. When receiving medications from the pharmacy you must **SIGN FOR IT,** check it against the list of medications **ORDERED** and **STORE** them correctly.

16. Never pour medication into your **HAND.**

17. After pouring a liquid medication always **WIPE** the outside of the bottle with a clean wet cloth.

18. The single most important step to take to prevent the spread of infection is **HANDWASHING.**

19. Define Universal Precautions: **REFERS TO THE USE OF BARRIER PRECAUTIONS BY EMPLOYEES TO PREVENT DIRECT SKIN OR MUCOUS MEMBRANE CONTACT WITH BLOOD OR OTHER BODY FLUIDS THAT ARE VISIBLY CONTAMINATED WITH BLOOD**

20. The best means of protection from direct exposure to blood or visibly contaminated body fluids is to wear **GLOVES**

21. Gloves shall be **REMOVED** and **DISCARDED** after contact with each client.

22. Scientific evidence indicates that only **DIRECT** contact with semen, vaginal secretions, blood, or visibly blood contaminated body fluids carries a potential risk for HIV transmission.

THE MEDICATION CYCLE

A. OBSERVING FOR PHYSICAL AND BEHAVIOR PROBLEMS AND/OR CHANGES

SELF-TEST QUESTIONS--Lesson 5-A

1. The individuals who have the most contact with the clients are: **THE DIRECT CARE STAFF.**

2. Define:
   Objective Symptoms: **A CHANGE THAT CAN BE CLEARLY SEEN**

   Subjective Symptoms: **A CHANGE WHICH IS ONLY PERCEPTIBLE TO THE INDIVIDUAL**

3. When observing the individual report **ONLY THOSE SYMPTOMS THAT CAN BE CLEARLY SEEN-(OBJECTIVE SYMPTOMS)** to the staff nurse

4. When charting an Axillary temperature add **AX** after the reading.

5. When charting the general appearance of the client's skin color, note: **PALLOR, FLUSHING, CYANOSIS AND/OR JAUNDICE.**

6. When charting the emotional status of an individual, it is always important to describe in detail his **ACTIONS.**

THE MEDICATION CYCLE
B REPORTING AND RECORDING PHYSICAL AND BEHAVIOR PROBLEMS AND/OR CHANGES

SELF-TEST QUESTIONS--Lesson 5-B

1 List some emergency conditions: **EXCESSIVE BLEEDING WHICH YOU ARE UNABLE TO CONTROL, BROKEN BONES, CHOKING, NOT BREATHING, NO HEARTBEAT, BEHAVIOR WHICH POSES A THREAT TO THE INDIVIDUAL, LOSS OF CONSCIOUSNESS NOT RELATED TO A SEIZURE, PROLONGED SEIZURE ACTIVITY.**

2. Get **HELP,** but stay with the individual until **HELP** arrives.

3. Can you think of some non-emergencies? **A FEVER WHICH IS NOT REDUCED BY NORMAL PROCEDURES, SUCH AS ASPIRIN; REPEATED EPISODES OF ANGRY, AGGRESSIVE BEHAVIOR WHICH WHILE CONTROLLABLE, ARE NOT TYPICAL FOR THE INDIVIDUAL; DIARRHEA WHICH IS NOT AFFECTED BY PRESCRIBED MEDICATION; A RASH WHICH LASTS FOR SEVERAL DAYS OR SEEMS TO BE GETTING WORSE; INCREASED SEIZURE ACTIVITY; SEVERE SEIZURE FOR AN INDIVIDUAL WHO HAS A HISTORY OF MILD SEIZURES, COLD SYMPTOMS WHICH LAST LONGER THAN A WEEK; UNEXPLAINED BLACK AND BLUE MARKS; AND LACK OF BALANCE OR COORDINATION.**

4. If you are in doubt as to whether a situation is an emergency, your best bet is to: **BE ON THE SAFE SIDE AND TREAT IT AS AN EMERGENCY.**

5. When should an emergency situation be reported?
AS SOON AS POSSIBLE AFTER THE SITUATION IS OBSERVED.

THE MEDICATION CYCLE
C. ASSISTING IN VISIT TO THE PHYSICIAN AND PHARMACIST

SELF-TEST QUESTIONS--Lesson 5-C

1. List information you need to tell and/or give the physician:

   INDIVIDUAL'S COMPLETE MEDICAL RECORD IF HE/SHE IS SEEING THE PHYSICIAN FOR THE FIRST TIME; HISTORY OF DRUG ALLERGIES; CURRENT MEDICATIONS BEING ADMINISTERED AND FOR WHAT PURPOSE (INCLUDING NON-PRESCRIPTION, OVER THE COUNTER (OTC) MEDICATIONS); CURRENT MEDICAL AND DENTAL CONDITIONS NOT BEING TREATED BY MEDICATIONS; WRITTEN OBSERVATIONS OF RECENT CHANGES IN PHYSICAL SYMPTOMS OR BEHAVIORAL SIGNS.

2. List questions you should ask about a medication:

   WHAT IS THE PURPOSE AND DESIRED EFFECT OF THE MEDICATION? WHAT IS THE REPONSE TIME? ARE THERE ANY SIDE EFFECTS THAT SHOULD BE ESPECIALLY WATCHED FOR? ARE THERE ANY POSSIBLE INTERACTIONS WITH OTHER MEDICATIONS AND/OR FOODS/ ARE THERE ANY SPECIAL ADMINISTRATION OR STORAGE INSTRUCTIONS.

3. Describe Unit Dose: **A MEDICATION PACKAGE SYSTEM THAT CONTAINS THE ORDERED AMOUNT OF MEDICINE FOR A SUNGLE UNIT DOSE, INDIVIDUALLY WRAPPED.**

Refer back to Clara Barton, Prescription Label and answer the following questions:

4. Is phenytoin a generic or trade name? **GENERIC**

5. How many times a day does Clara receive her medication? **THREE**

6. How many capsules does Clara take each time? **ONE**

7. How many capsules will be given per day? **THREE**

8. How many times can the prescription be refilled? **TWO**

9. List some questions you may have to ask the pharmacist about the medication

WHAT ARE THE SIDE EFFECTS?
HOW SHOULD IT BE STORED?
ARE THERE ANY DIET OR OTHER MEDICATION RESTRICTIONS?

10. List some ways to assure the individual receives medication when out of the residence:
    - **SEND THE MEDICATION BOTTLE AS DISPENSED BY THE PHARACIST WITH INDIVIDUAL AND/OR FAMILY.**
    - **AT THE TIME THE MEDICATION IS PRESCRIBED, REQUEST THE PRESCRIBING PHYSICIAN TO WRITE A SEPERATE PRESCRIPTION FOR THE PERIOD OF ABSENCE.**
    - **BRING THE MEDICATION BOTTLE TO THE PHARMACIST AND ASK HIM TO DISPENSE THE NEEDED AMOUNT INTO ANOTHER LABELED CONTAINER.**
    - **ASK THE PHARMACIST TO FILL A PRESCRIPTION BY DIVIDING INTO TWO SEPERATE LABELED CONTAINERS WHEN ADVANCE KNOWLEDGE OF THE PERIOD OF ABSENCE IS KNOWN.**

THE MEDICATION CYCLE
D. RECORDING AND STORAGE OF MEDICATIONS

SELF-TEST QUESTIONS--Lesson 5-D

1. Drug supplies for each individual must be stored under the proper conditions of: **SANITATION, TEMPERATURE, LIGHT, REFRIGERATION AND MOISTURE.**

2. Bottles must always be **CAPPED** when not in use to prevent deterioration of the medicine.

3. List the 3 conditions which must be met before over the counter drugs may be administered: **THE PHYSICIAN ORDERED THE MEDICATION; THE MEDICATION IS MAINTAINED IN THE ORIGINAL CONTAINER; THE INDIVIDUAL'S NAME IS TAPED TO THE CONTAINER AS NOT TO OBSCURE THE ORIGINAL LABEL.**

4. Any drug container having a detached or unreadable label must be: **RETURNED TO THE PHARMACY FOR RE-LABELING.**

5. The area in which medications for external use are stored, must be marked: **"EXTERNAL MEDICATIONS"**

MEDICATION ADMINISTRATION

SELF-TEST QUESTIONS--Lesson 6

1. List the "Six Rights" of medication administration:
   RIGHT MEDICATION
   RIGHT DOSE
   RIGHT INDIVIDUAL
   RIGHT ROUTE
   RIGHT TIME
   RIGHT DOCUMENTATION

2. Describe procedure to determine right individual: **COMPARE THE NAME ON THE MAR WITH THE INDIVIDUAL'S PHOTO / ID BAND (OR OTHER MEANS OF IDENTIFYING INDIVIDUAL**

3. Describe procedure to determine right medication: **COMPARE THE LABEL ON THE MEDICATION CONTAINER WITH THE INDIVIDUAL'S MAR.**

4. Describe procedure to determine right dosage: **COMPARE THE ORDER ON THE MAR WITH THE LABEL ON THE MEDICATION.**

5. Medications should be administered as **ORDERED.**

6. If a medication is to be administered at 9:00 a.m., it can be given from
   8:00 A.M. TO 10:00 A.M.

7. Describe procedure to determine right route **COMPARE THE MAR AND THE LABEL**

8. Documentation that a medication was given is done: **AFTER** administration.

9. List some DO's and DON'Ts of medication administration: **DO GIVE YOUR FULL ATTENTION TO THE TASK; DO REMAIN WITH THE INDIVIDUAL UNTIL THE MEDICATION HAS BEEN TAKEN; DO PREPARE MEDICATION FOR ONLY ONE INDIVIDUAL AT A TIME; DON'T GIVE A MEDICATION FROM A CONTAINER WHICH HAS A LABEL THAT CANNOT BE READ; DON'T GIVE A MEDICATION FROM ANOTHER PERSON'S CONTAINER; DON'T TRY TO HIDE A MEDICATION ERROR.**

10. The **MAR** is a record that describes the medications used by the individual, the dose, the route and the times the medication is to be taken

11. A medication that is given "as needed" is called a **PRN** medication.

12. When a medication error occurs, you must **IMMEDIATELY REPORT** and **RECORD** the error.

13. A medication error occurs when any one or more of the **"SIX RIGHTS"** of medication administration is violated.

14. List examples of violations in medication administration which results in medication errors: **THE WRONG INDIVIDUAL WAS GIVEN A MEDICATION; THE WRONG MEDICATION WAS GIVEN TO AN INDIVIDUAL; THE WRONG DOSAGE WAS GIVEN TO AN INDIVIDUAL; A MEDICATION WAS ADMINISTERED AT THE WRONG TIME TO AN INDIVIDUAL, OR A MEDICATION WAS NOT GIVEN AT ALL; A MEDICATION WAS ADMINISTERED BY THE WRONG ROUTE.**

15. List four occasions when not to give medications: **DISCREPANCY WITH MEDICATION LABEL; INDIVIDUAL EXHIBITS A DRAMATIC CHANGE IN STATUS; WRONG INDIVIDUAL, MEDICATION, TIME OR ROUTE; INDIVIDUAL REFUSES TO TAKE MEDICATION.**

DOCUMENTATION

SELF-TEST QUESTIONS--Lesson 7

T or **F** 1. Legibility is not very important on the chart.

T or **F** 2. You may use white out or liquid paper on the record.

T or F 3. The date and time of an entry are very important parts of the record.

T or **F** 4. Chart what you see, hear, smell, touch and what you think or feel.

5. Every medication given must be charted for the correct individual and include the following information.
   1. **NAME AND DOSAGE OF MEDICATION**
   2. **TIME OF ADMINISTRATION**
   3. **ROUTE OF ADMINISTRATION**

6. Name the parts of a medication order.
   INDIVIDUAL'S NAME, NAME OF MEDICATION, ROUTE OF ADMINISTRATION, FREQUENCY OF ADMINISTRATION, DOSAGE, DURATION, DOCTOR'S SIGNATURE, MISC. INFORMATION (NUMBER OF REFILLS, TAKE ON EMPTY STOMACH)

7. Routine medication are charted by putting your **INITIALS** in the appropriate box on the medication record, and by **SIGNING** your complete name and title in the appropriate space.

8. The effects of **PRN** medications must be charted after an appropriate period of time.

9. If a medication is not charted and legible, it is **NOT CONSIDERED DONE.**

INTRODUCTION TO USE OF MEDICATION REFERENCES SELF-

TEST QUESTIONS--Lesson 8

1. List three sources of information regarding medications:
   ON-LINE RESOURCES
   PACKAGE BROCHURES
   PHARMACIST/AGENCY NURSE

2. What information should the CMA have knowledge of prior to administering a medication to an individual?
   THE THERAPEUTIC EFFECT OF THE MEDICATION THE POTENTIAL SIDE EFFECTS
   ANY FOOD OR OTHER MEDICATION INTERACTIONS

3. What are two on-line resources for obtaining information about medications?
   Drugs.com
   www.fda.gov/Drugs/default.htm-

4. A package brochure must accompany each package of the drug product and be approved by the **FDA** before the product is released for marketing.

MEDICATION CLASSIFICATIONS - OVERVIEW

SELF-TEST QUESTIONS--Lesson 9

1. Define the term classification: **A MEANS TO ARRANGE OR PUT IN A CLASS ON THE BASIS OF RESEMBLANCES OR DIFFERENCES.**

2. Give the **action** of the following classifications:
   a. antacids: **NEUTRALIZES ACIDITY**
   b. steroids: **DECREASES INFLAMMATION**
   c. urinary antiseptics: **PREVENTS GROWTH OF DISEASE PRODUCING ORGANISM**
   d. diuretics: **DECREASE B/P, INCREASE URINARY OUTPUT**

3. List two **adverse effects** of the following classifications:
   a. antidiarrheals: **CONSTIPATION, DROWSINESS**
   b. saline laxatives: **DIARRHEA, CRAMPING**
   c. non-steroidal/ anti-inflammatory agents: **NAUSEA, VOMITING, HEADACHE**
   d. adrenergic blocking agents : **DIZZINESS, WEAKNESS**

4. Give the **classification** for each drug:
   a. Propoxyphene (Darvon) **NON NARCOTIC ANALGESIC**
   b. Nalidixic acid (NegGram) **URINARY ANTISEPTIC**
   c. Furosemide (Lasix) **DIURETIC**
   d. Magnesium salts (Milk of Magnesia) **SALINE LAXATIVE**
   e. Levodopa-carbidopa (Sinemet) **ANTI-PARKINSON**
   f. Auralgan **EAR MEDICATION**
   g. Methyldopa (Aldomet) **ADRENERGIC BLOCKER**
   h. Diphenhydramine (Benadryl) **ANTIHISTAMINE**
   i. Folic Acid **VITAMIN**
   j. Kenalog **STEROID**
   k. Indomethacin (Indocin) **NSAID**
   l. Dexamethasone (Decadron) **STERIOD**
   m. Loperamide (Imodium) **ANTIDIARRHEAL**
   n. Meperidine HCl (Demerol) **ANALGESIC**
   o. Ortho-Novum **ORAL CONTRACEPTIVE**

VITAMINS AND MINERALS

SELF-TEST QUESTIONS--Lesson 10, Section 1

1. Eating a **WELL BALANCED** diet will provide adequate vitamins and minerals.

2. List four periods when additional vitamins and minerals may be required.
   POOR NUTRITION, ILLNESS, PREGNANCY, PERIODS OF GROWTH.

3. List your responsibilities when administering vitamins and minerals.
   FOLLOW LABEL DIRECTIONS AND STORE IN A COOL, DARK PLACE.

4. Define:

   Hematinic: **IRON PREPARATIONS**

5. List two (2) side effects of Hematinics.

   1. **ABDOMINAL CRAMPING**
   2. **CONSTIPATION**

6. Side effects can be reduced if: **HEMATINICS ARE GIVEN RIGHT AFTER MEALS AND THE INDIVIDUAL IS ENCOURAGED TO DRINK AT LEAST 6 GLASSES OF FLUIDS PER DAY.**

7. Liquid iron preparations should be given through a **STRAW.**

MEDICATIONS THAT AFFECT THE RESPIRATORY SYSTEM
SELF-TEST QUESTIONS--Lesson 10, Section 2

1. List the symptoms of an allergic response: **RED WATERY EYES, SNEEZING, RUNNY NOSE, RASH, and HIVES.**
2. Symptoms of anaphylactic shock are: **SHORTNESS OF BREATH, NECK & FACIAL SWELLING, DECREASED B/P, and WEAK FAST PULSE.**
3. Anaphylactic shock may be caused by: **MEDICATIONS, BEE STINGS**.
4. Define. Antihistamine: **MEDICATIONS THAT REDUCE THE AFFECTS OF HISTAMINE**
5. Antihistamines are used for: **HIVES, INSECT BITES, TO RELIEVE ALLERGY SYMPTOMS, and PREVENT MOITION SICKNESS.**
6. Most common side effects of antihistamines are: **DROWSINESS, DRY MOUTH**.
7. Define. Expectorant: **MEDICATIONS THAT BREAK UP MUCOUS AND FACILITATES ITS EXPULSION FROM THE LUNGS.**
8. Define. Antitussives: **SUPRESSES COUGH REFLEX**
9. Two cautions to observe: **CONTENTS OF SUGAR & ALCOHOL.**
10. List three (3) side effects of cough preparations: **NAUSEA, VOMITING, DROWSINESS**
11. Define. Bronchodilators: **MEDICATIONS THAT RELAX THE CONSTRICTION OF THE BRONCHIAL TREE.**
12. List the side effects of bronchodilators: **NERVOUSNESS, HEADACHE, NAUSEA, VOMITING, SEATING, RESTLESSNESS**
13. Antitubercular medications are used to treat: **TUBERCULOSIS**.
14. List side effects of antitubercular medications **NAUSEA, FEVER, VOMITING, RASH.**
15. The possibility of nausea and vomiting may be **REDUCED** by giving medications **AFTER meals**.

GENERAL AND LOCAL ANTI-INFECTIVES

SELF-TEST QUESTIONS--Lesson 10, Section 3

1. Antibiotic medications are used to **DESTROY** or control bacteria.

2. Some antibiotics are **BACTERIAL SPECIFIC for** certain bacteria.

3. Bacteria can be gram **POSITIVE** or gram **NEGATIVE.**

4. Broad spectrum antibiotics have a **BROAD RANGE** of activity.

5. Narrow spectrum antibiotics have a **NARROW RANGE** of activity.

6. If an individual is seriously ill, he/she may be given a **BROAD SPECTRUM** antibiotic prior to lab results.

7. Always read label for **STORAGE** directions.

8. Before giving **ANTIBIOTICS** check the **EXPIRATION** date.

9. Antibiotics should not be used for **MINOR** infections. With frequent use of antibiotics a body can become **RESISTANT.**

10. An allergic reaction is the body's reaction to **A FOREIGN** substance.

11. Toxic effect can be **LIFE THREATENING** and leave permanent **DAMAGE.**

12. Toxic reactions are **RARE** but are **SERIOUS** when they occur.

13. Possible signs of toxic reactions are: **DECREASED URINARY OUTPUT; CHANGE IN SKIN COLOR; LACK OF ENERGY; HEARING IMPAIRMENT.**

14. Never administer an antibiotic unless you are sure the individual has never had an **ALLERGIC** reaction.

15. If an individual has had an **ALLERGY** it must be **DOCUMENTED** and reported.

16. List responsibilities when administering antibiotics: **OBSERVE FOR TOXIC REACTIONS, ALLERGIC REACTIONS AND SERIOUS INFECTIONS; INQUIRE FOR HISTORY OF ALLERGIES; READ LABEL FOR STORAGE DIRECTIONS AND EXPIRATION DATE; GIVE ANTIBIOTICS ON TIME; USE ENTIRE PRESCRIPTION UNLESS ORDER IS CHANGED.**

17. Define. Antifungal Agents: **TREAT FUNGAL INFECTIONS OF THE HAIR, SKIN, NAILS, MOUTH AND VAGINA.**

18. Define. Amebicides: **DESTROY AMOEBA-TYPE INFECTIONS.**

19. Define. Trichomonacides **DESTROYS TRICHOMONAL INFECTIONS.**

20. List responsibilities when administering:
    Amebicides: **OBSERVE INDIVIDUALS CLOSELY AND ENCOURAGE GOOD HYGIENE.**

    Trichomonacides: **INSTRUCT INDIVIDUALS IN DOUCHING. TEACH METHODS OF VAGINAL SUPPOSITORY INSERTION. ENCOURAGE INDIVIDUALS NOT TO HAVE SEXUAL INTERCOURSE UNTIL INFECTION IS CLEARED.**

21. Lotions and shampoos for lice should never be used on **OPEN** skin areas.

22. What are the available forms of medications used for treating scabies and lice? **LOTION, SHAMPOO and CREAM**

23. When using mediations to treat lice and scabies, always **FOLLOW LABEL DIRECTIONS**

24. List cautions of lice and scabies infestations: **1. IF ONE INDIVIDUAL HAS AN INFECTION, ALL INDIVIDUALS IN CLOSE CONTACT SHOULD BE EXAMINED.**
    2. ALL CLOTHING AND BEDDING SHOULD BE MACHINE WASHED OF DRY CLEANED.

25. Define. Anthelmintics: **DESTROY WORM INFECTIONS.**

    List side effects of Anthelmintics: **NAUSEA, FEVER, HEADACHE, DIARRHEA.**

MEDICATIONS THAT AFFECT THE CARDIOVASCULAR SYSTEM
SELF-TEST QUESTIONS--Lesson 10, Section 4

1. What is the action of Digitalis? **TO SLOW AND STRENGTHEN THE HEARTBEAT.**

2. Digitalis preparations have **SIMILAR** spelling.

3. If the pulse is **60** or below, you should request further guidance before administering Digitalis preparations.

4. List side effects of Digitalis preparations: **LOSS OF APPETITE, VISUAL DISTURBANCES, NAUSE/VOMITING, HEADACHE, DIARRHEA.**

5. Define. Antiarrhythmic Medications: **USED TO CORRECT DISORDERS OF THE HEART RATE AND RHYTHM.**

6. Two responsibilities when administering antiarrhythmic medications include: **MONITORING OF THE BLOOD PRESSURE AND THE PULSE.**

7. List possible side effects of Antiarrhythmics: **RINGING IN THE EARS, CONFUSION, MENTAL DEPRESSION, HEADACHE, NAUSE/VOMITING.**

8. Vasodilators may be used to prevent **CHEST** pain and increase **CIRCULATION.**

9. Define. Sublingual **TABLET HELD UNDER THE TONGUE AND ALLOWED TO DISSOLVE.**

10. List side effects of Vasodilators**: HEADACHE, LOW BLOOD PRESSURE, NAUSEA/VOMITING, DIZZINESS, WEAKNESS, and SKIN RASHES.**

11. Salt can contribute to **HYPERTENSION.**

12. Diuretics **INCREASE** urine and salt excretion.

13. Potassium is necessary for **SKELETAL and HEART MUSCLE function**.

14. Signs of potassium depletion are: **MUSCLE WEAKNESS, IRREGULAR HEARTBEAT, FATIGUE, and LEG CRAMPS.**

15. Responsibilities when administering diuretics are: **OBSERVE FOR SIGNS OF LOW POTASSIUM, ENCOURAGE FOODS HIGH IN POTASSIUM, MONITOR BLOOD PRESSURE, GIVE MEDICATION IN THE MORNING.**

16. Define:

    Antihypertensives: **USED TO TREAT HIGH BLOOD PRESSURE.**

17 Major caution with Antihypertensives is to monitor **BLOOD PRESSURE**

18. List possible side effects of Antihypertensive medications: **FATIGUE, DIZZINESS, NASAL CONGESTION, LOSS OF APPETITE, and DRYNESS OF MOUTH.**

19. Two Most common side effects are: **NASAL CONGESTION, DRYNESS OF MOUTH.**

20. Anticoagulants are medications which **DECREASE CLOT FORMATION.**

Coagulants **INCREASE** clot formation.

21. Signs of hemorrhage are: **NOSEBLEEDS, BLOOD IN STOOLS, BLEEDING GUMS, BLACK AND BLUE MARKS, BLOOD IN URINE, and CHANGE IN VITAL SIGNS.**

22. When an individual is on ANTICOAGULANT therapy, **PROTHROMBIN TIME** should be done routinely and whenever stopping and starting another medication.

MEDICATIONS THAT AFFECT THE URINARY SYSTEM
SELF-TEST QUESTIONS--Lesson 10, Section 5

1. Sulfonamides are used to treat **URINARY TRACT INFECTIONS.**
2. List two responsibilities: **AVOID FOODS HIGH IN CALCIUM. INCREASE FLUID INTAKE.**
3. List side effects: **NAUSEA, VOMITING, BLOOD IN URINE, DIARRHEA, SKIN RASH.**
4. Once an individual has urinary tract infection, it is likely to **REOCCUR.**
5. Urinary antiseptics may **CHANGE** the color of urine and cause stomach **UPSET**
6. List your responsibilities: **INFORM INDIVIDUAL OF COLOR CHANGE IN URINE. ENCOURAGE FLUID INTAKE OF 1 - 2 QUARTS/DAY. FIND OUT IF ACID OR BASE MEDIUM IS DESIRED.**
7. When a urinary antiseptic has AZO before the name, **PYRIDIUM** has been added.
8. Urecholine **RELIEVES** urinary retention.
9. Side effects associated with Urecholine include: **CRAMPING, DIARRHEA, HEADACHE.**

MEDICATIONS THAT AFFECT THE NERVOUS SYSTEM
SELF-TEST QUESTIONS--Lesson 10, Section 6

1. C.N.S. stimulants will:
   Increase **SHARPNESS OF SENSATION AND PERCEPTION.**
   Increase **BODY ACTIVITY**
   Increase **ALERTNESS AND CONCENTRATION**
   Suppress **FATIGUE AND INHIBIT SLEEP**

2. Caffeine is a mild **C. N. S.** stimulant.

3. List side effects of caffeine:
   INABILITY TO SLEEP (INSOMNIA), RESTLESSNESS/NERVOUSNESS, INCREASES HEART RATE.

4. Amphetamines are **C. N. S.** stimulants.

5. Amphetamines may be used to treat **DEPRESSION**, but are more often used for **HYPERKINETIC** children.

6. List common side effects of amphetamines: **LOSS OF APPETITE, DRY MOUTH, FAST HEART RATE, HIGH BLOOD PRESSURE, RESTLESSNESS, and INABILITY TO SLEEP.**

7. Central Nervous System depressants will:
   Decrease **SHARPNESS OF SENSATION AND PERCEPTION OF STIMULI**
   Lessen **BODY ACTIVITY**
   Decrease **ALERTNESS AND CONCENTRATION**
   Promote **DROWSINESS AND SLEEP**

8. Define:
   Hypnotic: **USED TO PRODUCE SLEEP**
   Sedative: **QUIETS AND RELAXES A PERSON WITHOUT PRODUCING SLEEP**

9. List side effects of sedative-hypnotics: **DROWSINESS, LETHARGY, DRY MOUTH, and POOR BALANCE.**

10. The major caution associated with sedative-hypnotics is **ADDICTION.**

11. Can you think of ways to calm an individual other than drugs? **QUIET ENVIRONMENT, WARM MILK, REASSURANCE.**

12. Sedative-hypnotics will interact with:
ANTIHYPERTENSIVES, TRANQUILIZERS, ANTIHISTAMINES, ALCOHOL.

13. Alcohol is a **C.N.S DEPRESSANT**

14. Sedative hypnotics reduce effectiveness of:
ANTICOAGULANTS, ORAL CONTRACEPTIVES.

15. Major life threatening side effects of sedative hypnotics: **SLURRED SPEECH, DEPRESSED RESPIRATIONS, TREMORS.**

16. If you observe life threatening signs, immediately **NOTIFY** the physician or nurse.

17. Define:
Analgesics: **RELIEVES PAIN.**

18. Two classes of analgesics are: **NARCOTIC, NON-NARCOTIC.**

19. Narcotic analgesics are capable of **ALTERING OR RELIEVING SEVERE PAIN.**

20. Common side effects of narcotics are: **SLOW RESPIRATIONS, SWEATING, CONSTIPATION, NAUSEA/VOMITING.**

21. When individuals are taking narcotics, the rate **RESPIRATORY RATE** should be checked.

22. Define:
Antipyretics **REDUCES FEVER.**
Anti-inflammatory**: REDUCES PAIN ASSOCIATED WITH INFLAMMATION.**

23. List side effects of analgesics: **RINGING IN THE EARS (TINNITUS), NAUSEA, and HEADACHE**

24. When possible, administer salicylates with **MILK** or after **MEALS.**

25. Define:
Anti-Anxiety Medications: **USED TO TREAT MILD/MODERATE STATES OF EMOTIONAL UPSET.**

26. Anti-Anxiety Medications can cause **MENTAL and PHYSICAL** dependence.

27. List side effects of anti-Anxiety Medications **ALLERGIC REACTIONS, LOW BLOOD PRESSURE, NAUSEA/VOMITING, SLURRED SPEECH.**

28. When taking anti-anxiety medication, stomach distress can be minimized by: **GIVING WITH OR AFTER MEALS.**

29. Define:
Antipsychotic Medications: **USED TO TREAT AGGRESSIVE AND AGITATED BEHAVIOR.**

30. List the severe side effects of antipsychotics: **TREMORS OF HANDS AND FEET, RESTLESSNESS, SHUFFLING WALK, and BODY RIGIDITY.**

31. Define:
Tardive Dyskinesia: **COMBINATION OF EPS AND MORE SEVERE, IRREVERSIBLE SIDE EFFECTS AROUND THE MOUTH AND JAWS, AS WELL AS SOME INTERNAL CHANGES.**

32. List some signs of a blood dyscrasia: **TIRED, ACHING FEELING, SORE THROAT, and SWOLLEN GLANDS IN THE NECK.**

33. Antidepressants will relieve and **DEPRESSION and ANXIETY.**

34. List side effects of Antidepressants: **DRY MOUTH, LOW BLOOD PRESSURE, CONSTIPATION, and DROWSINESS.**

35. **FOODS RICH IN TYRAMINE** should be avoided when individual is taking MA0I medications.

36. **LITHIUM** is a medication used for individuals who are diagnosed as manic-depressives.

37. Anticonvulsants are used to control: **CHRONIC SEIZURES**

38. List side effects of Anticonvulsants: **DIZZINESS, INCREASED HAIR GROWTH, VISUAL DISTURBANCES, SKIN RASHES, GASTRIC DISTRESS, GUM OVERGROWTH.**

39. A way to decrease gum overgrowth is: **GOOD HYGIENE.**

40. Always give Anticonvulsants with large amounts of **FLUIDS OR AFTER MEALS.**

MEDICATIONS THAT AFFECT THE ENDOCRINE SYSTEM

SELF-TEST QUESTIONS--Lesson 10, Section 7

1. Define: Diabetes Mellitus: **BODY'S INABILITY TO EFFICIENTLY BURN CARBOHYDRATES**

2. List the functions of insulin: **TRANSPORTS SUGAR INTO CELLS, CONTROLS THE RATE OF SUGAR USED FOR ENERGY, STORES SUGAR IN THE BODY FOR USE LATER, ASSISTS WITH STORAGE OF FAT, and STIMULATES PROTEIN TISSUE GROWTH**

3. List the most common signs of Diabetes Mellitus: **INCREASED THIRST, INCREASED URINE OUTPUT, WEIGHT LOSS, SLOW WOUND HEALING, INCREASED APPETITE, and FRUITY ODOR TO BREATH**

4. Complete the Chart:
   Causes of Insulin shock **TOO MUCH INSULIN, TOO LITTLE FOOD, EXCESSIVE EXERCISE, VOMITING**

   Onset: SUDDEN, WITHIN MINUTES

   Signs: **SKIN PALE AND MOIST, WEAK, HUNGRY, NERVOUSNESS, HEADACHE, DIZZINESS, VISUAL CHANGES, ALTERATIONS IN CONSCIOUSNESS FAINTING, SEIZURES, COMA**

   First aid measure for shock: **GIVE ORANGE JUICE, SUGAR BY MOUTH, CANDY UNDER TONGUE.**

   Causes of Diabetic Coma **TOO LITTLE INSULIN, TOO MUCH FOOD, ILLNESS**

   Onset: **SLOW, HOURS TO DEVELOP**

   Signs: **SKIN WARM, FLUSHED AND DRY, EYEBALLS SOFT, RESPIRATIONS DEEP AND RAPID (KUSSMAUL), FRUITY ODOR TO BREATH, NAUSEA, VOMITING, ABDOMINAL AIN, ALTERATION IN LEVEL OF CONSCIOUSNESS, LETHARGIC COMA**

5. Oral hypoglycemics resemble **INSULIN** activity.

6. List side effects of oral hypoglycemics: **STOMACH UPSET, ITCHING, HIVES**

7. Steroids may be used for: **RHEUMATOID ARTHRITIS, BURSITIS, and ALLERGIC REACTIONS**

8. Define: Steroids: **DECREASES INFLAMMATION AND THE BODY'S RESISTANCE TO INFECTION**

9. List responsibilities when administering steroid medication: **OBSERVE FOR SIGNS OF INFECTION, ADMINISTER STEROID WITH MILK OR FOOD, REPORT ANY SIGNS OF STOMACH DISTRESS, GIVE MEDICATION ON TIME.**

10. List side effects to steroids: **PUFFY FACE (MOON FACE), CHANGE IN MOOD, MUSCULAR WEAKNESS, EASY BRUISING OF SKIN, ABNORMAL HAIR GROWTH, ACNE**

11. When giving birth control medications, always **READ** label for directions.

12. List dangerous side effects of the birth control pills: **ABDOMINAL PAIN, CHEST PAIN, HEADACHE, SEVERE LEG PAIN, and EYE PROBLEMS.**

MEDICATIONS THAT AFFECT THE GASTROINTESTINAL SYSTEM
SELF-TEST QUESTIONS--Lesson 10, Section 8

1. Define: Antacid: **USED TO NEUTRALIZE EXCESS STOMACH ACID**
2. Signs of excess stomach acid are: **BURNING IN STOMACH, UPSET STOMACH, BURPING**
3. Define: Emetic: **USED TO CAUSE VOMITING**
4. Do not give emetics if the poison is: **CORROSIVE**
5. A medication used to cause vomiting is: **SYRUP OF IPECAC**
6. Define: Antiemtics: **RELIEVE NAUSEA AND VOMITING**
7. Antihistamines may be used as: **ANTIEMETICS**
8. Side effects of antiemtics may include: **DROWSINESS, DRY MOUTH**
9. Household remedies for nausea and vomiting are: **COCA COLA, WARM TEA**
10. Cathartics and laxatives are used for: **CONSTIPATION**
11. List causes of constipation: **IMPROPER DIET, TENSION AND WORRY, POOR FLUID INTAKE, and LACK OF EXERCISE**
12. Cathartics and laxatives should not be given if individual complains of: **ABDOMINAL CRAMPS, NAUSEA, and ABDOMINAL PAIN**
13. List side effects of laxatives: **ABDOMINAL CRAMPS, NAUSEA, and ABDOMINAL PAIN**
14. List causes of diarrhea: **CONTAMINATED OR PARTIALLY DIGESTED FOOD, INTESTINAL INFECTION, NERVOUS DISORDER, CIRCULATORY DISTURBANCES, and CERTAIN ALLERGY DISORDERS**
15. Simple diarrhea is due to **POOR EATING HABITS, EMOTIONAL STRESS**.
16. Most frequent side effects of antidiarrheal medications is: **CONSTIPATION**.
17. PPIs and H2 Antagonists are used to treat **GERD** and **ULCERS**

MEDICATIONS THAT AFFECT THE SKIN AND MUCOUS MEMBRANES

SELF-TEST QUESTIONS--Lesson 10, Section 9

1. Medications applied to skin may have a **LOCAL or GENERAL** effect.

2. Define:

   Emollient: **OIL SUBSTANCE APPLIED TO SOOTHE THE SKIN OR MUCOUS MEMBRANES.**

   Demulcent: **ALLEVIATES IRRITATION, PARTICULARLY OF MUCOUS MEMBRANES**

   Astringent: **LESSENS SECRETIONS, STOPS MINOR BLEEDING AND SHRINKS SWOLLEN AND INFLAMMED TISSUES**

   Counterirritants: **USED TO IRRITATE UNBROKEN SKIN AREAS IN ORDER TO RELIEVE PAIN IN DEEPER TISSUES.**

   Antipruritics: **RELIEVE ITCHING**

3. Define:
   Antiseptics: **DESTROY OR PREVENT GROWTH OF BACTERIA ON THE SKIN**

4. Always read **THE LABELS** for directions.

MEDICATIONS THAT AFFECT THE EYE AND EAR

SELF-TEST QUESTIONS--Lesson 10, Section 10

1. Define: Miotics: **CONSTRICTS PUPILS**

2. List two antibiotic ophthalmic ointments:

   AUREOMYCIN

   NEOSPORIN

3. What are your major responsibilities when working with eye medications?

   A) ADMINISTER THE DROPS TO THE DESIGNATED EYE

   B) MAINTAIN CLEAN TECHNIQUE

4. **ORAL ANTIBIOTICS** are used for ear infections.

5. Nausea and vomiting may be relieved by: **ANTIEMETICS.**

MEDICATION ADMINISTRATION COURSE

PART IV

PRACTICAL CHECKLISTS 1 - 26

REVISED – 1998
REVISED FEBRUARY - 2018

MEDICATION ADMINISTRATION TRAINING COURSE

PRACTICAL DIRECTIONS

1. The trainee must pass each of the following practical tasks to the satisfaction of the instructor. (The LPN may observe the trainee performing the practical tasks under the delegation of the RN instructor.)

2. The Medication Attendant guidelines state that 20 hours of practical training is needed to complete this course,10 hours can be in classroom instruction and demonstration, and the remaining 10 hours are to be in the living unit. **Each medication pass can be counted as 30 minutes of practical time.**

3. Each step of the practical checklist is rated by the instructor as satisfactory (**S**) or unsatisfactory (**U**) as the trainee demonstrates the specific task. In order to pass a specific practical, the trainee must receive a satisfactory rating on all steps of the checklist. The overall rating by the instructor should be satisfactory. The trainee can be allowed to retake the specific practical they failed until a satisfactory rating is obtained. If the trainee does not encounter a specific task included in the checklists in their work environment, a verbal explanation of the procedure may be accepted with the instructor's permission.

4. Certification as a Medication Attendant is not awarded to an individual until he/she has passed the written exam administered by the state, and all practical checklists have been rated satisfactory by the instructor.

LISTING OF PRACTICAL CHECKLISTS

1. Handwashing
2. Oral medications (Tablets and Capsules)
3. Liquid Medications
4. Topical Medications
5. Eye Medications
6. Ear Medications
7. Capillary Blood Glucose
8. Rectal Suppositories
9. Vaginal Suppositories/Creams
10. Disposable Enemas
11. Disposable Douches
12. Counting Pulse
13. Counting Respirations
14. Measuring Blood Pressure
15. Oral Temperatures
16. Rectal Temperatures
17. Axillary Temperatures
18. Tympanic Temperatures (Ear)
19. Transdermal Patches
20. Nasal Atomizer
21. Oral Powdered Medications
22. Charting
23. Crushing Tablets
24. Rectal Creams

25-A Oral Inhalant Aerosol (Nebulizer)

25-B Oral Inhalant Atomizer

26. Sublingual Tablets

OCDD - State of Louisiana – Certified Medication Attendant Course

MONITOR'S CHECKLIST FOR PRACTICE SESSIONS

STAFF MEMBER: _____ DATE: _____

NURSE: _____ TOTAL TRAINING TIME: _____

Directions:

1. This checklist is to be used during the 20 hours of practical required prior to the final practical session.
2. This general checklist is rated satisfactory (S), unsatisfactory (U) or Non-applicable (N/A).
3. Check off procedures performed and comment as needed.
4. Review this checklist with trainee after the practice session and discuss your findings. Have staff member sign this sheet to verify the practice session and your findings.
5. Sign below and file with trainee's folder to document the 20 hours of practice.

Monitor's Checklist	S	U	N/A
1. Cleaned top of cabinet/cart where medication will be administered.			
2. **Washed hands**			
3. Gathered appropriate equipment.			
4. Checked label 3 times: Before removing container from shelf; before administering; and, before retiring container to shelf.			
5. Prepared specific medication correctly.			
6. Administered specific medication correctly.			
7. Documented medication administration/observations correctly.			
8. Observed individual swallowing medication.			
9. Returned medication and secured medication area.			
10. Washed hands.			

PROCEDURES PERFORMED:

____Handwashing
____Oral Meds (Tablets/ Capsules)
____Liquid Medications
____Topical Medications
____Eye Medications
____Ear Medications
____Capillary Blood Glucose
____Rectal Suppositories/Creams
____Vaginal Suppositories/Creams
____Disposable Enemas
____Disposable Douches
____Counting Pulse
____Counting Respirations
____Taking Blood Pressure
____Oral Temperatures
____Rectal Temperatures
____Axillary Temperatures
____Tympanic Temperature (Ear)
____Transdermal Patches
____Nasal Atomizer
____Oral Powdered Medications
____Charting
____Crushing Tablets
____Rectal Creams
____Oral Inhalant Aerosol (Nebulizer)
____Oral Inhalant Atomizer
____Sublingual Tablets

Comments_____

_____

_____Staff Signature

_____Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #1
HANDWASHING

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Handwashing	**S**	**U**	**N/A**
1.	Check equipment (soap, paper towels, sink, running water).			
2.	ADJUST RING IF WEARING ONE.			
3.	Approach sink without clothing touching sink.			
4.	Hold hands and wrist downward and wet hands.			
5.	Lather hands with soap.			
6.	Continue scrubbing action for 1-2 minutes cleaning between fingers, back and palms of hands and fingernails by rubbing in palms of hands.			
7.	Hold hands down and rinse hands.			
8.	Dry one hand with paper towel from wrists to fingertips, with one wiping motion and then discard and repeat if necessary.			
9.	Repeat other hands. (Do not use same towel twice)			
10.	Turn water off with clean paper towel.			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #2

ORAL MEDICATION (TABLETS/CAPSULES)

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Oral Medication (Tablets/Capsules)	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Take vital signs if necessary.			
8.	Do **2nd check**: using the 6 Rights of Medication Administration.			
9.	Pour correct dosage.			
10.	Do **3rd check**: using the 6 Rights of Medication Administration.			
11.	Identify individual, then administer medication with cup of water. Explain procedure.			
12.	Observe individual to ensure swallowing of medication.			
13.	Document administration of medication in medication administration record.			
14.	Clean medication administration area.			
15.	**Wash hands**.			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana - Certified Medication Attendant Course

Practical Checklist #3

LIQUID MEDICATIONS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Liquid Medications	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Shake medication.			
8.	Do **2nd check**: using the 6 Rights of Medication Administration.			
9.	Remove cap properly and place open side up on counter.			
10.	Place thumb nail at correct dosage line			
11.	Place measuring cup on **flat surface at eye level** and pour the prescribed dose. **(Read at lowest level of fluid surface)**			
12.	Wipe outside of bottle and replace cap			
13.	Do **3rd check**: using the 6 Rights of Medication Administration.			
14.	Identify individual then administer medication.			
15.	Follow with water unless otherwise indicated and observe individual swallowing medication.			
16.	Document administration of medication in Medication Administration Record (MAR)			
17.	Clean medication administration area and **wash hands.**			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #4

TOPICAL MEDICATIONS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Topical Medications	S	U	N/A
1. Clean top of cart/cabinet where medication will be administered.			
2. **Wash hands**.			
3. Read Medication Administration Record (MAR)			
4. Obtain proper equipment.			
5. Unlock medication storage area & obtain medication.			
6. **1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7. Do **2nd check**: using the 6 Rights of Medication Administration.			
8. Identify individual.			
9. Do **3rd check**: using the 6 Rights of Medication Administration.			
10. Explain procedure, provide privacy and help individual undress if necessary.			
11. Put on gloves and clean area if necessary			
12. Administer medication using gloves or applicator.			
13. Apply dressing if necessary.			
14. Remove gloves, dispose of equipment and **wash hands.**			
15. Document administration of medication in Medication Administration Record (MAR)			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #5

EYE MEDICATIONS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Eye Medications	S	U	N/A
1. Clean top of cart/cabinet where medication will be administered.			
2. **Wash hands**.			
3. Read Medication Administration Record (MAR)			
4. Obtain proper equipment.			
5. Unlock medication storage area & obtain medication.			
6. **1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7. Do **2nd check**: using the 6 Rights of Medication Administration. Shake medication well			
8. Identify individual, then position head tilted backward.			
9. Do **3rd check**: using the 6 Rights of Medication Administration.			
10. Remove top properly and place upright on counter			
11. Explain procedure to individual. Instruct individual to look upward.			
12. Make **conjunctival sac** & administer eye drops, counting out loud & using sterile technique.			
13. For eye ointments, gently squeeze appropriate amount from **inner to outer canthus**.			
14. Close individual's eye and press gently on inner canthus.			
15. Wipe away excess ointment gently with tissue.			
16. Document administration of medication in Medication Administration Record (MAR)			
17. Clean medication administration area and **wash hands.**			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCCD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #6

EAR DROPS

STAFF MEMBER _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Ear Drops	S	U	N/A
1. Clean top of cart/cabinet where medication will be administered.			
2. **Wash hands**.			
3. Read Medication Administration Record (MAR)			
4. Obtain proper equipment.			
5. Unlock medication storage area & obtain medication.			
6. **1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7. Do **2nd check**: using the 6 Rights of Medication Administration.			
8. Identify individual, then clean ears with warm moist wash cloth.			
9. Warm ear medication.			
10. Do **3rd check**: using the 6 Rights of Medication Administration.			
11. Explain procedure, position individual on unaffected side.			
12. Straighten ear canal & administer medication.			
13. Allow medication to drain into ear canal.			
14. Document administration of medication in Medication Administration Record (MAR)			
15. Clean medication administration area and **wash hands**.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #7

Measuring Capillary Blood Glucose

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. The trainee will be provided with a verbal demonstration of the procedure. Explain that it is **up to their agency** if this procedure will be allowed and that they will **require training by their agency nurse** before performing this procedure.

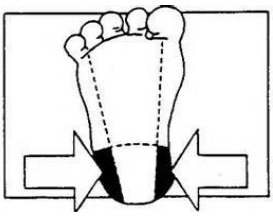
2. Explain that there are different Glucometers and that they will need to follow the instructions for the meter they will be using.

3. For purposes of this demonstration the instructions are for **the actual finger stick**

Measuring Capillary Blood Glucose	S	U	N/A
1. Before a meter is used for the **first time and with each new box of test strips t**he meter must be **calibrated**. This means the meter is set to **'match'** the strips being used by coding it with the calibration strip supplied in the packet of test strips. Follow instructions for the meter you will be using as meters vary. **REMEMBER TO CHANGE THE CODE CHIP with every new box of test strips**			
2. Obtain proper equipment.			
3. Explain the procedure to the individual and instruct them to wash their hands with soap and warm water and dry thoroughly. The warm water will help facilitate blood flow.			
4. Wash and dry your hands and put on disposable gloves			
5. Remove a test strip from the container and place in the meter. Some meters require placing strip in meter following the finger stick. **Follow meter instructions**.			
5. Massage the finger that will be used to increase blood flow. The ring or middle finger of the non- dominant hand is best.			
6. Use 70% Isopropyl Alcohol to cleanse the area of the finger. Wipe dry with a clean gauze pad or cotton ball. Make sure the area is **completely dry** before the stick as alcohol will interfere with the test result.			
7. If you are using a lancet, remove it from its container and grasp it between the thumb and fore finger. If you are using a finger **puncture device**, you will need to follow the instructions for the device.  Puncture Device  Lancets			
8. Hold the finger firmly and use darting motion to puncture the finger if you are using a lancet. Apply pressure to start blood flow. Use a gauze pad to wipe away the **first drop** of blood.			

9. Touch the edge of the test strip to the next blood drop -- the strip should draw the blood into the testing window.			
10. Apply pressure to the puncture site with a small gauze pad while you wait For the test results. If the blood sample was obtained appropriately, the glucometer should display the blood sugar on the screen within a few minutes.			
11. Turn off the meter and disposes of the reagent strip, cotton ball, gauze pad, paper towel, alcohol pad, and lancet in the proper containers.			
12. Removes the procedure gloves and disposes of them in the proper container.			
13. Document the results in the blood glucose log. **Notify the Nurse or Physician if results are above or below the established parameters for the individual**.			

Puncture site



Puncture site for infants

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
SIGNATURE OF NURSE

THE STUDENT WILL NOT ACTUALLY PERFORM THE FINGER STICK ONLY PROVIDE A VERBAL DEMONSTRATION

If their agency allows them to perform the finger stick the Agency Nurse will train them

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #8

RECTAL SUPPOSITORIES

STAFF MEMBER: _____DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Rectal Suppositories	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Put gloves on & prepare suppository for insertion by placing small amount of water soluble lubricate on tapered end.			
9.	Do **3rd check**: using the 6 Rights of Medication Administration.			
10.	Provide private area, explain procedure & help individual undress.			
11.	Position individual on their side & expose on the rectal area.			
12.	Separate buttock with one hand & gently insert tapered end of suppository into rectum with gloved finger **(2" for adults; 1" for child)** (Do not insert against resistance)			
13.	Press buttocks together for one minute.			
14.	Instruct individual to remain in position for 15 minutes if possible.			
15.	Remove gloves, dispose of equipment & **wash hands.**			
16.	Document administration of medication in Medication Administration Record (MAR)			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical

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Signature of Nurse

OCDD - State of Louisiana –Certified Medication Attendant Course

Practical Checklist
#9

VAGINAL SUPPOSITORIES/VAGINAL CREAMS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervsion of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Vaginal Suppositories /Vaginal Creams	**S**	**U**	**N/A**
2. **Wash hands.**			
3. Read Medication Administration Record (MAR)			
4. Obtain proper equipment.			
5. Unlock medication storage area & obtain medication.			
6. **1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7. Do **2nd check**: using the 6 Rights of Medication Administration.			
8. Identify individual.			
9. Put gloves on.			
10. Prepare suppository for insertion by inserting in applicator and applying a small amount of water soluble lubricate on tapered end.			
11. Prepare vaginal cream by attaching applicator to tube squeeze applicator to fill it with the cream.			
12. For application on external vaginal area squeeze appropriate amount of cream on gauze sponges.			
13. Do **3rd check**: using the 6 Rights of Medication Administration.			
14. Provide private area for administration, explain procedure to individual, help undress & position individual in **dorsal recumbent position** with bed protector under individual's buttocks. Expose only the perineum area.			
15. Separate Labia with one hand & cleanse area from front to back with appropriate cleaning agent.			
16. Insert suppository/cream into vagina with applicator, administer & remove applicator.			
17. Administer vaginal cream externally by applying liberally to area.			
18. Put sanitary pad on. Instruct individual to remain laying down for 15 minutes.			
19. Remove gloves & dispose of equipment.			
20. **Wash hands**.			
21. Document Administration on Medication Administration record			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat

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Signature of Nurse

OCDD- State of Louisiana –Certified Medication Attendant Course

Practical Checklist #10

DISPOSABLE ENEMAS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Disposable Enemas	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands**.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain enema.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Do **3rd check**: using the 6 Rights of Medication Administration.			
9.	Provide private area, explain procedure and help individual undress			
10.	Position on **left side** and expose rectal area only.			
11.	Put on gloves and squeeze excess air from disposable enema.			
12.	Separate buttocks with one hand, insert tip of disposable enema and squeeze into rectum. (**Do not insert against resistance.**)			
13.	Press buttocks together after withdrawing tip and instruct individual to remain in position for one minute (15 minutes if possible).			
14.	Remove gloves, dispose of equipment and **wash hands**.			
15.	Document administration and results on MAR			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #11

DISPOSABLE DOUCHES

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Disposable Douches	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	Wash hands.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Do **3rd check**: using the 6 Rights of Medication Administration.			
9.	Identify individual and explain procedure.			
10.	Help undress in privacy, recline individual in shower or tub.			
11.	Put on gloves and remove excess air out of container.			
12.	Separate labia with one hand and administer douche into the vagina gently.			
13.	Dry area with towel and help individual dress.			
14.	Remove gloves, dispose of equipment, clean area and **wash hands**.			
15.	Document administration of medication in Medication Administration Record (MAR)			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #12

COUNTING PULSE

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Counting Pulse		**S**	**U**	**N/A**
1.	**Wash hands.**			
2.	Gather equipment (watch with second hand, pencil, paper).			
3.	Identify individual and match with MAR			
4.	Explain procedure to individual.			
5.	Position individual (lie down or sit down with palm of individual's hand facing down with arm supported).			
6.	Place flat surface of your middle finger lightly over individual's radial artery.			
7.	When pulse beat is felt, note rhythm and strength of beat.			
8.	Count pulse for 1 full minute.			
9.	Record pulse on paper.			
10.	If pulse is below **60** and/or any irregular beats or volume noted, report immediately to supervisor.			
11.	**Wash hands.**			
12.	Document pulse on correct form.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #13

COUNTING RESPIRATIONS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Counting Respirations	**S**	**U**	**N/A**
1.	**Wash hands.**			
2.	Gather equipment (watch with second hand, pencil, paper).			
3.	Identify individual and match with MAR			
4.	Hold individual's wrist as if you were taking his pulse so he will not be aware of you watching him breathe.			
5.	Count rise and fall of chest as one respiration.			
6.	Count respirations for one full minute.			
7.	Write down the number immediately.			
8.	Report to your supervisor if respirations are less than 12 or more than 28 a minute, and if respirations are noisy, labored or have irregular pattern.			
9.	Document respirations on correct form.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #14

TAKING BLOOD PRESSURE

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.
4. **Explain that their agency may use a digital monitor and they should be trained on that monitor prior to use.**

	Taking Blood Pressure	**S**	**U**	**N/A**
1.	**Wash hands.**			
2.	Gather equipment (select right size cuff & Stethoscope).			
3.	Identify individual and match with MAR			
4.	Explain procedure to individual.			
5.	Wrap cuff securely but not tightly around upper arm.			
6.	Locate brachial artery with fingers and position arrow above artery.			
7.	Place stethoscope over brachial artery.			
8.	Inflate cuff. (Usually not over 160)			
9.	Slowly release valve.			
10.	Note when 1st thump is heard (systolic pressure)			
11.	Note when last thump or muffling is heard (diastolic).			
12.	Release all of air in cuff and remove from arm.			
13.	Document Blood Pressure on correct form.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical)

_____
Signature of Nurse

Note: The agency may choose to use a digital cuff. Explain that the instructions for that digital cuff should be followed.

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #15

TAKING ORAL TEMPERATURES

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Taking Oral Temperature	S	U	N/A
1. **Wash hands.**			
2. Gather equipment (oral digital thermometer and disposable sheaths).			
3. Explain procedure to individual.			
4. Perform hand hygiene/wash hands, and apply gloves when appropriate.			
5. Place disposable protective sheath over probe.			
6. Place tip of thermometer under the person's tongue and along the gum line. Instruct the person to keep mouth closed around thermometer.			
7. Thermometer will signal (beep) when a constant temperature registers.			
8. Press the ejection button on the probe to release the disposable sheath. Dispose of gloves			
9. Record temperature on correct form.(be sure to record **O** for oral route)			
10. **Wash hands**.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #16

TAKING RECTAL TEMPERATURES

STAFF MEMBER: _____DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps (verbally) in the task below under the direct supervision of a nurse (RN or LPN).

2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Taking Digital Rectal Temperature	**S**	**U**	**N/A**
1. Gather equipment (rectal digital thermometer, disposable probe sheaths, gloves, tissue)			
3. Explain procedure to individual.			
4. Position individual on their side & expose buttocks only. Provide privacy			
5. Wash hands and **put on gloves**			
6. Slide a probe sheath over the pointed end of the thermometer.			
7. Lubricate the end of the probe with a small amount of lubricating jelly			
8. Insert the probe **1" in to the rectum of an adult and ½" into the rectum of a child.** Stop inserting the thermometer if it becomes difficult to insert. Never force the thermometer into the rectum.			
7. Keep the thermometer in place until it beeps. Hold it at all times.			
8. Remove the thermometer and Push ejection button to discard disposable sheath into trash receptacle.			
9. Use tissue to clean lubricant from individual's rectum.			
10. Remove gloves and dispose in trash receptacle and wash hands.			
10. Record the thermometer reading on correct form.(be sure to record **R** for rectal route)			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD- State of Louisiana- Certified Medication Attendant Course
Practical Checklist #17

TAKING AXILLARY TEMPERATURES

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Taking Axillary Temperature	S	U	N/A
1. **Wash hands.**			
2. Gather equipment (digital thermometer and disposable sheaths).			
3. Explain procedure to individual.			
4. Perform hand hygiene/wash hands, and apply gloves when appropriate.			
5. Place disposable protective sheath over probe.			
6. Place tip of thermometer under the person's arm and Instruct the person to remain still.			
7. Thermometer will signal (beep) when a constant temperature registers.			
8. Press the ejection button on the probe to release the disposable sheath. Dispose of gloves if worn.			
9. Wash hands_			
10. Record temperature on correct form.(be sure to record **AX for the axillary** route)			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

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Signature of Nurse

OCDD- State of Louisiana- Certified Medication Attendant Course
Practical Checklist #18

TAKING TYMPANIC TEMPERATURES (EAR)

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Taking Tympanic Temperature	**S**	**U**	**N/A**
1. **Wash hands.**			
2. Gather equipment (Ear thermometer, probe covers)			
3. Explain procedure to individual.			
4. Position individual in sitting position and encourage them to sit very still.			
5. Remove probe from container, and attach probe cover to tympanic thermometer unit.			
6. Turn client's head to one side. For an adult, pull pinna upward and back; for a child, pull down and back. Gently insert probe with firm pressure into ear canal**.**			
7. Remove probe after the reading is displayed on digital unit (usually 2 seconds).			
8. Return tympanic thermometer to storage unit.			
9. Wash hands			
10. Record the reading on the proper document and mark **E** after the reading to indicate the temp was taken in the ear.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD- State of Louisiana – Certified Medication Attendant Course
Practical Checklist #19

PRE MEASURED TRANSDERMAL PATCHES

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Premeasured Transdermal Patches	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Do **3rd check**: using the 6 Rights of Medication Administration.			
9.	Identify individual and explain procedure.			
10.	Provide privacy and help the individual undress if necessary.			
11.	Remove previous patch. Clean and dry the area where new patch will be placed. **Rotate sites.**			
12.	Adhere medication patch securely. **AVOID** touching medicated portion of patch.			
13.	Dispose of equipment and **wash hands**.			
14.	Document administration of medication in Medication Administration Record (MAR)			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana -Certified Medication Attendant Course
Practical Checklist #20

NASAL ATOMIZER

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Nasal Atomizer	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands**.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Identify individual and ask individual to blow his/her nose to clear nasal passages. Position correctly.			
9.	Do **3rd check**: using the 6 Rights of Medication Administration.			
10.	Remove top of medication and place open side up on counter.			
11.	Administer medication, ask individual to inhale at proper time.			
12.	Repeat for other nares, if ordered.			
13.	Document administration of medication in Medication Administration Record (MAR)			
14.	Clean medication administration area and **wash hands**.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #21

ORAL POWDERED MEDICATION (i.e., FIBER LAXATIVES)

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Oral Powdered Medication (i.e.: Fiber laxatives)	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands**.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Take vital signs if necessary.			
8.	Do **2nd check**: using the 6 Rights of Medication Administration.			
9.	Pour correct dosage.			
10.	Do **3rd check**: using the 6 Rights of Medication Administration.			
11.	Mix powdered medication in amount of water prescribed (or described by directions);			
12.	Identify individual. Explain procedure to individual, then administer medication: the individual must swallow entire amount quickly **(give. with an additional cup of water).**			
13.	Observe the individual to ensure that he has swallowed the medication and water.			
14.	Document administration of medication in Medication Administration Record (MAR)			
15.	Clean medication administration area and **wash hands**.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #22

CHARTING

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Charting	S	U	N/A
Charting is done immediately after the administration of medication.			
Charting accurately indicates person, drug, dose, time & route.			
Medication Administration Record (MAR) is signed.			
Charting is done with indelible ink and in accordance with agency policy.			
Charting is legible.			
If needed, corrections are done properly.			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #23

CRUSHING TABLETS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Crushing Tablets	**S**	**U**	**N/A**
1.	Check Medication Administration Record (MAR) and Physician's order to determine if medication may be crushed.			
2.	Follow procedure for Administering oral medication.			
3.	Following the third medication label check: Remove tablet from the packaging using aseptic technique and place the tablet between two appropriate aseptic surfaces (pill crushers, mortar & pestle, etc.) and crush.			
4.	Administer either in powder form or mix in an appropriate medium (i.e.: water or applesauce).			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD- State of Louisiana – Certified Medication Attendant Course
Practical Checklist #24

RECTAL CREAMS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Rectal Creams	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands**.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Put gloves on & prepare cream...			
9.	Do **3rd check**: using the 6 Rights of Medication Administration.			
10.	Provide private areas, explain procedure & help individual undress.			
11.	Position on side & expose only the rectal area.			
12. 13.	Separate buttock with one hand & gently insert the cream into the rectum (Do not insert against resistance).			
14.	Instruct the individual to remain in position for 15 minutes if possible.			
15.	Remove gloves, dispose of equipment & **wash hands**.			
16.	Document administration of medication & results in Medication Administration Record (MAR)			

Comments: _____

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course
Practical Checklist #25-A

ORAL INHALANT AEROSOL (NEBULIZER)

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

Oral Inhalant Aerosol		**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands**.			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment. Nebulizer, tubing, nebulizer unit (machine), mask or mouthpiece(Supervising nurse should predetermine if a mask or mouthpiece is appropriate) premeasured medication solution, tissue for coughing			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Do **2nd check**: using the 6 Rights of Medication Administration.			
8.	Prepare the nebulizer. Connect the tubing to nebulizer and machine			
9.	Identify the client, explain procedure			
10.	Obtain pulse and respirations			
11.	Do **3rd check**: using the 6 Rights of Medication Administration.			
12.	Fill the nebulizer with the premeasured medication solution.			
14.	Place mask on client or give the nebulizer with the mouth piece to the client. Turn the machine on and (Have client hold nebulizer upright)			
15.	Monitor client for signs of distress during treatment. (If distress noted discontinue treatment and notify nurse)			
16.	When all the medication solution is nebulized, remove mask or mouth piece. Turn Nebulizer unit off.			
17.	Obtain respirations and pulse. Record according to facility policy.			
18.	Wash hands and document administration on MAR .			
19.	Disconnect nebulizer and tubing, store (Nebulizer and tubing should be discarded/replaced after 24 hrs.)			
20.	Monitor for any adverse effects and report any unusual findings			
21.	CMA should be able to describe to the nurse the steps to be taken should profound tachycardia or bronchospasms occur.			

Comments: _____

OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (needs to repeat practical)

_____Signature of Nurse

OCDD - State of Louisiana –Certified Medication Attendant Course

Practical Checklist #25-B

ORAL INHALANT ATOMIZER

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Oral Inhalant Atomizer	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Measure pulse rate and respirations			
8.	Do **2nd check**: using the 6 Rights of Medication Administration.			
9.	Prepare the atomizer.			
10.	Do **3rd check**: using the 6 Rights of Medication Administration.			
11.	Identify individual and explain the procedure			
12.	Have the client hold the atomizer up right, squeeze the prescribed number of puffs and inhale			
13.	Measure respirations and pulse. Record according to facility procedure			
14.	Wash hand and document the administration on the MAR			
15.	Monitor for any adverse effects and report any unusual findings			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

OCDD - State of Louisiana – Certified Medication Attendant Course

Practical Checklist #26

SUBLINGUAL TABLETS

STAFF MEMBER: _____ DATE: _____

INSTRUCTOR: _____

Directions: 1. Trainee must perform all applicable steps in the task below under the direct supervision of a nurse (RN or LPN).
2. The nurse will rate each step in the task satisfactory (S), unsatisfactory (U).
3. The trainee must have a rating of satisfactory on all steps to pass this practical.

	Sublingual Tablets	**S**	**U**	**N/A**
1.	Clean top of cart/cabinet where medication will be administered.			
2.	**Wash hands.**			
3.	Read Medication Administration Record (MAR)			
4.	Obtain proper equipment.(Possible gloves)			
5.	Unlock medication storage area & obtain medication.			
6.	**1st check**: Check medication label according to the 6 Rights of Medication Administration.			
7.	Check Vital Signs if ordered or indicated			
8.	Do **2nd check**: using the 6 Rights of Medication Administration.			
9.	Pour the correct dose			
10.	Do **3rd check**: using the 6 Rights of Medication Administration.			
11.	Identify individual and explain the procedure			
12.	Tell the client to place the tablet under his tongue. If the client is unable to place the tablet, the CMA may need to assist him by dropping the tablet under his tongue. The CMA should wear gloves if doing so. (Remove gloves if used and discard properly)			
13.	Remind client to allow the tablet to dissolve and monitor			
14.	Wash hands and document the administration on the MAR			
15.	Monitor for any adverse effects and report any unusual findings			

Comments:

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OVERALL RATING: _____SATISFACTORY _____UNSATISFACTORY (Needs to repeat practical.)

_____
Signature of Nurse

CERTIFIED MEDICATION ATTENDANT COURSE

PART V

INSTRUCTOR'S CURRICULUM GUIDELINES OF TEACHING TECHNIQUES AND SUPPLEMENTAL GUIDE

SEPTEMBER - 1995
REVISED March – 1998
REVISED FEBRUARY – 2018

INSTRUCTOR'S CURRICULUM GUIDELINES OF TEACHING TECHNIQUES AND SUPPLEMENTAL GUIDE

UNIT 1: INTRODUCTION

Purpose of this Manual

The purpose of the Curriculum Guidelines of Teaching Techniques and Supplemental Guide is two-fold:

- To supplement the Medication Attendant Training Manual.
- To serve as a reference manual when the instructor prepares to teach the Certified Medication Attendant Course.

In developing the techniques to enhance the learning experience, instructors are encouraged to seek materials that provide students an opportunity to gain knowledge and skill based upon activities that simulate the role of the Medication Attendant in the workplace. This manual contains a variety of activities that are effective in simulating the community home and developmental center settings

It is recommended that the instructor assist the student to draw upon his/her existing knowledge so that new skills may be developed by integrating the more complex information presented in the course. The self-test questions allow the students to continually evaluate knowledge gained. The Practical Checklist allows the student to perform skills until competency is demonstrated, and to learn the standards by which they are to be evaluated and the level of skill expected.

The instructor is encouraged to incorporate various concepts of learning. Research supports that adults learn more readily **when they clearly understand what is expected.** When learning is organized around activities wherein students themselves produce or decide something, the learner grasps the information in a more meaningful fashion

Unit 2 will introduce you to four concepts of learning.

UNIT 2: LEARNING PROCESS

Learning can be defined as a process of change through which people acquire new knowledge, skills or attitudes as a result of some type of study or experience. Learning occurs over time and should be considered a lifelong process or experience. If change of some kind does not occur, the teaching is ineffective. As an instructor you motivate students to acquire new information, remember it, and apply it. But the students' must do the learning, and they learn best by being involved in the learning experience.

CONCEPTS OF LEARNING

Four concepts about learning will help you in teaching this course. They are motivation, association, repetition and use of the senses.

1. MOTIVATION

Students need to be motivated in order to learn effectively. As an instructor, you need to look for ways to enhance or maintain students' motivation to learn.

Knowing each student by name gives the student a feeling of respect. By recognizing the individual, you positively influence their self-esteem and the motivation to learn can take place.

2. ASSOCIATION

By building on information already learned or on previous experience's it is easier to learn.

Association helps students understand that what they already know can help them in learning something new. Examples of association:

1) Explain to the students that when charting on an individual they will only chart in an **objective** manner as opposed to a subjective manner. The **O**bjective signs they see are **O**bvious, both begin with the letter **O. *S***ubjective and **S**elf both begin with the letter **S**, whenever they are tempted to document what they themselves perceive as the problem, **S**top and **O**bserve. Only draw upon **O**bservations (what they see, hear, feel, smell or what is told to them by the individual)

2) When distinguishing between the abbreviations for left eye (**OS**) and right eye (**OD**) an association technique would be: Many years ago people who wrote with their left hand were thought to be **S**inister, thus OS refers to the left eye.

3. REPETITION

Repetition should occur as quickly as possible after any new information is given. Review of material and practice of skill help students learn. Prompt and accurate feedback tells the student whether they have performed correctly and how to improve their performance.

- Consistently require students to repeat key points and concepts throughout the course.

- Continual repetition of the 6 Rights of Medication Administration, The Rule of Three, and the **NEVERS** and **ALWAYS** are a few examples of the technique of repetition.

4. USE OF THE SENSES

Learning takes place more readily when several senses are utilized -- *seeing, hearing, smelling, tasting and feeling*. Students' learning styles vary, some are auditory learners, others visual or tactile. Using as many senses as possible reinforces learning and helps the student remember. For example, several senses are employed when performing practical skills:

1. Students **see videotapes, overhead transparencies, power point presentations and demonstrations;**

2. They **read** the proper procedure in the manual, and they **hear** the instructor's explanation of the material; and

4. Finally, their **tactile** sense is utilized when they perform the practical tasks.

If students hear, see, and do, they are likely to learn more than if they only use one sense. When we teach, the more senses we use the more we help meet students' different learning styles. Learning occurs best when students are actively involved in the learning process and the information will be retained for a much longer period of time.

UNIT 3: EFFECTIVE INSTRUCTION

Your most important role as an instructor is to facilitate the students learning. To accomplish this encourage students to share the responsibility for learning. Include asking questions, and encouraging discussion in class that requires each student to actively participate in course exercises, practical skills and activities. You may find that showing confidence in a student's ability to learn instills confidence, and the student performs better. Students tend to perform at the level that you expect them to perform. Your role is particularly important in the first stages of learning when students may feel unsure of themselves.

At this early stage, students often require more direction. Immediate reinforcement of student participation by the use of praise from the instructor encourages others to share their experiences with peers. With guidance and instructor feedback, this can provide invaluable learning opportunities for the student enabling them to apply newly acquired solutions to problems and situations that they will encounter in the work setting.

The attitude, knowledge and skills of the Instructor are critical to implementation of a successful training program. An **"Effective Instructor"** is one who is:

- Well Organized
- Knowledgeable of the Curriculum Content
- Supportive of the Participants
- Supportive of the Training Experience

The following are suggestions for organizing and implementing the course curriculum:

- Read the Trainee and Instructor Manuals prior to the course offering.
- Be knowledgeable of your audience. Become familiar with the issues and concerns of the students.
- Discuss standards for successful completion of the course, i.e., minimum test scores on state certification test and return demonstration of practical tasks.
- Present the course in an enthusiastic manner. Maintain good eye contact. Use terms that are easily understood.
- Allow time for questions and comments.
- Paraphrase and summarize the course material.
- Make sure visual aids are **LARGE** and **BOLD** enough to be seen by students in the back of the room.

- Limit the number of participants so that everyone can actively participate. Class size should not exceed 24.

- Obtain feedback from the students in the form of a written evaluation. Share the results and comments with the Provider.

- Arrange and check equipment and supplies prior to the beginning of the session.
    - Chalkboard
    - Flip chart easel and pad
    - Flip chart markers
    - Overhead projector and screen
    - Power Point Presentation
    - Overhead transparencies (large and bold)
    - Television/VCR
    - Practical Supplies (MAR's, thermometer, med cup, dropper etc.)

You may prepare a power point presentation or find educational films on-line and use a computer and projector to present them to the class.

UNIT 4: TEACHING TECHNIQUES

Teaching the Certified Medication Attendant Course demands the use of a variety of teaching techniques. Each lesson can be broken down by using several techniques depending on what is to be accomplished during that part of the lesson.

COMMON TECHNIQUES:

- Lecture
- Discussion
- Task Groups
- Role Playing
- Scenarios
- Explanation, Demonstration
- Guided Student Practice

LECTURE: The instructor's presentation is referred to as a lecture. You should use a number of aids such as a flip chart, chalkboard, overhead projector, or video to provide students with a visual stimulus along with the spoken word.

Advantages:

- Covers a large amount of information
- Can be used with a large group

Disadvantages:

- Does not encourage student participation
- Limits instructor's assessment of students' learning needs
- Offers little or no opportunity for immediate feedback

Tips:

1. Prepare for the presentation.
   - Organize the material carefully. Prepare manual with all desired activities in a systematic manner.
   - Practice and time the delivery.
   - Practice with sound equipment, if needed.
   - Arrange the climate of the room. (Adequate seating, working equipment, thermostat setting).
   - Plan how you will stand, sit, or move about in the room.

2. Provide an overview of the topic to the students.

3. Use instructional aides to reinforce points, making sure everyone in the class can see and hear.

4. Emphasize key points by repeating them.

5. Maintain pace, allowing time for students to take notes

6. Review main points at the end of the lecture.

7. Leave time at the end of each session for students to ask questions.

8. Plan to follow the lecture with an activity that requires participation.

Since merely sitting and listening is a passive experience, students may not remember much of what was said. Use the four concepts of learning--motivating students, associating information, repeating information, and using many of the senses to make the lecture more effective.

DISCUSSION: Class discussion involves both the instructor and the students. Both are involved in the learning process.

Advantages:

- Allows instructor to clarify issues, solve problems, and work out how to apply what
- was learned.
- Provides opportunity for the instructor to determine how well students understated
- the material.
- Builds on previous knowledge.
- Helps students maintain interest.

Disadvantages:

- Time consuming.
- Requires a skillful instructor to prevent a few students from dominating the discussion.
- Is only as good as the combined thinking of the group.

Tips:

- Encourage participation.
- Don't get upset if there are a few minutes of silence.
- Clarify topic if subject is not adhered to.
- Do not answer your own questions before giving students a chance to respond.
- Do not let a wrong conclusion go uncorrected.

TASK GROUPS: Groups of 4-6 students whose task is to solve problems, to focus discussion on answering a question, to look at alternatives, or to develop ideas.

Advantages:

- Allows students to test ideas more freely.
- Encourages group interaction.
- Promotes equality among group members.
- Allows students to check for understanding.

Disadvantages:

- Time consuming.
- Some students feel under pressure.
- Does not accommodate groups that work at different rates.

Tips:

- Clearly describe the objectives and reinforce them in writing.
- State the time allowed for the task.
- Give time warning.
- Circulate among groups to ensure that the learning objectives are being carried out.
- Summarize key points and learning objectives that were accomplished.

This technique helps to increase individual participation, to build group cohesiveness, and to apply concepts to a particular task.

ROLE PLAYING: The acting out of roles by selected participants. There is no script or set dialogue. Participants react to a specific situation and to one another as the role play progresses.

Advantages:

- Draws out personal feelings about a topic.
- Allows new skills to be tried, with failure carrying little risk.
- Teaches empathy.

Disadvantages:

- May become more entertaining than educational.
- Less effective if before a large group or if the individual is too self-conscious to effectively participate.
- Often time consuming.

Tips:

- Explain objectives of the role play.
- Ask for volunteers, if there are none then assign roles.
- Ask players and non-players to analyze the experience.
- Thank the players and summarize the activities.

SCENARIOS: Written simulations that imitate lifelike situations in which problems are presented. Members of a small group work together as a team to solve a problem.

Advantages:

- Provides human interaction and understanding that can help students learn from the problems presented.
- Allows student to understand and cope with situations they will encounter in the work setting.
- May provide solutions to problems previously thought unsolvable.

Disadvantages:

- Complex technique of teaching and learning.
- Requires good communication skills between instructor and students for learning to occur.
- Requires a great deal of time.

Tips:

- Divide students into small groups.
- Introduce and explain scenario.
- Stress that the exercise is a TEAM effort, and that there are no winners or losers.
- Follow with discussion of the points learned from the exercise.

EXPLANATION AND DEMONSTRATION: A technique utilizing motor skills that involves explanation and demonstration which gives a clear definition or description of the skill and shows how it is done (Practical Checklists). These two activities can occur one after the other or simultaneously.

Advantages:

- Communicates the skill quickly.
- Allows for questions and re demonstration of the skill.
- If video is used, the skill is done exactly the same each time promoting a standard of performance.

Disadvantages:

- Does not always allow instructors to know whether students actually understand the demonstration.

Tips:

- Organize and prepare explanation and demonstration prior to instruction.
- Present the skill first outside of the setting in which it will be used (i.e. during the practical sessions, not at the worksite).
- Demonstrate skills at the appropriate angle so the skill can be easily seen.
- Follow the skill presentation by slowly demonstrating and explaining the skill if a video is not used.
- Present the skill exactly the way it is to be practiced.
- Follow with a practice session immediately after the explanation and demonstration.

GUIDED STUDENT PRACTICE: Student practice of motor skills is essential to learning and mastering those skills. Corrective feedback must accompany proactive, so that students can correct their mistakes and continue to improve competency.

Advantages:

- Provides corrective feedback during the early stages of learning.
- Involves the learning concept of using the senses--seeing, hearing, and touching-while actually performing the skill.
- Uses the learning concept of repetition.

Disadvantages:

- May become boring as students master the skill.
- The instructor must make sure that practicing most of the time.
- Students who are waiting to practice, or who have completed the practice are not learning.

Tips:

- Review skills frequently once the student has learned the skill.
- Arrange beforehand skills specific stations.
- During the skills assessment (Practical Sessions) it is best to utilize instructor's assistant.

UNIT 5: CURRICULUM DESIGN

In preparing to present the course, the instructor should take into consideration the following factors:

- Course time schedule
- Number of trainees
- Number of excused absences allowed. (It is recommended that if more than 4 hours of theory is missed, the student should be dismissed from the course.)
- Number and extent of acceptable late arrivals. (It is recommended that no more than 3 late arrivals be allowed.)
- Prior to the beginning of the course a Syllabus should be sent to the participants clearly stating the Instructor's requirements.
- During the Introductory class the Instructor's expectations of the participants should be explained.
- The Instructor should make every effort to prepare the participant with the knowledge necessary to successfully complete the course. It should be stressed that all reading and homework assignments should be completed prior to coming to class.
- The participant should be made to understand that all the necessary information to successfully pass the state test and achieve certification will be provided for them.
- It is the participant’s responsibility to make proper use of and study the information.

Recommended Instructional Course Timeline

Introduction	Introduction, Law & Responsibilities	1 hour
Lesson 1	Responsibilities & Legal Mandates	1 hour
Lesson 2	Basic Pharmacology	2 hours
Lesson 3	Fundamentals of Medication Therapy	2 hours
Lesson 4	Principles & Fundamentals of Administering Medications	2 hours
Lesson 5	The Medication Cycle	4 hours
Lesson 6	Medication Administration	4 hours
Lesson 7	Documentation	2 hours
Lesson 8	Use of Medication References	2 hours
Lesson 9	Medication Classification - Overview	2 hours
Lesson 10 - Section 1	Vitamins and Minerals	1 hour
Lesson 10 - Section 2	Respiratory System	2 hours
Lesson 10 - Section 3	General and Local Anti-Infectives	2 hours
Lesson 10 - Section 4	Cardiovascular System	2 hours
Lesson 10 - Section 5	Urinary System	2 hours
Lesson 10 - Section 6	Nervous System	2 hours
Lesson 10 - Section 7	Endocrine System	2 hours
Lesson 10 - Section 8	Gastrointestinal System	2 hours
Lesson 10 - Section 9	Skin and Mucous Membranes	1.5 hours
Lesson 10 - Section 10	Eye and Ear	1.5 hours
TOTAL	CLASS THEORY	40 HOURS
Practical Experience	Day 1	5 hours
Practical Experience	Day 2	5 hours
TOTAL *	MATERIAL TO BE TAUGHT IN CLASS	50 HOURS

*NOTE: A total of 20 hours of Practical Experience is required for this course. 10 hours may be taught in a class setting. The remaining 10 hours must be conducted at the work site.

Certified Medication Attendant Course Sample Curriculum

The course may be taught in the number of weeks that is acceptable to both the provider and instructor.

It is important to remember that most students will be working full time, some may be working the night shift. These conditions should be taken into account when planning the Curriculum time schedule. Request that the Provider not schedule the individual to work the night before the class.

Below are recommendations for developing a Course Curriculum:

4 WEEK SCHEDULE

3 Days per week

Week 1	
Monday	4 hours
Wednesday	4 hours
Friday	4 hours
Week 2	
Monday	4 hours
Wednesday	4 hours
Friday	4 hours
Week 3	
Monday	4 hours
Wednesday	4 hours
Friday	4 hours
Week 4	
Monday	4 hours
Wednesday	5 hours (Practical)
Friday	5 hours (Practical)
TOTAL DAYS 12	TOTAL HOURS 50

4 WEEK SCHEDULE

2 Days per week

Week 1	
Monday	8 hours
Friday	8 hours
Week 2	
Monday	8 hours
Friday	8 hours
Week 3	
Monday	8 hours
Friday	8 hours
Week 4	
Monday	6 hours
Friday	6 hours
TOTAL DAYS 8	TOTAL HOURS 50

6 WEEK SCHEDULE

2 Days per week

Week 1	
Wednesday	4 hours
Friday	4 hours
Week 2	
Wednesday	4 hours
Friday	4 hours
Week 3	
Wednesday	4 hours
Friday	4 hours
Week 4	
Wednesday	4 hours
Friday	4 hours
Week 5	
Wednesday	4 hours
Friday	4 hours
Week 6	
Wednesday	5 hours (Practical)
Friday	5 hours (Practical)
TOTAL DAYS 12	TOTAL HOURS 50

Certified Medication Attendant Course Curriculum

S - A - M - P - L - E

DATE

Date	*Monday*
8:30 - 9:30	Introduction - Manual Instructors Expectations The Medication Attendant Law Responsibilities of the CMA and Prohibited Functions
9:30 - 10:30	Responsibilities in the Area of Medication Administration and Prohibited Functions
10:30 - 11:00	PRE - TEST
11:00 - 12:30	Basic Pharmacology
Assignment	**Read Lessons 1 - 4** **Answer Self Tests 1 & 2**

Date	*Wednesday*
8:30 - 10:30	Fundamentals of Medication Therapy
10:30 - 12:30	Principles and Fundamentals of Administering Medication
Assignment	**Answer Self-Test 3 & 4** **Read Lesson 5** **Study Glossary Words A - L**

Date	*Friday*
8:30 - 12:30	The Medication Cycle
Assignment	**Answer Self-Test 5** **Read Lesson 6**

Date	*Monday*
8:30 - 10:30	Medication Administration
10:30 - 12:30	MAR Exercises
Assignment	**Answer Self-Test 6** **Read Lesson 7 & 8** ***Study Glossary Words M* - T** **Test on Lessons 1 - 6 and Glossary Words A - T (<u>Wednesday</u>)**

Date	*Wednesday*
8:30 - 10:30	Documentation
10:30 - 12:00	Use of Medication References
12:00 - 12:30	**Test #1**
Assignment	**Answer Self -Tests 7 & 8** **Read Lesson 9 and Lesson 10 - Section 1 & 2**

Date	*Friday*
8:30 - 10:00	Medication Classification - Overview
10:00 - 11:00	Vitamins and Minerals
11:00 - 12:30	Medications that Affect the Respiratory System
Assignment	**Answer Self-Test 9 and 10 Sections 1 & 2** **Read Lesson 10 - Sections 3 & 4**

Date	*Monday*
8:30 - 10:30	General and Local Anti-Infectives
10:30 - 12:30	Medications that Affect the Cardiovascular System
Assignment	**Answer Self Tests Lesson 10 - Sections 3 &4** **Read Lesson 10 - Sections 5 & 6**

Date	*Wednesday*
8:30 - 10:00	Medications that Affect the Urinary System
10:00 - 12:00	Medications that Affect the Nervous System
12:00 - 12:30	Study Groups
Assignment	**Answer Self Tests Lesson 10 - Sections 5, 6 & 7** **Read Lesson 10 - Sections 7 & 8** **Study Glossary Words U - Z**

Date	*Friday*
8:30 - 10:30	Medications that Affect the Endocrine System
10:30 - 12:30	Medications that Affect the Gastrointestinal System
Assignment	**Answer Self Tests Lesson 10 Sections 8, 9, & 1** **Read Lesson 10 - Sections 9 & 10** **Study for Test #2 (Monday)**

Date	*Monday*
8:30 - 10:00	Medications that Affect the Skin and Mucous Membranes
10:00 - 11:30	Medications that Affect the Eye and Ear
11:30 - 12:30	Review **Test #2** *Student Evaluation* *Course Evaluation* *Distribution of Practical Checklists* ***Do not misplace***

Date	*Wednesday*
8:30 - 1:30	5-hour Practical

Date	*Friday*
8:30 - 1:30	5-hour Practical

COMMENTS and RECOMMENDATIONS:

- As you can see, the course can be designed to meet the various needs of the student, instructor and/or provider by offering the course over 4 - 6 weeks.

- It is not recommended to teach the course in a one 40 hour week.

- You may notice that the sample course curriculum has a post-test, Test 1 and Test 2 incorporated in it. These tests should be compiled by you and used as a student/ instructor evaluation tool. You will be able to; see if the students are studying; if the students understand the material; if your method of instruction is clear, and/or as a way to teach the students how to take a test. (See sample test, Unit 6) and (Sample Course Evaluation)

- Review all answers to the Self -Tests in class. This will assure the students that they have the correct answers. It is a good idea to have the students complete the Self -Tests as homework assignments.

- When the class has completed 20 hours of theory, it is recommended that you evaluate each student individually and privately.

- When planning to teach the course, it is recommended that you combine the Instructor's Manual with this (The Curriculum Guideline of Teaching Techniques and Supplemental Guide) Manual in order to Design your own personalized Curriculum.

- In the Instructor's Manual that there are pages at the end of each lesson that prompt you to insert additional information. It would help to use a different color paper for your insertions. This would allow you to easily pace your lecture material, while highlighting the lesson key points.

- You may want to spend additional time on explaining, for example, the anatomy of the heart; there are pictures of the heart that can be copied to transparencies and placed in YOUR LESSON MANUAL. The next time you teach the course you will not have to fumble through pages of materials to find and copy the material.

- The Supplemental Guides can also be used when conducting quarterly in-services.

- You may want to use videos to stress certain concerns. You can check the internet for videos on types of seizures, Tardive Dyskinesia, EPS, etc., and use a computer to present them.

The following is a list of sources that you may contact for additional information on training materials:

- Bethesda Lutheran Home, 700 Hoffman Drive, Watertown, WI, 53094
  1-800-367-4636
  - Infection Control Video
  - Medication Side Effects Video

  bethesdalutherancommunities.org

- Epilepsy Foundation of America, 1828 L Street N.W., Washington, DC 20036
  - How to Recognize and Class Seizures
  - Seizure First Aid
  - Understanding Seizure Disorders

  There are videos available on their website as well.
  Epilepsy Foundation www.epilepsy.com

- The **American Diabetes Association® | Diabetes.org**

- https://www.**drugs.com**

- **National Institutes of Health - Official Site**
  https://**www.nih.gov**
  Customer service 301-496-4000
  Official website of the **National Institutes of Health** (NIH). NIH is one of the world's foremost medical research centers. An agency of the U.S. Department **of Health**

UNIT 6: SAMPLE TEST AND EVALUATION

Medication Attendant
SAMPLE TEST

DIRECTIONS: Circle the best answer

1. The person(s) responsible for administering medication are:
   A. RN / LPN
   B. Certified Medication Attendant
   C. A ONLY
   D. A & B

2. Your signature on a chart means...
   A. That you assume responsibility for the entry
   B. That you administered the medication
   C. That you supervised the administration of the medication.
   D. All of the Above

3. Leaving a dependent client unattended in the bathroom is an example of...
   A. Malpractice
   B. Negligence
   C. Betrayal of rights
   D. Duty of Care

4. If a client has an order for eye drops to be put in his right eye (OD) every (q) morning and you put the drops in both eyes (OU), you **could** be charged with...
   A. Malpractice
   B. Negligence
   C. Nothing, your supervisor will take responsibility

5. Medication errors often result from...
   A. Lack of concentration
   B. Lack of knowledge
   C. Not following the "six rights" of medication administration
   D. All of the above

6. Medications should always be checked at least _____times.
   A. 1
   B. 2
   C. 3
   D. 4

7. You should chart the administration of a medication...
   A. Before you administer it
   B. After you administer it
   C. Never, let the nurse do it
   D. At the end of your shift

8. Changes in _____may result in a change in medication dosage required to produce a desired effect.
   A. Kidney function
   B. Body weight
   C. Age
   D. All of the above

9. If a medicine label is illegible you should...
   A. Relabel the container
   B. Pour the medicine out
   C. Notify the nurse and/or pharmacist
   D. Give the medicine since you know what it is

10. You should always tell the client that the medicine tastes good.
   A. True
   B. False

11. Medication therapy may be defined as treatment by the use of substances that cure _____, prevent and diagnose disease.
   A. Stop
   B. Relieve
   C. Enhance
   D. Promote

12. A medication level that is below therapeutic drug range will probably result in...
   A. No therapeutic effect
   B. A headache
   C. Nausea and vomiting
   D. Toxic effects

13. A medication level that is above therapeutic drug range will probably result in...
   A. A coma
   B. An allergic reaction
   C. Harm to the body and can be fatal
   D. No apparent effect

14. The commonly used name for a drug is the...
    A. Generic name
    B. Trade name
    C. Chemical name

15. Most drugs are metabolized by the...
    A. Liver
    B. Kidney
    C. Stomach
    D. Intestines

16. When the effects of a medication affects the entire body, the action is...
    A. Local
    B. Systemic
    C. Topical
    D. Toxic

17. The medication classification that decreases inflammation is...
    A. Urinary antiseptics
    B. Steroids
    C. Anti-emetics
    D. Oral hypoglycemics

18. Medications that break up mucous, and facilitates its expulsion from the lungs are...
    A. Antitubercular
    B. Antitussives
    C. Expectorants
    D. Diuretics

19. Which drug treats heart failure by slowing and strengthening the heart rate...?
    A. Dilantin
    B. Digoxin
    C. Darvon
    D. Dalmane

20. Medications that slow and strengthen the heart beat are...
    A. Antiarrhythmic
    B. Anticoagulants
    C. Digitalis preparation
    D. Antitussives

21. Anthelmintics are medications that...
    A. Destroy Trichomona
    B. Destroys worms
    C. Destroys bacteria
    D. Destroys yeast

22. When giving digitalis you should count the pulse, if the pulse is below _____ do not give medication, call the nurse.
    A. 80
    B. 70
    C. 60
    D. 50

23. Signs of potassium depletion are...
    A. Nausea, vomiting and diarrhea
    B. Muscle weakness, leg cramps, irregular heart beat
    C. Rash, itching
    D. Night sweats

24. **If** a client refuses to take a medication you should...
    A. Tell him he has to take it
    B. Explain to him why the medication is important and if he still refuses document.
    C. Ignore him and report to the nurse
    D. Do nothing

25. Tardive Dyskinesia can be...
    A. Preventable
    B. Irreversible
    C. Contagious
    D. Intended

26. Thioridazine (Mellaril) and haloperidol (Haldol) are examples of...
    A. Antiemtics
    B. Antipsychotics
    C. Antiarrthymics
    D. Antihypertensives.

27. The side effect of gum overgrowth seen when a client is taking anticonvulsant medication can be prevented by...
    A. Increasing fluid intake
    B. Good oral hygiene
    C. Stopping the medication
    D. A & B

28. The side effect of puffy face "moon face" comes from the drug classification...
    A. Diuretics
    B. Adrenergic
    C. Steroids
    D. Oral hypoglycemics

29. Desired effect is...
    A. When the medication is working correctly
    B. When the medication has ill effects
    C. When the physician desires you to use the medication
    D. When the medication is stopped

30. Poor eating habits and emotional stress can cause...
    A. Hiatal hernia
    B. Simple diarrhea
    C. Fecal impaction
    D. Gallstones

31. Chart what you...
    A. Are told by on-coming staff
    B. See, hear, smell or touch
    C. Think or feel
    D. Want the individual to do

32. "Rule of Three" means...
    A. You must count the medications three times before placing on shelf
    B. For each dose of medication, read the label three times
    C. Three people must witness the destruction of a medication

33. Cathartics and laxatives should not be given if individual complains of...
    A. Abdominal cramps, nausea
    B. Headache, diarrhea
    C. Dry mouth, dizziness

34. Conversion: 30 cc = _____
    A. 1 tablespoon
    B. 2 teaspoons
    C. 1 ounce

35. John Smith has an order to take Tegretol 200 mg BID. The pharmacist sent Tegretol 100 mg tablets. How many tablets to be given should be typed on the medication label?

    A. 2
    B. 3
    C. 1/2

36. Medications that relieve itching are...
    A. Astringents
    B. Antipruritics
    C. Antiseptics

37. Diuretics can cause a serious loss of...
    A. Calcium
    B. Magnesium sulfate
    C. Potassium

38. The classification of the drug furosemide (Lasix) is...
    A. Antidiarrheal
    B. Diuretic
    C. Anti-Parkinson

39. Symptoms of anaphylactic shock (extreme reaction) include...
    A. Neck and facial swelling
    B. Low blood pressure
    C. Restlessness and agitation
    D. All of the above

40. Define bronchodilator...
    A. Reduce symptoms of allergy
    B. Relax the constriction of the bronchial tree in the lungs
    C. Dilates the pupils

41. Antibiotic medications are used to...
    A. Destroy or control bacteria
    B. Destroy a virus
    C. Destroy fungal infections

42. Amphetamines are _____stimulants
    A. C. N. S.
    B. U. T. I.
    C. M. R. I.

43. Define analgesic.
    A. Relieves pain
    B. Produces sleep
    C. Causes pain

44. The severe side effects of antipsychotic drugs include...
    A. Tremors of hands and feet
    B. Shuffling walk
    C. Body rigidity
    D. All of the above

45. Anticonvulsants are used to control chronic seizures.
    A. True
    B. False

46. Antacids are used to neutralize excess stomach acid
    A. True
    B. False

47. 1 teaspoon is equal to...
    A. 10 cc
    B. 5 cc
    C. 5 dr

48. 1 gm is equal to...
    A. 100 mg
    B. 1000 mg
    C. 1 dram

49. The physician orders 250 mg of Ampicillin for John Smiths' Strep throat. You look in his medicine bin and discover the physician sent 500 mg tablets. How many tablets to be given should be typed on the medication label?
    A. 2
    B. 3
    C. 1/2

50. **Matching**

1. _____ac	A. By mouth
2. _____bid	B. As needed
3. _____dr	C. Hour of sleep - bedtime
4. _____qid	D. Nothing by mouth
5. _____ gtt	E. Before meals
6. _____hs	F. After meals
7. _____NPO	G. Immediately, now
8. _____po	H. Dram
9. _____q	I. Drop
10. _____tid	J. Four times a day
11. _____OS	K. Three times a day
12. _____ml	L. With
13. _____tsp	M. Left eye
14. _____stat	N. Every
15. _____PRN	O. Twice a day
16. _____c	P. Milliliter

51. **List the "Six Rights" of Medication Administration...**

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

MEDICATION ATTENDANT
SAMPLE COURSE EVALUATION

1. The training room area was...
    a. Excellent
    b. Good
    c. Adequate
    d. Poor

Comments:_____

_____

_____

_____

2. The training course material (manual) was...
    a. Excellent
    b. Good
    c. Adequate
    d. Poor

Comments:_____

_____

_____

_____

3. The additional typed hand-out material was...
    a. Very beneficial
    b. Somewhat beneficial
    c. Not beneficial

Comments:

_____

_____

_____

4. The course material covered each day was...
    a. Too much
    b. Too little
    c. Just enough

Comments:

_____

_____

_____

5. Were you able to clearly hear the instructor?
    a. Yes
    b. No
    c. At times

Comments:

_____

_____

_____

6. Did the instructor explain the course objectives in a clear and concise manner?
    a. Yes
    b. No

Comments:

_____

_____

_____

7. Were the written class tests....
    a. Helpful
    b. Not helpful

Comments:

_____

_____

_____

8. Were the written class tests....
    a. Very difficult
    b. Somewhat difficult
    c. Easy
    d. Very easy

Comments:

_____

_____

9. Which area covered was the most interesting to you? Why?

_____

_____

_____

_____

10. What would you like changed in the course presentation? Why?

_____

_____

_____

_____

11. Was the instructor prepared and able to answer your questions?

    a. Yes

    b. No

Comments:

_____

_____

_____

12. Did you enjoy the course?

    a. Yes

    b. No

13. Overall, I would rate the course....

    a. Excellent
    b. Good
    c. Fair
    d. Poor

14. I am prepared and ready to take the state certification test.
    a. Yes
    b. No

Comments: _____

SUPPLEMENT #1

PROFESSIONAL AND OCCUPATIONAL STANDARDS FOR PHARMACIST

911. LABELING

An appropriate label shall be affixed to a proper container with the following information:

A. pharmacy's name;
B. pharmacy's address and telephone number;
C. prescription serial number;
D. authorized prescriber's name;
E. patient's name;
F. date dispensed;
G. directions for use, as indicated;
H. drug name and strength;
I. pharmacist's last name and initial; and
J. cautionary auxiliary labels, if applicable.

913. PHARMACY PREPACKAGING

Prepackaging is the packing of medications in a unit of use container, by a licensed pharmacist, in a Louisiana permitted pharmacy prior to the receipt of a prescription for ultimate prescription dispensing by a pharmacist in Louisiana.

A. Labeling.

The label on the prepackaged container shall contain the following information:

1. drug name;
2. dosage form;
3. strength;
4. quantity;
5. name of manufacturer and/or distributor;
6. manufacturer's lot or batch number;
7. date of preparation;
8. pharmacist's last name and initial;
9. expiration date.

TITLE 46: PROFESSIONAL AND OCCUPATIONAL STANDARDS
Pharmacists

Chapter 35. Pharmacy Prescription Drugs

3501. PRESCRIPTION DRUGS

A. Legend Drugs. A legend drug is a medication which must only be dispensed by a Pharmacist on the order of a licensed practitioner and shall bear the following notation on the label of a commercial container:

"CAUTION: FEDERAL LAW PROHIBITS DISPENSING WITHOUT A PRESCRIPTION"
(Ref. R.S. 40:1237, et seq. [1982] and U.S.C.A. 21:353(b) [1987]).

1. Dispensing. Legend drugs shall be dispensed only by a licensed Louisiana Pharmacist.

2. Maximum Prescription Period. No prescription can be filled or refilled more than one year after date of issue unless otherwise specified by the prescriber.

3. Possession. Legend drugs shall be procured and possessed by a pharmacy permit for legitimate dispensing by a Pharmacist in the course of the practice of pharmacy, unless otherwise provided by law.

4. Storage. Legend drugs shall be stored in a licensed pharmacy under the Immediate control and responsibility of a Pharmacist.

3503. MISBRANDED DRUGS

Misbranded drugs are those drugs whose labeling is false or misleading in any particular; or the label does not bear the name and address of the manufacturer, packer, or distributor and does not have an accurate statement of the quantities of the active ingredients; or do not show an accurate monograph for legend drugs; or other considerations as noted in the Federal Food, Drug, and Cosmetic Act. It is unlawful to possess or dispense misbranded legend drugs by reference R.S. 40:617 and 636(2) [1986].

3505. ADULTERATED DRUGS

Adulterated drugs are contaminated medicinal substances having deleterious foreign or injurious materials, which fail to meet safety, quality, and purity standards. Adulterated drugs are prohibited from possession or dispensing by reference R.S. 40:616 and 632(2) [1986.].

3507. LEGEND DRUG PRESCRIPTION LABEL

Legend drugs are dispensed pursuant to a written or oral prescription with the following general labeling requirements:

A. patient's name;

B. authorized prescriber's name;

C. pharmacy name and address;

D. date dispensed;

E. pharmacist's last name and initial;

F. prescription serial number;

G. directions;

H. drug name and strength.

3509. COMMERCIAL LEGEND DRUG LABELS

Legend drugs manufactured commercially shall have the following labeling requirements:

A. manufacturer's name and address;
   1. If not distributed by the manufacturer, it shall also include name and address of packer or distributor;

B. active ingredients;

C. dosage strength with count, weight, or volume;

D. usual dosage;

E. expiration date;

F. if applicable, the label is to be identified with "WARNING: MAY BE HABIT FORMING";

G. legend drug label, "CAUTION: FEDERAL LAW PROHIBITS DISPENSING WITHOUT PRESCRIPTION";

H. package insert;

I. lot or control number;

J. specification as to the type of dispensing container;

K. national drug code (NDC) identification number.

3517. DRUG RETURNS

Drugs dispensed on prescription to a patient shall not be accepted for return or exchange by any pharmacist after such drugs have been removed from the pharmacy premises where they were dispensed.

3519. CONTROLLED DANGEROUS SUBSTANCES

The purpose of the board CDS Regulation is to prevent diversion of CDS by prohibiting the dispensing, distributing, administering, or manufacturing schedule drugs not in the usual course of professional practice.

A. Definition. Controlled Dangerous Substances (CDS) are divided into five schedules, based upon their potential for abuse, that appear in R.S. 40:964[1986].

B. Classification. Controlled Dangerous Substances are specifically identified by reference as provided in R.S. 40:964[1986] hereof inclusive and future amendable schedule drug inclusion.

C. Composition. Controlled Dangerous Substances are categorized into schedule components based upon the degrees of potential for abuse, as follows:

1. Schedule I Drugs. Schedule I substances are drugs that have no acceptable medical use and have a high abuse potential that appear by reference in R.S. 40:964[1986].

2. Schedule II Drugs. Schedule II substances are drugs that have a high abuse potential with accepted medical use and possess severe psychic or physical dependence liability. Schedule II controlled substances consist of certain narcotic, stimulant, and depressant drugs that appear by reference in R.S. 40:963[1986].

3. Schedule III Drugs. Schedule III substances are drugs that have an abuse potential and include stimulants and depressants that appear by reference in R.S. 40:964[1986].

4. Schedule IV Drugs. Schedule IV substances are drugs that have an Abuse potential and specifically listed schedule drugs that appear by Reference in R.S. 40:964[1986].

5. Schedule V Drugs. Schedule V substances or preparations have low abuse potential and contain limited quantities of narcotic drugs that appear by reference in R.S. 40:964[1986].

3531. SCHEDULE DRUG PRESCRIPTION REQUIREMENTS

A schedule drug prescription or order must be issued for a legitimate medical purpose by a licensed medical practitioner in the usual course of professional practice and dispensed by a licensed pharmacist.

A. Schedule Drug Prescription Form. Schedule drug prescriptions/orders shall be written or reduced to writing with ink, or typewritten in compliance with the following form:

1. Patient's:
   a. full name;
   b. address.

2. Schedule drug:
   a. name;
   b. strength;
   c. quantity;
   d. instructions; and
   e. dosage form.

3. Authorized prescriber's:
   a. full name;
   b. address;
   c. signature for Schedule II drugs;
   d. DEA registration number.

B. Schedule II Drug Prescriptions or Orders. Schedule II prescriptions must be issued and signed by an authorized practitioner.
   1. Schedule II Drug Oral Prescriptions/Orders. A pharmacist may dispense an oral Schedule II controlled substance prescription authorized by a medical practitioner, in the case of a bona fide emergency situation, upon a prescribing practitioner's verbal authorization.

C. Schedule Drug Labeling
   1. Prescription/Order Label. A schedule prescription label shall be affixed to a suitable container and exhibit the following information:

      a. pharmacy name;
      b. pharmacy address;
      c. date filled or refilled;
      d. serial number;

e. patient's name;
f. authorized prescriber's name;
g. drug name and strength;
h. direction;
i. pharmacist's last name and initial;
j. federal transfer caution label.

D. Schedule V Drugs. Schedule V dispensing requires a prescription except for the following:

1. Schedule V Exempt Narcotics. Exempt narcotics are preparations dispensed without a prescription containing limited quantities of certain narcotic drugs dispensed by a licensed pharmacist, generally for antidiarrheal purposes, to a person of majority with suitable identification and the transaction properly recorded in a bound Schedule V Exempt Narcotic Book containing the name and address of purchaser, and name and quantity of exempt narcotic dispensed, with the date of sale and the dispensing pharmacist's name or initials.

2. Schedule V Exempt Preparation. An exempt narcotic transaction shall not exceed 240 cc/ml. (8 fluid ounces), or not more than 48 solid dosage units, which may be dispensed to the same person in any given 48-hour period, containing limited narcotic qualities with non-narcotic active medicinal ingredients in sufficient proportion to confer upon the compound, mixture, or preparation valuable medicinal qualities other than those possessed by the narcotic drug alone.

SUPPLEMENT #2

VITAMINS AND MINERALS

Vitamins are substances that regulate body processes. You probably know them by their letter names: A, B-complex, C, D, E, and K. Vitamins help to build strong teeth and bones, promote growth, aid normal body functioning, and strengthen resistance to disease.

Minerals help build tissues, especially bones and teeth. They also regulate body fluids, such as blood and digestive juices. The minerals we need in our daily diet include calcium, phosphorus, sodium, potassium, iodine, iron and fluoride.

Vitamins and minerals are present in a wide variety of foods. A balanced diet usually provides enough vitamins and minerals and it is not necessary to take additional vitamins. However, there are some periods when it is necessary to take additional vitamins and minerals, such as during times of:

- Poor Nutrition
- Illness
- Pregnancy
- Periods of Growth

CAUTIONS AND/OR RESPONSIBILITIES WHEN ADMINISTERING VITAMINS AND MINERALS:

The best solution is to encourage individuals to eat a nutritionally sound diet. However, if a physician orders vitamins and minerals for an individual, your major responsibilities are:

FOLLOW LABEL
DIRECTIONS AND
STORE VITAMINS IN A COOL, DARK PLACE

NUTRITIONAL DEFICIENCIES

A. SOURCES AND FUNCTIONS OF BODY NUTRIENTS

1. Types and best sources of nutrients:
   a. Carbohydrates--sugars and starches
   b. Fats--butter,oils, meat, fats, cheeses
   c. Proteins--meats, milk, eggs
   d. Vitamins--vegetables, meats, fruits, milk, eggs
   e. Minerals--milk, cheese, eggs, meats, vegetables
   f. Water--contained in all food and drink

2. Three major functions of nutrients
   a. Supply heat and energy to the body (carbohydrates, fats, and proteins).
   b. Build and repair body tissues (proteins).
   c. Regulates body processes (vitamins, minerals, and water).

3. If nutrients are lacking in the diet, then either the diet must be changed, or nutrients must be given in the form of medication to prevent the individual from becoming ill.

B. COMMON NUTRITIONAL DISORDERS TREATED BY MEDICATION

1. Pernicious anemia
   a. Cause--low iron level in the blood due to inability of stomach lining to absorb vitamin B (required for the formation of red blood cells).
   b. Symptoms--low red blood cell count, fatigue, inflammation of the mouth.
   c. Treatment--requires lifelong injections of vitamin B.

2. Iron deficiency anemia
   a. Cause--low iron level in the blood due to inadequate diet or blood loss.
   b. Symptoms--low hemoglobin level, pallor, fatigue.
   c. Treatment--oral iron and vitamin supplements

3. Osteoporosis
   a. Cause--body is deficient in calcium, phosphorus, and vitamin D.
   b. Symptoms--bowed legs, deformed bones in children, and porous, easily broken bones in adults.
   c. Treatment--increased intake of vitamin D, calcium, and phosphorus. Deficiencies can usually be treated by adequate diet (milk, fish oils, meats) and sun.
   d. Special note--Overdoses of vitamin D can be dangerous. Can cause hardening of soft tissues and abnormality of bones.

4. Hypokalemia
   a. Cause--frequently a side effect of diuretics, potassium is not absorbed by the body.

b. Symptoms--heart irregularity, flu-like symptoms, leg cramps
c. Treatment--diet (bananas, milk, cereals, meat), often treated with potassium replacement medications.

5. Dehydration
   a. Causes--inadequate fluid intake, diseases such as diabetes, diuretics, vomiting diarrhea, fever.
   b. Symptoms--poor skin turgor, constipation, fever, decreased urine output, increased pulse.
   c. Treatment--encourage individual to drink fluids, intravenous fluids may be necessary, water is essential for all body functions, clear liquid diets may be ordered for short periods of time.

C. SELECTED MEDICATIONS BY CLASSIFICATION

1. Iron products
   a. Action--replaces iron
   b. Use--treat iron deficiency anemia
   c. Example--ferrous sulfate (Feosol ® , Slow-Fe®)
   d. Adverse effects
      (1) Nausea
      (2) Insomnia
      (3) Constipation
      (4) Diarrhea
   e. Special considerations
      (1) Dilute liquid preparations in juice or water.
      (2) May cause black, tarry stools. Chart color and amount of stool.
      (3) Do not crush medications
      (4) Do not give with antacids.
2. Potassium products
   a. Action--replaces and maintains potassium levels
   b. Use--treat potassium deficiency
   c. Example--potassium chloride (Micro-K ®, K-Tab ®, K-Lor ®, K-Lyte/cl®)
   d. Adverse effects
      (1) Listlessness
      (2) Mental confusion
      (3) Cardiac arrhythmias
      (4) GI irritation
   e. Special considerations
      (1) Administer during or after meals with a full glass of juice or water.
      (2) Completely dissolve powders before administering.
      (3) Do not crush solid form of medication.

3. Calcium
    a. Action--reduces acid load in the gastrointestinal tract, replaces calcium
    b. Use--treat osteoporosis and dyspepsia
    c. Examples
        (1) calcium carbonate (Tums ®)
        (2) Os-Cal ®
    d. Adverse effect--calcium deposits form in joints
    e. Special considerations--do not give with milk or milk products.

DEFINITIONS OF KEY TERMS

Anaphylactic reaction--Life-threatening allergic reaction caused by an allergen.

Aspiration--The taking of foreign matter (such as food or liquids) into the lungs during the respiratory cycle.

Dehydration--Excessive loss of water from the body.

Hypokalemia--An abnormally low level of potassium in the blood.

Iron deficiency anemia--Low iron level in the blood due to inadequate diet or blood loss.

Osteoporosis--Abnormal porousness of the bone by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Parenteral--Introducing medication or food into the body by injection.

Pernicious anemia--Vitamin B12 deficiency.

SUPPLEMENTAL LESSON: NUTRITIONAL DEFICIENCIES

Performance:

1. List three functions of nutrients.

2. Define four key terms selected by the staff nurse.

3. Describe three nutritional disorders, including the cause, symptoms, and treatment of each.

4. If a resident currently is receiving an iron, potassium, or calcium product, describe the following for the medication:

   a. brand name
   b. trade name
   c. uses
   d. actions
   e. side effects

SUPPLEMENT #3

THE RESPIRATORY SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE RESPIRATORY SYSTEM

1. Structures of the respiratory system:
   a. Nose
   b. Throat
   c. Larynx
   d. Trachea (windpipe)
   e. Bronchi
   f. Lungs
   g. Diaphragm
   h. Muscles between the ribs

2. Functions of the respiratory system:
   a. Bring oxygen into the body which is distributed to every cell via the blood.
   b. Take carbon dioxide and other wastes out of the body.
   c. Rate and depth of breathing depends upon the "respiratory center" located in the brain--can be triggered by activity, illness, and medications.

3. Modes of administering respiratory medications:
   a. Oral--by mouth, most commonly used method
   b. Inhalation--by breathing in
   c. Parenteral--by injection
   d. Rectal--by suppository
   e. Sublingual--under the tongue
   f. Nebulization--mist to lining of the nose and/or throat

B. DISORDERS OF RESPIRATORY SYSTEM

1. Abnormal respirations and respiratory arrest
   a. Causes--obstruction, infections, decrease in the amount of respiratory surface available for exchange of oxygen and carbon dioxide.
   b. Symptoms--restlessness, confusion, respiratory rate increased or decreased, cyanosis may or may not be present, coughing, increased heart rate, perspiration, coma, death.
   c. Treatment--stimulate breathing, improve gas exchange, medication to treat symptoms as well as causes.
2. Asthma
   a. Causes--allergies, infection, emotional tension, or combination of all three.
   b. Symptoms--mild wheezing to severe dyspnea with particular difficulty exhaling; flaring nostrils, increased pulse, prolonged attack places considerable strain on heart.
   c. Treatment--medication to dilate bronchioles

3. Bronchitis
    a. Causes--germs, irritants such as dust, smoke, pollutants, cold weather.
    b. Symptoms--dry cough followed by thick mucous, productive cough.
    c. Treatment--antibiotics, medications to relieve bronchospasm (bronchodilator), expectorants.

4. Pulmonary Emphysema
    a. Causes--smoking, recurrent inflammation, infection
    b. Symptoms--chronic cough, loss of appetite, barrel chest, pursed lip breathing, cyanosis of extremities and clubbing of fingers, shortness of breath.
    c. Treatment--antibiotics, bronchodilator, breathing treatments

5. COLD (Chronic Obstructive Lung Disease) or COPD (Chronic Obstructive Pulmonary Disease)
    a. Causes--emphysema, chronic bronchitis, asthma, or a combination of these disorders.
    b. Symptoms--dyspnea with minimal exertion, productive cough, frequent respiratory infections, barrel chest, severe respiratory failure.
    c. Treatment--incurable, but condition may improve with breathing exercises, bronchodilator, and expectorants

6. Rhinitis
    a. Causes--allergies, irritants, germs, pollens (hay fever).
    b. Symptoms--sneezing, runny nose, congestion
    c. Treatment--medications to relieve symptoms

7. Common Cold
    a. Causes--virus
    b. Symptoms--muscular aches, stuffy nose, congestion
    c. Treatment--incurable, medications to relieve symptoms

8. Pneumonia
    a. Causes--primary-virus or bacteria; secondary-complication of other diseases, aspiration of food, fluid, or gastric contents.
    b. Symptoms--cough, rusty sputum, fever, cyanosis, moist respirations.
    c. Treatment--bed rest and medication

9. Tuberculosis (TB)
    a. Causes--inhalation of droplets from an infected person; spread through the air.
    b. Symptoms--none for 6-8 weeks, then fatigue, weakness, loss of appetite, weight loss, night sweats, low grade fever.
    c. Treatment--medications (drug therapy), isolation till non-contagious, TB skin Test for close associates to detect infection, possible chest x-rays.

10. Allergic reactions
    a. Causes--allergens cause body cells to release a substance called histamine. Common allergens are:
        (1) Foods--eggs, strawberries, shellfish, nuts
        (2) Contact--wool, poison ivy
        (3) Breathing--rag weed, dust
        (4) Medications--morphine, sulfa drugs, penicillin
        (5) Insect bites--bees, spiders (this allergy is an emergency because it can cause anaphylactic shock).
    b. Symptoms--histamine causes various reactions (swelling, hives, rhinitis, difficulty breathing, nausea, vomiting, and diarrhea). An extreme reaction may cause anaphylactic shock and death.
    c. Treatment--antihistamines

C. SELECTED RESPIRATORY MEDICATIONS BY CLASSIFICATION

1. Respiratory Stimulants
    a. Action--inhalation of drug triggers the respiratory center of the brain; increases the rate and depth of respiration.
    b. Use--treat fainting
    c. Example--spirits of ammonia (smelling salts)
    d. Adverse effects
        (1) Irritates lining of the nose
        (2) Nausea
2. Cough medications
    a. Antitussive
        (1) Action--depress the cough by depressing the activity of the cough center in the brain or by local action.
        (2) Use--treat coughs
        (3) Examples
            (a) Codeine (controlled substance)
            (b) dextromethorphan (Benylin-DM®, Tussi-Organidin-DM®, Robitussin-DM®)
            (c) benzonatate (Tessalon®)
        (4) Adverse effects
            (a) Drowsiness
            (b) Nasal congestion
            (c) Nausea
    b. Expectorants
        (1) Action--clear the respiratory tract by liquefying mucous.
        (2) Use--cause productive coughing
        (3) Examples
            (a) Robitussin®
            (b) terpin hydrate (ETH)
            (c) Potassium iodide (SSKI)

(4) Adverse effects
(a) Gastric irritation
(b) Nausea and vomiting

4. Bronchodilator
   a. Action--relax bronchial muscles and open the breathing passages.
   b. Use--treat asthma, bronchitis, and chronic lung disease
   c. Example
      (1) Aminophylline
      (2) theophylline (Elixophyllin®)
      (3) terbutaline sulfate (Brethine®)
      (4) isoetharine HCl 1% (Bronkosol®)
      (5) metaproterenol sulfate (Alupent®)
      (6) beclomethasone dipropionate (Vanceril®)
   d. Adverse effects
      (1) Withdrawal symptoms may occur if medication is discontinued.
      (2) Restlessness
      (3) Dizziness
      (4) Palpitations
      (5) Nausea
      (6) Hypertension
   e. Special considerations
      (1) Individual may become frightened, anxious, manipulative, or demanding while on the medication.
      (2) Drugs in combinations may cause increased adverse effects.
      (3) The doctor must be notified if medication is withheld because of nausea.
      (4) Observe for drug interactions.

5. Nasal Decongestants
   a. Action--shrinks mucous membrane and relieves nasal swelling and congestion.
   b. Use--treat allergies, hay fever, and cold symptoms
   c. Examples
      (1) naphazoline HCl (Privine®)
      (2) oxymetazoline HCl (Afrin®)
      (3) phenylephrine HCL (Neo-Synephrine®, Coricidin® Nasal Mist)
      (4) pseudoephedrine HCl (Sudafed®)

   d. Adverse effects--Prolonged use can:
      (1) Cause irritation.
      (2) Perforate the nasal septum.
      (3) Cause rebound nasal congestion.

6. Combination Products
    a. Action--preparations containing more than one product to produce more than one effect.
    b. Use--treat coughs and allergies, to relieve pain.
    c. Examples
        (1) Sinutab ®
        (2) Actifed ®
        (3) Ornade ®
    d. Adverse effects
        (1) Drowsiness
        (2) Dry mouth
    e. Special Considerations
        (1) May cause elevated blood pressure.
        (2) Over-the-counter medications are potent; use with caution
        (3) Rebound symptoms can occur if given more often than indicated.

7. Oxygen Therapy
    a. Action--treat conditions such as COPD, CHF, hypoxia
    b. Use--relieve shortness of breath.
    c. Example--oxygen
        (1) Stored in three forms:
            (a) Gas
            (b) Liquid
            (c) Concentrator
        (2) Administered two primary ways:
            (a) By nasal formula
            (b) By mask
    d. Adverse effects
        (1) Hyperventilation
        (2) Hypoventilation
    e. Special Considerations
        (1) Individuals with chronic lung disease should use lower liter flow rates.
        (2) Mask should not be used at less than 5 liters per minute.
        (3) Dries out the mucous membrane - good mouth care must be given.
        (4) Individuals, visitors, and staff must not smoke in areas where oxygen is being used.

8. Tuberculin Medications
    a. Action--reduce growth or kill the bacteria that cause TB
    b. Use--treat the active disease.
    c. Examples
        (1) rifampin (Rifadin ®)
        (2) ethambutol HCl (Myambutol ®)
        (3) isoniazid [INH] (Rimifon ®, Rolazid ®)

d. Adverse effects
   (1) Fatigue/drowsiness
   (2) Numbness in extremities
   (3) Nausea
   (4) Confusion
   (5) Headache
   (6) Vision problems
   (7) Anorexia
   (8) Rash
e. Special Considerations
   (1) Can turn urine, feces, sputum, sweat, or tears to a harmless red-orange color.
   (2) Administer with caution to individuals who have a history of alcoholism and liver disease.
   (3) Watch for signs of hepatitis (jaundice).
   (4) Monitor the individual for weight loss.
   (5) Give with food if the individual complains of nausea.

D. ADDITIONAL CONSIDERATIONS FOR THE RESPIRATORY SYSTEM

1. Individuals with chronic lung problems may be on a comprehensive regime of medication management, oxygen therapy, nutrition, progressive exercise, and education.

2. Narcotics and barbiturates depress respiration, so these medications are not used with COPD individuals.

3. Individuals with asthma usually exhibit continuous wheezing, dyspnea, and coughing. Fatigue is often associated with chronic lung conditions. Administer medications slowly and monitor individuals closely.

4. Individuals with chronic lung diseases may sometimes be treated with a Corticosteroid. These individuals are at a higher risk for peptic ulcers. Approximately 25% of COPD individuals will have a peptic ulcer at some time.

5. Avoid giving mucous-producing liquids to individuals who are congested.

DEFINITIONS OF KEY TERMS

Allergen--A substance that causes a hypersensitive reaction (an allergy).

Allergic reaction--Sensitivity to any substance contacted by touch, inhalations, ingestion, or injections such as poison ivy, pollen, insect bites, foods, or medications.

Anaphylactic reaction--Life threatening allergic reaction caused by an allergen. Characterized by respiratory problems, fainting, itching, and welts on the skin.

Antihistamines--Drugs used to reduce the effects associated with histamine production in allergies and colds.

Antitussives--Medications that relieve coughing.

Asthma--A chronic respiratory disease, often from allergies, with labored breathing, chest constriction, and coughing.

Bronchitis--Inflammation or swelling of the bronchial tubes.

Chronic Obstructive Lung Disease (COPD)--Chronic airway obstruction.

Common cold--Communicable viral disease.

Emphysema--A condition of the lungs resulting in labored breathing and increased susceptibility to infection.

Expectorant--Medication that assists in liquefying the mucus to make it easier to cough up.

Histamine--A white crystalline compound found in plant and animal tissue. It is a stimulator of gastric secretion, and is used medicinally as a vasodilator which increases the blood supply to the brain.

Pneumonia--An acute or chronic disease marked by inflammation and infection in the lungs.

Rhinitis--Inflammation and swelling of the lining of the nose.

Tuberculosis--Communicable acute or chronic infection caused by mycobacterium tuberculosis.

SUPPLEMENTAL LESSON: THE RESPIRATORY SYSTEM

Performance:

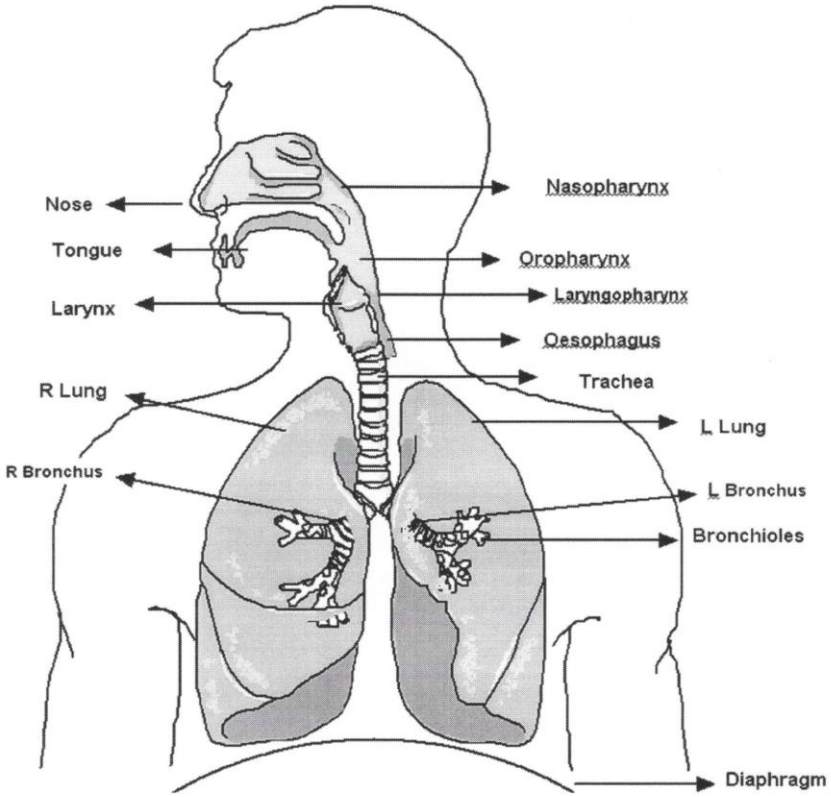
1. List two functions of the respiratory system.

2. List the major structures of the respiratory system. (A diagram of the respiratory system is included. You may use it to point out or label the structures.)

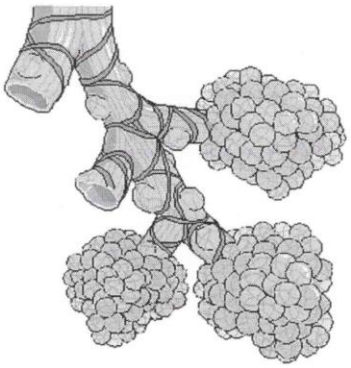
3. Define eight key terms selected by the staff nurse.

4. Describe six conditions of the respiratory system including the cause, symptoms, and treatment of each.

5. If a resident currently is receiving a respiratory medication, describe the following for the medication:
   a. brand name
   b. trade name
   c. uses
   d. actions
   e. side effects



Alveoli -
site of gas exchange



SUPPLEMENT #4

INFLAMMATION, INFECTION, AND IMMUNITY

The body is equipped to defend itself against injury and disease through the immune system. An important part of this defense is the lymphatic (Lymph) system, which is one part of the system of absorbent vessels which drain the lymph from various body tissues and return the lymph to the blood stream. The lymph system also filters out foreign particles and bacteria, and produces antibodies, which defend the body against disease-producing organisms.

When the body is injured or affected by irritating substances, or is suffering from overuse, it reacts with a protective process called inflammation. Inflammation is characterized by redness, swelling, heat, pain, and sometimes loss of function.

The body has two processes that protect the cells from being destroyed by germs. One process is called infections, the other, immunity. Infection is an invasion of the body by disease-carrying microorganisms. Infections occur depending on how the tissues react to their presence. Immunity refers to the security a body has against any particular disease or poison. Immunity is the power which an individual sometimes acquires (actively or passively) to resist and/or overcome an infection to which most or many other people are susceptible.

When the body cannot rid itself of irritation or germs, medication must be used to help the processes of inflammation, infection, and immunity.

I. Review of the Processes of Inflammations, Infection, and Immunity

A. Inflammation

1. Causes--the body attempting to remove physical, chemical or pathogenic organisms; the healing process

2. Process of inflammation:
   a. Blood vessels dilate, causing the area to redden.
   b. Increased circulation causes redness, swelling, and heat at the affected site.
   c. Swelling causes pressure on the nerve endings, resulting in pain.
   d. White blood cells move to the sites of the injury and ingest bacteria and dead tissue (pus).

B. Infection

1. Predisposing causes--organisms or animal parasites that enter the body through the following ways:

a. Skin breaks
b. Mucous membranes: mouth, nose, vagina, urethra, and rectum
c. Infected food and water
d. Suppressed immune system

2. Process of infection

a. Bacteria enter the body and multiply spreading from the infected tissue to other parts of the body through the blood, the lymph system, and tissue.
b. The body sends specialized white blood cells to fight the bacteria. Sometimes the body fights infection by itself, other times it needs medication.
c. Medication is used either to cure an infection or to treat its symptoms.

3. Symptoms of infection

a. Inflammation
b. Increased body temperature
c. Pain, discharge, decrease in function
d. Example--upper respiratory infection

C. Immunity

1. Active immunity (long lasting)
a. Naturally acquired--by contracting a disease, such as measles, mumps, chicken pox, and producing antibodies to ward off the disease.
b. Artificially acquired--by ingesting antibodies from an immunized animal or human to prevent disease in persons who haven't developed their own antibodies.

2. Passive immunity (short term)
a. Naturally acquired--by passing antibodies from the mother's blood stream to the baby.
b. Artificially acquired--by injecting the body with attenuated disease causing microorganisms, which stimulate the body to produce antibodies.

II. Common Inflammatory, Infectious, or Non-Immune Conditions for Which Medications or Preparations May Be Helpful
A. Inflammatory conditions

1. Arthritis - called Rheumatoid in a younger person and Osteoarthritis in an older person.
a. Cause - unknown

b. Symptoms - pain, stiffness, swelling in joints, limited movement
c. Treatment - analgesics, steroids, and other anti-inflammatory drugs.

2. Bursitis
   a. Cause - inflammation of the bursa
   b. Symptoms - bursa become irritated or swollen, mild to severe pain
   c. Treatment - anti-inflammatory analgesics and/or anti-inflammatory steroids

B. Infectious conditions

1. Strep throat
   a. Cause - bacteria (streptococcus)
   b. Symptoms - fever, pain on swallowing, reddened throat; throat may contain whitish pustules or red streaks.
   c. Treatment - antibiotics, soothing gargles

2. Influenza (flu)
   a. Cause - airborne virus
   b. Symptoms - fever, muscular aches, GI disturbances, inflammation of respiratory tract
   c. Treatment - immunization may help to prevent occurrence, medications given only to relieve symptoms.

3. Athlete's foot
   a. Cause - Tinea pedis (fungus)
   b. Symptoms - itching and watery blisters between toes, scaling and cracking of the skin.
   c. Treatment - antifungal powders, ointments, or oral medications

4. Pneumonia
   a. Cause - virus, bacteria, aspiration, stasis, or secondary infection
   b. Symptoms - difficult, painful breathing, sometimes cough or fever, sometimes rust-colored sputum
   c. Treatment - bedrest, medication

5. Ringworm
   a. Cause - fungus
   b. Symptoms - ringworm of the scalp: small bald areas usually round or oval in shape covered with dry grayish scales. Ringworm of the body: circular or oval areas with tiny bumps around the edges.
   c. Treatment - ointments, antibiotics

C. Immunizations are recommended for the following conditions:

1. Hepatitis B
   a. Cause - virus - fecal or oral route
   b. Symptoms - loss of appetite, nausea, fever, jaundice, loss of weight and strength
   c. Prevention - hepatitis B vaccine, universal precautions

2. Tetanus - "Lockjaw"
   a. Cause - specific bacteria growing at the site of injury, especially around puncture wounds.
   b. Symptoms - stiff jaw, difficulty swallowing, stiff neck, irritability, headache, fever, chills, muscle spasms, convulsions, and possibly death.
   c. Prevention - active acquired immunity with periodic booster shots.

3. Rubella - "German Measles"
   a. Cause - virus
   b. Symptoms - flat pink spots that start behind the ears and spread to the forehead and then over the body, merging, often in a few hours, so that the skin merely looks flushed. Swollen glands high up on the back of the neck which may stay swollen for weeks. Incubation period is 14-21 days.
   c. Prevention - active acquired immunity
   d. Complication - can cause birth defects in unborn children if mother contracts virus during the first three months of pregnancy. Warn anyone who is in the early stages of pregnancy who might have contact with the individual.

4. Polio
   a. Cause - virus
   b. Symptoms - fever, sore throat, headache, vomiting, stiff neck, paralysis
   c. Treatment - medication
   d. Prevention - active acquired immunity

5. Measles
   a. Cause - virus
   b. Symptoms - runny nose; reddened, water eyes; cough; fever which gradually rises; spots which look like grains of salt appear on the inside of cheeks about day 3 or 4; rash appears day 4 or 5 as small dark red spots staring behind the ears and spreading and becoming blotchy over the face and body.
   c. Treatment - antibiotics, eye medication
   d. Prevention - active acquired immunity
   e. complications - acute conjunctivitis, sore throat, bronchitis, pneumonia, inflammation of the brain leading to encephalitis.

6. Mumps
    a. Cause - virus
    b. Symptoms - swollen, painful gland(s) running from behind the ear to beneath the jaw bone; dry mouth; acute stinging pain on swallowing anything acidic; increasing swelling, changing the whole shape of the face. Incubation period is 14-28 days.
    c. Treatment - rest, pain relievers, fluids
    d. Complications - deafness, mumps, meningitis
    e. Prevention - active acquired immunity

7. Tuberculin Testing
    a. Action - produce an allergic reaction to tuberculin bacteria
    b. Use - check for contact with tuberculin bacteria
        i. Negative result means lung tissue has not been in contact with TB bacteria.
        ii. Positive result means lung tissue has been exposed to the TB bacteria, but it does not necessarily mean the person has tuberculosis.
    c. Examples
        i. Tine
            aa. Used in schools, but not accepted in health care facilities because it gives too many false=positive readings.
            bb. Give a purified protein derivative (PPD) as a follow-up test if the individual tests positive with the Tine.
        ii. Mantoux or purified protein derivative (PPD)
            aa. Accepted test for health care workers and individuals in long-term care.
            bb. Give by nurse-injection just under the skin.
            cc. Required annually, unless the test has been positive in the past.
            dd. Follow up a positive test with a chest X-ray.

        iii. Chest X-ray (CXR)
            aa. Used for persons with a positive PPD to diagnose the disease and after an initial positive reaction to rule out an active disease.
            bb. After two negative CXR's and a doctor's statement, a repeat CXR is needed only if symptoms occur.

D. Antibiotics
    1. Action - kill or prevent growth of specific germs
    2. Use - treatment of various infections
    3. Examples
        a. Penicillin V (Veetids ®, Pen-Vee-K ®)

b. ampicillin (Ampicin ®)
c. amoxicillin trihydrate (Amoxil ®)
d. cephalexin monohydrate (Keflex ®)
e. cefaclor (Ceclor ®)
f. doxycycline hyclate (Vibramycin ®)
g. oxytetracycline (Terramycin ®)
h. tetracycline HCl (Achromycin ®)
i. erythromycin base E-Mycin ®)
j. Erythromycin estolate (Ilosone ®)
k. erythromycin ethylsuccinate (E.E.S. ®)

4. Adverse effects
   a. Nausea and vomiting
   b. Hives
   c. Rash
   d. Anaphylactic reaction
   e. Sensitivity to the sun

5. Special considerations
   a. Must be administered at the exact time ordered to maintain adequate amount in the blood at all times.
   b. Most effective if given one to two hours after eating.
   c. Do not give tetracycline with antacids or milk products.

E. Vaccines and toxoids
   1. Action - stimulate the body to produce its own immunity (antibodies).
   2. Use - prevention of disease.
   3. Examples
      a. tetanus toxoid
      b. measles, mumps, and rubella vaccine (MMR)
      c. pneumococcal (Pneumovax-23 ®)
      d. influenza virus (Fluogen ®)

   4. Adverse effects
      a. Allergic reaction
      b. Pain and swelling at the site of the injection
      c. Rash
      d. Fever
      e. Flu-like symptoms
      f. Convulsions

   5. Special consideration - care giver should receive immunization if exposed to hepatitis B.

III. Acquired Immune Deficiency Syndrome (AIDS)

A. AIDS is caused by the virus HTLV-III or HIV (human immunodeficiency virus). AIDS breaks down a part of the body's immune system, leaving the person vulnerable to a variety of unusual, life-threatening illnesses. The virus may also affect the brain, causing a variety of neurologic problems.

B. Transmission
   1. Sexual intercourse (vaginal, anal, and oral).
   2. Shared use of needles for IV drug use.
   3. Infected mothers passing the virus on to the fetus.
   4. Transfusion of infected blood or blood products.

C. Symptoms - the following symptoms are also symptoms of many different diseases. Some people infected with the virus may not show any of these symptoms, but they can still transmit the virus. Only a qualified health professional can diagnose the disease.
   1. Skin changes - purplish blotches, bumps, rashes.
   2. Swollen glands
   3. Diarrhea
   4. Fatigue
   5. Fever
   6. Loss of appetite
   7. Persistent dry cough
   8. Night sweats
   9. Weight loss

D. Treatment - medication, diet

E. Prevention
   1. Abstinence from sex and IV drug use.
   2. Practice safe sex by using condoms.
   3. Auto-transfusions.

F. Care of the individual with AIDS

   1. Avoid direct skin contact with mucous membranes, bodily fluids, secretions, excretions, and wounds.

   2. Wear protective gloves and gown when you are likely to have contact with blood, body fluids, or objects that could be contaminated with blood, such as razors or toothbrushes.

   3. In addition to the gloves and gown, wear protective eye covering and a surgical mask when there is the risk of spraying or splashing infectious materials, such as blood or urine.

4. AIDS individuals frequently carry the cytomegalovirus (CMV) which causes congenital infections. Therefore, pregnant women should avoid contact with AIDS individuals.

5. Individuals with AIDS are highly susceptible for infection. If you have a minor infection, such as a cold, avoid contact with the individual. Almost any infection can become a life-threatening illness.

6. Disposable items should be put in plastic bags, sealed and removed with other garbage.

7. Soiled linen should be laundered using detergent and the hot wash cycle, then dried in the dryer.

8. Dishes should be washed in hot soapy water and rinsed in hot water.

9. Disinfectants containing a 0.1% concentration of sodium hypochlorite of a 0.01% concentration of glutaraldehyde destroy the virus quickly.

10. A 1:10 solution of bleach and water can also be used for disinfecting surfaces.

GUIDELINES FOR DEVELOPING POLICIES AND TRAINING PROGRAMS IN UNIVERSAL PRECAUTIONS AND INFECTION CONTROL (EMPLOYER'S GUIDE)

The following guidelines are intended to be consistent with those of the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control (CDC) and are recommendations to protect against transmission of communicable disease. This guideline contains the necessary elements for developing a training program. Because institutional needs vary, it is assumed that institutions will make necessary and appropriate modifications. The guidelines are divided into two primary areas: (A) Assessing risk and preventing exposure, and (B) What to do if exposure occurs.

A. HOW TO ACCESS RISK AND PREVENT EXPOSURE:

1. Employers should become familiar with CDC and OSHA guidelines and should be alert to changes that may occur in these guidelines.

2. Employers should make a needs assessment in each area of their institution. This assessment should include an evaluation of tasks or procedures in each area to determine the degree, frequency, and extent of employees' potential exposure to blood or body fluids in each area.

   Not all employees are at equal risk of exposure and not all facilities perform all tasks or procedures.

   Appropriate questions include: What procedures or tasks are performed? By which employees? Into which OSHA category do these procedures or tasks fall?

   - **Category I.** Blood or body fluid exposure is regular and expected, i.e, emergency medical technician, surgeon, medical laboratory technician.

   - **Category II.** Blood or body fluid exposure is not routinely expected but may occur on an unplanned basis, i.e, teacher, nurse’s aide, janitorial staff.

   - **Category III.** No occupational exposure to blood or body fluids, i.e, administrative secretary, food handler, institutional record keeper. Handling of implements or utensils, use of public bathrooms or telephones, personal contacts such as handshaking are all considered Category III tasks (No exposure). Persons with Category III jobs are not expected to provide first aid or emergency medical care as part of their employment.

3. Policies and procedures should be developed for all Category I and Category II tasks and be made available with protective equipment to appropriate employees. Locations for placement of the equipment should be prescribed because convenience is very important for compliance. In general, appropriate protective equipment should be donned before beginning any Category I task. Because exposure may be unplanned in Category II tasks, proper equipment should be readily available.

4. An educational program to teach these policies, procedures and the use of protective equipment should be developed for all Category I and II employees. This program should include:
   a. Modes of transmission (and non-transmission) of HIV.
   b. Recognition and distinction between Category I and II tasks.
   c. Policies and procedures and barrier precautions for all Category I or II tasks: appropriate types of barrier precautions and the reasons for their selection. This is important because overuse of barrier precautions is expensive, time-consuming, and wasteful; underuse may lead to unnecessary exposures and risks.
   d. Location, use, and disposal of protective equipment.
   e. Policies and procedures for handling unplanned or emergency situations where exposure to blood or body fluids could occur. Proper reporting of exposures to emergency medical care providers must be done under IC 16-1-45.
   f. Policies and procedures to handle blood or body fluid spills; provide counseling and other interventions considered necessary for employees with accidental exposures during performance of their duties; and document both the occurrence and correction of failures in using universal precautions.
   g. Limitations of precautions -- i.e, gloves do not protect from needle sticks; good technical skills are still necessary.

Education should be ongoing and updated as necessary.

5. All Category I and II employees should be expected to:
   a. Know the degree, frequency, and extent of their occupational risk of exposure to blood or body fluids.
   b. Know which tasks or circumstances are likely to expose them to blood or body fluids.
   c. Be knowledgeable in appropriate barrier precautions and correct techniques, and application before providing professional services where contact with blood or body fluids is likely.
   d. Take appropriate and correct precautions to protect themselves from direct skin or mucous membrane contact with blood or body fluids.
   e. Act responsibly to avoid exposure of co-workers to blood or body fluids.
   f. Report all accidental exposures to blood or body fluids to supervisor or to other designated persons according to institutional policy.

6. It is also recommended that policies and procedures be developed concerning:
   a. IV testing of patients, individuals, students, or employees.
   b. HIV seropositive employees.
   c. Pregnant employees performing Category I or II tasks.
   d. Confidentiality.

7. Education for all staff, whether or not they have occupational risk, about HIV infection and the concepts behind universal precautions is recommended. Depending upon the institution, it may be important to include clergy, volunteers, spouses or families of employees, and even the community in these programs. These educational interventions are important because they decrease fear, increase acceptance, and promote a positive institutional image.

8. The following information in intended to further assist in developing policies and procedures, particularly for institutions with known HIV seropositive persons.

   a. Solution of 5.25% sodium hydrochloride (household bleach) at a 1:10 dilution is recommended but not required as the agent of choice for cleaning hard surfaces after all spills of blood or body fluids. These solutions should be prepared daily. It is not recommended to use sodium hydrochloride solutions on carpets or rugs, however sanitary absorbent cleansers may be used on these items.

   b. Agents labeled as "hospital disinfectants" are acceptable cleaning agents and will eliminate HIV. It should be recognized that the mechanics of scrubbing are far more important in eliminating organisms than the selected cleansing agent. The end result of scrubbing and rinsing should be the thorough removal of all contaminated materials.

      HIV is not resistant to commonly used agents. Common agents that eradicate HIV include, but are not limited to, Lysol, hydrogen peroxide, betadine, glutaraldehyde, isopropyl alcohol, Np-40 detergent. Chemical germicides registered with the Environmental Protection Agency (EPA) as steriliants are recommended for high-level disinfection.

   c. Reusable equipment and instruments should be cleaned by trained personnel and receive high-level disinfection or sterilization by steam-autoclave or ethylene oxide. Bronchoscopes, gastroscopes, and other lensed instruments should be sterilized with ethylene oxide or receive high-level disinfection with an agent that is also mycobacteriocidal, a 2% glutaraldehyde soak for 45 minutes, for example.

   d. Disposable utensils and dishes are not necessary for use by HIV seropositive persons. Glassware, dishes, and utensils may be handled and washed according to ordinary institutional policies.

   e. Children known or suspected of HIV seropositivity may use the school water fountain.

   f. Private rooms are unnecessary for HIV seropositive patients unless they have an infection or condition that would ordinarily require a single room.

   g. Separate toilet and shower facilities are not necessary for HIV seropositive persons unless they have an infection or condition which would ordinarily require the use of private bathroom facilities.

   h. Curtains, walls, blinds, etc. do not require special cleaning after a room is occupied by an HIV seropositive person, unless contamination with blood or body fluids has occurred.

   i. Linen and clothing used by HIV seropositive persons may be washed according to ordinary institutional policies.

B. WHAT TO DO IF EXPOSURE OCCURS

   1. The employee should wash the affected area immediately and thoroughly. If an eye or mucous membrane (mouth) is contaminated, rinse with water for fifteen minutes.

   2. The incident should be reported to the supervisor or designated person. While vomitus, saliva, urine, tears, and feces have not been implicated in the transmission of

HIV infection, other communicable diseases may be transmitted by these fluids and reporting of the incident to the supervisor or designated person is recommended.

3. An incident report should be completed according to institutional policy and state law. The report should include the circumstances of the incident, the blood or body fluid source's name, institutional number (if appropriate), and what protective equipment and precautions were used at the time of the exposure.

4. The employer should perform an evaluation and follow-up of the employee according to institutional policy. At a minimum, exposed employees should be counseled about risk of acquisition of HIV and other relevant communicable diseases, receive information about prevention of transmission, and be offered voluntary serologic testing.

5. In assessing the need for serologic testing, the employer should be aware that at this time, only direct exposure to blood is considered a potential risk for HIV transmission. The risk of transmission of HIV by direct contact of blood with intact skin or mucous membranes is very low (less than 0.5%); puncture exposures (breaking the skin) constitute a risk, but this risk is still a much lower risk than for other diseases such as hepatitis B.

6. If an employee or emergency medical care provider elects to undergo serologic testing, blood should be obtained as soon as possible (within 72 hours) after exposure, and again at six, twelve, and twenty-four weeks after exposure. Individuals may become seropositive as long as twelve months after exposure, but this is very unlikely. Persons who are seronegative at twenty-four weeks should consider themselves seronegative. Further testing is not necessary unless medically warranted.

7. Serologic testing should consist of a screening test, such as the ELISA, that should be repeated if positive. A repeatedly positive ELISA should be confirmed by another test using a different method, such as the Western Blot test. A person should only be considered seropositive if the screening test is repeatedly positive and the confirming test is also positive.

8. Persons with positive serologic tests within 72 hours of exposure should be considered to have been seropositive prior to the reported exposure.

9. Persons whose blood or body fluids were the source of exposure shall be informed if HIV serologic testing is part of institutional policy and must consent before testing is performed.

10. All persons should be informed of their test results and should receive appropriate counseling; seropositive persons should be referred for further medical assistance according to institutional policy.

11. If a person is exposed to blood or body fluids of an employee, that person should be informed of the exposure (without identification of the employee) and procedures similar to those outlined above should be followed.

SUPPLEMENT #5
CARDIOVASCULAR SYSTEM

STRUCTURE AND FUNCTION

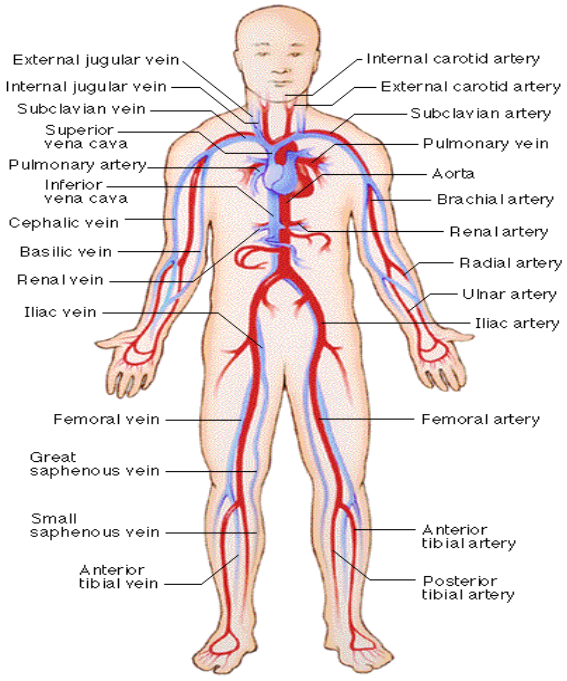
The system is made up of the heart (central pumping station), blood vessels, and the blood itself. It is a continuous network. The heart is a muscular organ. It is hollow inside and divided into four chambers (cavities): the right atrium, the left atrium, the right ventricle, and the left ventricle. It is separated into right and left sides by a wall (septum). Nerve impulses make the heart beat regularly according to body needs. When you run, the cells need more oxygen, and so the heart beats faster.

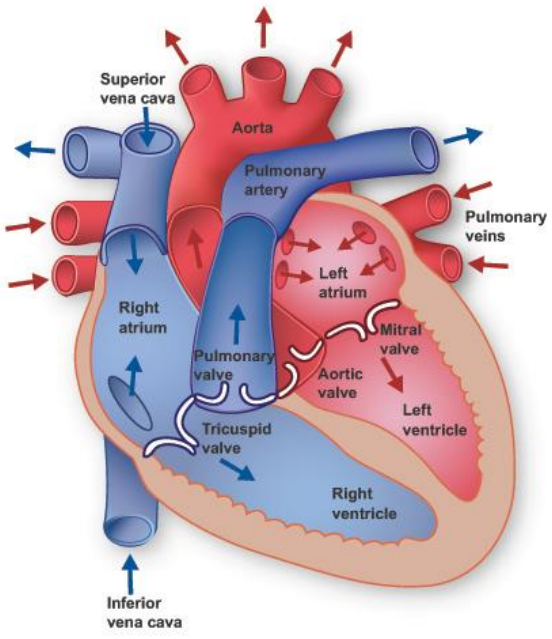
CARDIAC CYCLE

The heart pumps blood through the body by a series of movements known as the cardiac cycle. The upper chambers of the heart (atria) relax and fill with blood as the lower chambers (ventricles) contract, forcing blood out of the heart through the pulmonary arteries. The lower chambers then relax, allowing blood to flow into them from the upper chambers.

MAJOR VESSELS

Arteries are vessels which carry blood away from the heart and eventually join the veins. Veins are lined with one way valves which help transport blood back to the heart. Thus, the major vessels are a continuous network through which the blood completes a round trip from the heart to the rest of the body and back to the heart. Blood pressure is the measurement of how hard the heart has to work to pump blood into the arteries and the amount of resistance in the blood vessels. The blood pressure is also affected by rest, activity, weight, stress, and illness. Pulse, respiration, and blood pressure may also be called the vital signs.





THE CARDIOVASCULAR SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE CARDIOVASCULAR SYSTEM
   1. Structures of the cardiovascular system:
      a. heart
      b. blood vessels
      c. blood
      d. arteries and veins
   2. Functions of the cardiovascular system:
      a. Pump the blood (heart)
      b. Provide a pathway for the blood (blood vessels)
      c. Carry essentials to body cells via blood
      d. Carry wastes away from body cells via blood
   3. Effectiveness of the circulatory systems depends on:
      a. Rate, rhythm, and force of heart
      b. Elasticity of blood vessels

B. MAJOR CIRCULATORY DISORDERS
   1. Myocardial Ischemia
      a. Cause--lack of adequate oxygen supply to the heart.
      b. Symptoms--shortness of breath, chest pains
      c. Treatment--medications and rest
   2. Angina Pectoris
      a. Cause--myocardial ischemia
      b. Symptoms--pain in chest and left arm, flushing and perspiration, sudden attack of vertigo, can be aggravated by smoking
      c. Treatment--usually relieved by vasodilator drugs
   3. Coronary Occlusion (heart attack, M.I.)
      a. Cause--blockage in any artery that supplies blood to the heart muscle. Destroys heart and can cause death (myocardial infarction). Severity depends on size and location of blocked heart vessel.
      b. Symptoms--crushing chest pain, shortness of breath, anxiety, indigestion, shock, collapse.
      c. Treatment--medication, rest, hospitalization
   4. Congestive Heart Failure
      a. Causes--heart muscle weakness, hypertension, changes in heart valves due to disease, heart contractions are inadequate to pump blood to all body parts.
      b. Symptoms--edema (swelling) in feet and legs, cough and shortness of breath, fatigue, tachycardia.
      c. Treatment--cardiotonics and diuretics.
   5. Heart Arrhythmias
      a. Causes--inability of impulse center to function properly, sometimes follows coronary occlusion, toxic effect of other drugs (digitalis).
      b. Symptoms--irregularity in rate and rhythm of heart, syncope, may exhibit tachycardia (rapid heart rate) or bradycardia (heart rate below 60).
      c. Treatment--medication, rest

6. Shock
    a. Causes--collapse of the blood vessels resulting in poor blood supply to entire body, dilation of the blood vessels, blood loss (hemorrhage).
    b. Symptoms--rapid heartbeat, pallor, perspiration, light headiness, chills, fainting, hypotension.
    c. Treatment--medications, keep the individual warm, move the individual to the Trendelenburg position. Shock is a medical emergency, the physician may place the individual in the hospital.
7. Arteriosclerosis/Atherosclerosis
    a. Cause--buildup of plaque deposits in blood vessels which causes narrowing of the vessel.
    b. Symptoms--pale or blue skin color, muscle cramping, decreased circulation which may result in pain in the extremities or ulcers (sores) to develop on legs and feet.
    c. Treatment--medication, exercise, monitor diet
8. Hypertension (high blood pressure)
    a. Causes--kidney disease, adrenal gland tumors, brain disease, heart disease, aggravated by obesity and smoking, usually cause is unknown.
    b. Symptoms--dizziness, headache, palpitations, fatigue, tinnitus, systolic pressure above 140, diastolic pressure above 90.
    c. Treatment--medication, exercise, weight control
9. Cerebral Vascular Accident (CVA)--stroke
    a. Causes--blood clot, ruptured blood vessel in the brain, hypertension.
    b. Symptoms--depend on which area of the brain is affected, weakness or paralysis, inability to speak or read, loss of memory, unconsciousness.
    c. Treatment--medications, physical/speech therapy
10. Thrombophlebitis
    a. Causes--injury, surgery, abnormal blood clotting
    b. Symptoms--pain, redness, tenderness, swelling of the affected limb.
    c. Treatment--medication, rest

C. SELECTED MEDICATIONS BY CLASSIFICATION
1. Cardiotonics
    a. Action--slows and strengthens the heart action.
    b. Use--as maintenance therapy in congestive heart failure, atrial fibrillation, atrial flutter.
    c. Examples
        (1) digitoxin (Crystodigin ®)
        (2) digoxin (Lanoxin®)
    d. Adverse effects
        (1) Fatigue and loss of appetite
        (2) Dizziness, agitation
        (3) Irregular heart beat
    e. Special considerations
        (1) Take pulse before administering cardiotonic drugs.
        (2) Precaution: If pulse is below 60, hold medication and contact staff nurse Immediately.

2. Antiarrhythmics
    a. Action--regulate heart rate and rhythm.
    b. Use--angina and arrhythmias
    c. Examples
        (1) propranolol (Inderal ®)
        (2) quinidine (CinQuin ®, Cardioquin ®)
        (3) procainamide HCl (Pronestyl ®)
    d. Adverse effects
        (1) Nausea and vomiting
        (2) Confusion
        (3) Hypotension
    e. Special consideration--administer one hour before or two hours after meals with a full glass of water.

3. Vasodilators
    a. Action--dilate blood vessels and improve blood supply to the heart.
    b. Use--treat angina pectoris and decreased circulation to the brain and extremities.
    c. Examples
        (1) nitroglycerin (Nitro-Bid ®)
        (2) nicotinic acid
        (3) papaverine (Cerespan ®, Pavacen ®)
        (4) isoxsuprine HCl (Vasodilan ®)
        (5) cyclandelate (Cylcospasmol ®)
    d. Adverse effects
        (1) perspiration
        (2) flushed face
        (3) hypotension
        (4) headache
    e. Special considerations--do not get the nitroglycerin on your skin.

4. Anticoagulants
    a. Action--decrease blood clot formation
    b. Use--thrombophlebitis, abnormal clot formation
    c. Examples
        (1) aspirin (A.S.A.)
        (2) heparin (Coumadin ®)
    d. Adverse effects
        (1) Gastrointestinal bleeding
        (2) Blood in stool or urine

DEFINITIONS OF KEY TERMS

Angina--Any disease in which spasmodic and painful suffocation or spasms occur.

Arrhythmia--A change in the time or force of the rhythm of the heartbeat.

Arteriosclerosis--A deposit or degenerative accumulation of cholesterol and lipoid material in the arteries.

Fibrillation--Very rapid irregular contractions of the muscle fibers of the heart resulting in the heartbeat and the pulse not beating simultaneously.

Flutter--Very rapid rhythmic contractions of the heart muscles.

Hematemesis--Vomiting blood.

Hemoptysis--Coughing up blood.

Hypertension--High blood pressure.

Hypotension--Low blood pressure.

Ischemia--Temporary decrease in the amount of blood being delivered to a part of the body; mainly due to the contraction of a blood vessel.

Phlebitis--Inflammation of a vein.

Syncope--A brief loss of consciousness.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 beats per minute.

Thrombophlebitis--Inflammation of a vein which results in the formation of a clot.

Trendelenburg Position--Lying on the back with the pelvis higher than the head, inclined at a 45 degree angle.

SUPPLEMENTAL LESSON: THE CARDIOVASCULAR SYSTEM

PERFORMANCE:

1. List two functions of the cardiovascular system.

2. List the major structures of the cardiovascular system and the heart. (Diagram of the cardiovascular system and the heart are included). You may use them to point out or label the structures.

3. Define eight key terms selected by the staff nurse.

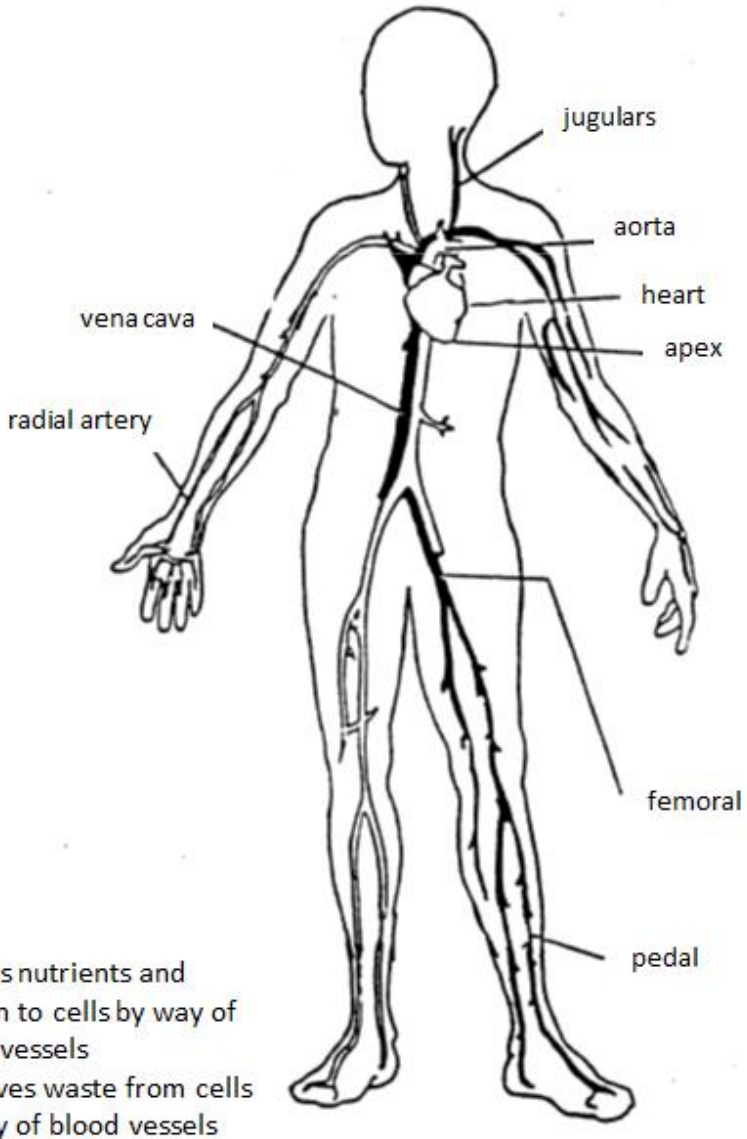
4. Describe five conditions of the cardiovascular system including the cause, symptoms, and treatment of each.

5. If a resident currently is receiving a cardiovascular medication, describe the following for The medication:

    a. brand name
    b. trade name
    c. uses
    d. actions
    e. side effects

The Cardiovascular System

KEY

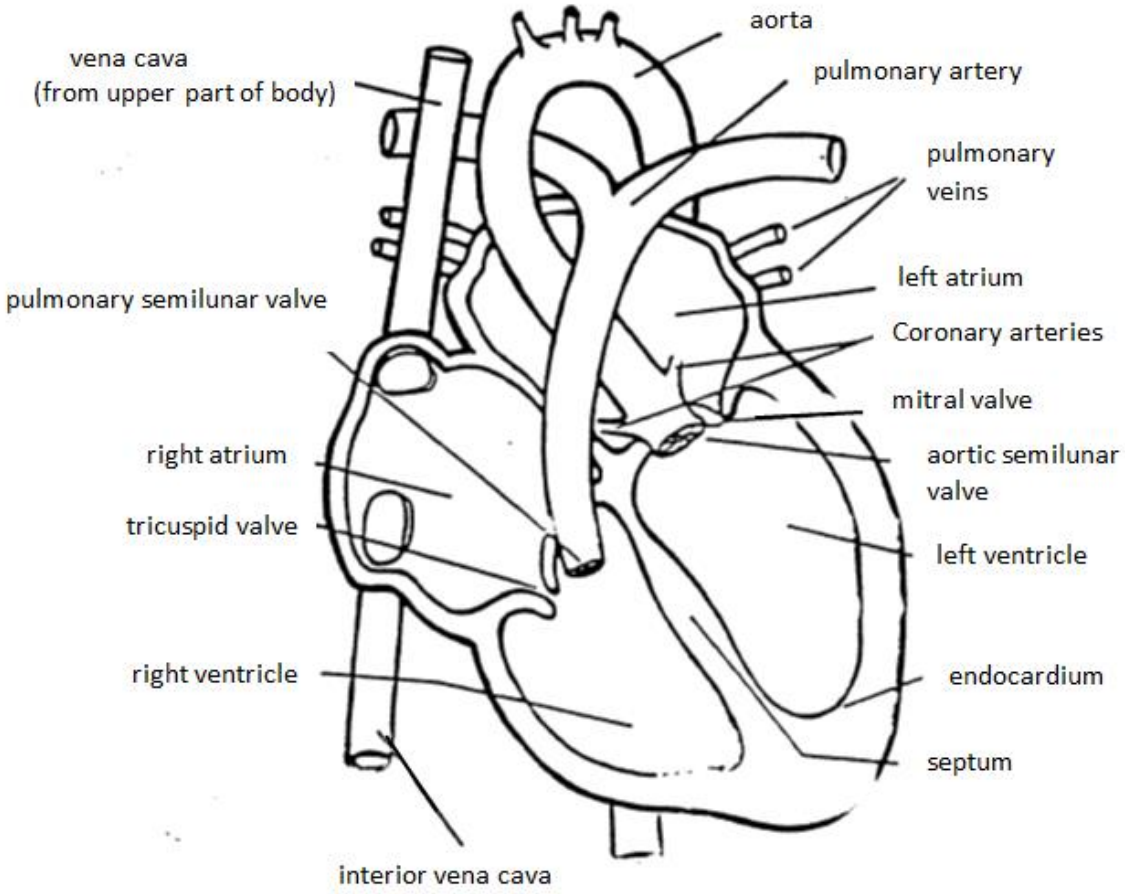


Function:

1. Carries nutrients and oxygen to cells by way of blood vessels
2. Removes waste from cells by way of blood vessels

The Heart

KEY



Function: 1. Pumps blood through the blood vessels

SUPPLEMENT #6

URINARY SYSTEM

STRUCTURE AND FUNCTION

THE KIDNEYS The two bean-shaped kidneys are located behind the ribs and are held in place by capsules of fat. The outer portion of the kidney is where urine is produced. The blood circulates through the kidneys to be filtered. Water and waste products are removed. The average urine output is 1 to 2 quarts per 24 hours.

THE URETERS The two ureters extend from the kidneys to the urinary bladder and act as passageways for the urine.

THE URINARY BLADDER The urinary bladder, found within the pelvic cavity, is a reservoir for the urine until it is expelled from the body. The muscular walls of the bladder are able to contract and force urine out. The urge to urinate (micturate or void) occurs when there are 6 to 10 ounces of urine in the bladder. The bladder is capable of holding much more urine than this amount.

THE URETHRA During urination the urine passes out of the body by way of the urethra. The urethra in the female is about 1 1/2 inches long and in the male about 8 inches long.

THE URINARY AND MALE REPRODUCTIVE SYSTEMS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE URINARY AND MALE REPRODUCTIVE SYSTEMS

1. Urinary system is composed of two kidneys, two ureters, a urinary bladder, and the urethra.

2. The urinary system performs two major functions:
   a. Filter (clean) blood through the kidneys.
   b. Eliminate excess fluids and unused substances in the fluid.

3. Structures of the male urinary/reproductive system:
   a. Testicles
   b. Scrotum
   c. Epididymis
   d. Vas deferens
   e. Seminal vesicles
   f. Prostate gland
   g. Bulbourethral glands
   h. Penis

4. Functions of the male reproductive system:
   a. Produce hormone (testosterone) necessary to have male secondary sex characteristics begins in puberty, and slows down with aging process.
   b. Produce sperm necessary for reproduction.

B. COMMON DISORDERS OF THE URINARY TRACT AND MALE REPRODUCTIVE SYSTEMS

1. Cystitis
   a. Cause--bacteria
   b. Symptoms--cloudy urine, frequent urination, burning and painful urination, sometimes fever and chills if severe, voiding small amount, feeling of urgency to void.
   c. Treatment--antibiotics, urinary antiseptics, cranberry juice, Vitamin C, increase fluid intake.

2. Pyelonephritis
   a. Cause--may result from infection elsewhere in the body; frequently responsible for renal failure.
   b. Symptoms--chills, fever, nausea, cloudy urine, back pain, decreased urine output, more pronounced in acute phase.
   c. Treatments--medication, possible kidney dialysis in chronic or severe acute stage.

3. Edema
   a. Cause--inability of the body to rid itself of fluid due to kidney or heart failure.
   b. Symptoms--swelling of hands, feet, legs; inability to breathe with exertion or when lying down.
   c. Treatment--diuretic drugs.

C. SELECTED URINARY SYSTEM MEDICATIONS BY CLASSIFICATION

1. Diuretics
   a. Action--congestive heart failure, hypertension, severe edema
   b. Use--to decrease blood pressure and increase urinary output
   c. Examples
      (1) chlorothiazide (Diuril®)
      (2) furosemide (Lasix ®)
      (3) hydrochlorothiazide (Hydro Diuril ®)
      (4) spironolactone (Aldactone®)
      (5) methyclothiazide (Enduron ®)
      (6) Aldactazide and Dyazide (combinations which contain hydrochlorothiazide)
   d. Adverse effects
      (1) Hypotension
      (2) Weakness
      (3) Nausea and vomiting
      (4) Dizziness

2. Androgens
   a. Action--replacement of male hormones
   b. Uses--promote weight gain, treat an enlarged prostate gland due to malignancy, and treat breast cancer.
   c. Example--testosterone (Androgen ®, Oreton-Methyl ®)
   d. Adverse effects
      (1) Edema
      (2) Change in appetite
      (3) Increased serum cholesterol
      (4) Male characteristics appear in females

3. Urinary Tract Analgesics
   a. Action--decrease pain from urinary tract infections.
   b. Uses--treat urinary tract infections (UTI), cystitis, and relieve pain, urgency, frequency, and burning associated with urination.
   c. Examples
      (1) phenazopyridine HCL (Pyridium ®)
      (2) Azo Gantanol ®
   d. Adverse effects
      (1) Produces a harmless reddish-orange discoloration of the urine.
      (2) Nausea and vomiting
      (3) May alter urine glucose results in some tests.
   e. Special considerations--use Glucometer for more accurate urine glucose test results.

4. Urinary Muscle Relaxants
   a. Action--directly affects the smooth muscles of the urinary tract.
   b. Uses--prevent urinary retention, neurogenic bladder.
   c. Examples
      (1) flavoxate HCl (Urispas ®)
      (2) bethanechol chloride (Urecholine ®) (3) Pyridium Plus ®
   d. Adverse effects
      (1) Dysuria
      (2) Tachycardia
      (3) Dry mouth
      (4) Blurred vision
      (5) Frequency
      (6) Urgency
      (7) Incontinence
      (8) Diarrhea
      (9) Abdominal cramps
   e. Special Considerations
      (1) Do NOT give with food. Only give on an empty stomach.
      (2) Given only for retention that is NOT due to an obstruction.

5. Systemic Anti-infective (Sulfa-drugs), which are often used to treat UTI, are discussed in Lesson 6.

D. ADDITIONAL INFORMATION FOR THE URINARY SYSTEM

1. Incontinent individuals must be kept clean and dry.
2. Individuals with catheters must be given frequent and/or additional perineal care.
3. Cleanse the head of the penis thoroughly with water after catheter care and do not Leave foreskin retracted.
4. Cleanse female individuals from front to back for perineal care and following elimination.
5. Encourage fluids for individuals with urinary tract infections (UTI) unless otherwise ordered.
6. Provide bladder training according to agency policy.
7. Observe and chart the color and amount of urine.
8. Observe for reddened areas on perineal area.
9. Treat the individual with respect.

DEFINITIONS OF KEY TERMS

Bulbourethral glands--Small structures about halfway between the bladder and the end of the penis that secrete sperm protectant.

Chronic kidney failure--Reduction in kidney function.

Cystitis--Inflammation of the urinary bladder.

Edema--Swelling caused by large amounts of fluid in the tissues.

Epididymis--Coiled structure that stores and matures sperm cells.

Incontinence--Loss of bladder and/or bowel control.

Penis--Cylinder-shaped vascular structure on the outside of the male body. Houses external portion of urethra, and is the male organ of copulation.

Perineal--The area between the thighs that includes the anus and vulva in the female and the anus and penis in the male.

Prostate--Doughnut-shaped gland, in the male, composed of muscular and glandular tissue that surrounds the urethra at the bladder and adds alkaline substance to sperm.

Pyelonephritis--Inflammation of both the kidney and the lining of the pelvis.

Scrotum--Sac-like structure located behind the penis which holds the testicles.

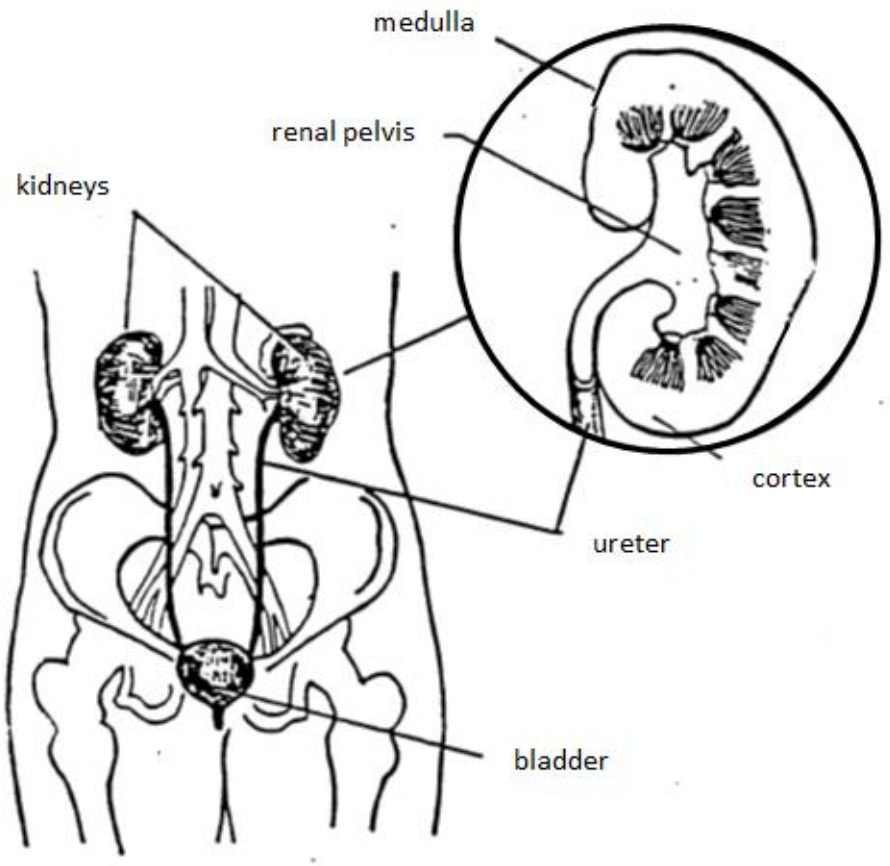
Seminal vesicles--Pouch-like structures behind the bladder where sperm is stored.

Testicles--Also called testes, produce testosterone and sperm cells for reproduction.

Vas deferens (ductus deferens)--Tube that carries sperm to seminal vesicles.

The Urinary System

KEY



Function:

1. Produces urine
2. Removes wastes from blood

SUPPLEMENTAL LESSON: THE URINARY AND MALE REPRODUCTIVE SYSTEMS

PERFORMANCE:

1. List two functions of the urinary system.

2. List the major structures of the urinary and male reproductive systems. (Diagrams of the urinary and male reproductive systems are included. You may use them to point out or label the structures.)

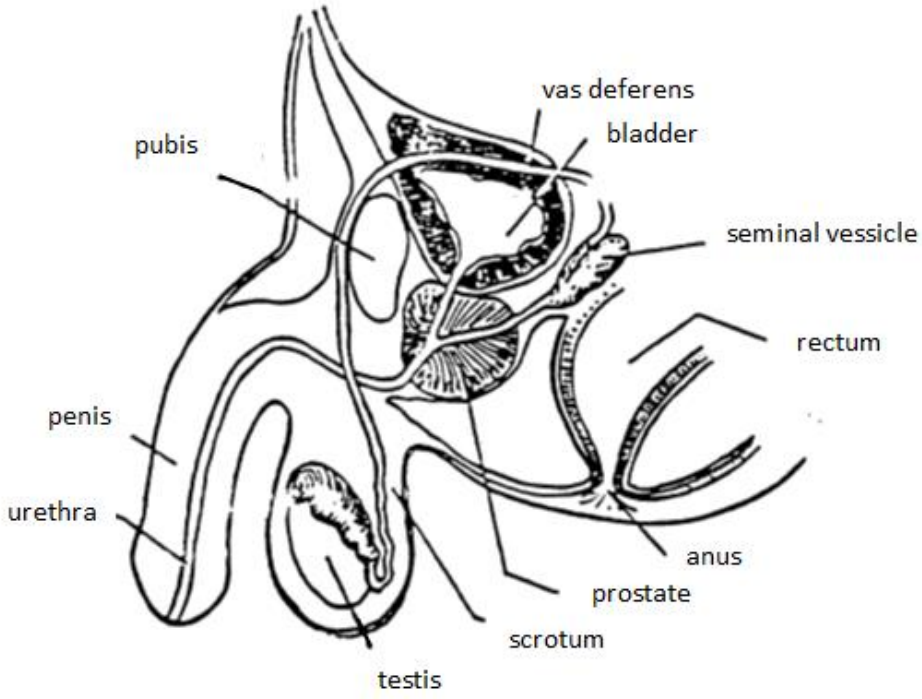
3. Define seven key terms selected by the staff nurse.

4. Describe two conditions of the urinary and male reproductive systems including the cause, symptoms, and treatment of each.

5. If a resident currently is receiving a urinary system medication, describe the following for the medication:

    a. brand name
    b. trade name
    c. uses
    d. actions
    e. side effects

The Male Reproductive System



Function:

1. Produces male hormones
2. Produces male sex cells

SUPPLEMENT #7

PSYCHOTHERAPEUTIC MEDICATIONS

I. REVIEW OF MENTAL AND/OR EMOTIONAL STRESS PATTERN

A. Stress--any physical or mental circumstance that causes strain or tension. A certain amount of stress is stimulating and healthy. The average person is able to cope with stress and soon returns to normal. Continued stress pushes a person beyond limits, ending in physical and/or mental reaction.

B. Causes of stress--change often causes stress, whether it's due to happy occurrences or due to fears of feelings of inadequacy. Examples of change include: starting school, entering adolescence, dating, first job, outstanding personal achievement, graduation, changes in personal habits, vacation, minor law violations, changing jobs, adjusting to in-laws, pregnancy, new family member, Christmas, troubles with the boss, change in residence, death of a friend, etc.

C. Change affects the developmentally disabled and mentally ill population significantly. It is important to prepare the individuals for any changes that might occur.

II. PATTERNS OF EMOTIONAL DEVELOPMENT

A. Adjusting to changing conditions and life situations:
   1. A person is "well adjusted" when he or she is able to deal effectively with personal problems.

   2. A poorly adjusted person feels restless, unhappy, and unable to control life.

   3. Threats to physical or mental well-being produce stress. Example of threats Include illness, job change, death of a friend or family member, school circumstances, and divorce.

B. Reactions to stress

   1. May be physical--elevated pulse rate and blood pressure, change in appetite, increased susceptibility to illness.

   2. May be emotional
      a. Some stress is stimulating and healthy.
      b. Prolonged stress produces anxiety, fear, hostility, and frustration.

   3. Response to stress depends on extent of stress and person's ability to cope effectively.

C. Coping mechanisms--ways of handling stress

1. Constructive coping mechanisms

    a. Openly facing and analyzing problems.
    b. Working out ways to deal with the problem.
    c. Taking responsibility for own actions.

2. Non-constructive coping mechanisms

    a. Defense mechanisms
        i. Rationalization
        ii. Projection
        iii. Daydreaming
        iv. Regression
        v. Withdrawal

    b. Neurosis--an emotional reaction that interferes with leading a normal life.
        i. Anxiety neurosis
        ii. Phobias
        iii. Depression

    c. Psychosis--a major mental disorder in which a person's personality is deranged causing a loss of contact with reality.
        i. Schizophrenia
        ii. Paranoia
        iii. Affective psychosis

D. Organic brain syndrome

1. Emotional disorders that are caused by some physical agent or condition, such as arteriosclerosis, Alzheimer's disease, brain tumors, alcohol and other drugs, infections, or nutritional deficiencies.
2. Normal functioning of the brain is changed.
3. May be short-term or long lasting; symptoms include irritability, confusion, delirium, disorientation, and changes in behavior.
4. Drugs are used frequently in treatment.

E. Emotional reactions to illness, death and life stresses

1. Facing illness and death produces great stress, fear, and anxiety.
2. Expect behavior changes such as hostility and regression.
3. People who are under great stress may require temporary drug therapy to reduce their symptoms.

F. Psychotherapeutic drug therapy is used to influence the chemicals in the brain that are called neurotransmitters.

THE MUSCULOSKELETAL SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE MUSCULOSKELETAL SYSTEM

1. Structure of the musculoskeletal system
   a. Consists of 206 bones.
   b. Muscles are attached to bones by tendons and to other muscles by tendons.
   c. Muscles are able to stretch and contract and are controlled by nerves.
   d. Bones are joined together with a joint.
      (1) Some joints move freely (elbow, hip).
      (2) Other joints move only slightly or not at all (pelvis, skull).

2. Bones and muscles provide movement, support, and protection of internal organs and body shape.

B. MAJOR MUSCULOSKELETAL CONDITIONS

1. Fractures
   a. Cause--accidental injure or disease conditions such as cancer or osteoporosis
   b. Symptoms--pain, swelling, discoloration, abnormal position or movement
   c. Treatment--casting or surgery.

2. Osteoporosis
   a. Cause--inadequate calcium absorption
   b. Symptoms--bones are brittle and are easily broken, sometimes with less than normal amount of stress on bones
   c. Treatment--medication, treatment of fractures if necessary

3. Arthritis
   a. Causes
      (1) Rheumatoid--occurs in younger population, cause unknown
      (2) Osteoarthritis--occurs in older population, also known as degenerative arthritis
   b. Symptoms--pain and swelling in joints, decreased mobility
   c. Treatments--medication, exercise, heat to joints, surgery

4. Muscle spasm
   a. Cause--irritation of muscle
   b. Symptoms--sudden pain and knotting of muscles
   c. Treatment--massage, heat, medication

5. Muscle strain
   a. Cause--injury
   b. Symptoms--pain, swelling
   c. Treatment--rest, medication, elevation of injured limb

6. Gout
    a. Cause--increased uric acid levels, usually caused by diet
    b. Symptoms--pain and swelling in joints, can be acute or chronic
    c. Treatment--medication, diet

C. SELECTED MUSCULOSKELETAL MEDICATIONS BY CLASSIFICATION

1. Analgesics
    a. Action--alter both perception of and often emotional response to pain
    b. Uses--treat muscle spasm and strain, arthritis, gout
    c. Examples
        (1) acetaminophen (Tylenol ®)
        (2) propoxyphene HCl (Darvon ®)
        (3) meperidine (Demerol ®)
        (4) morphine (Duramorph ®, Epimorph ®)
        (5) Aspercreme ®
        (6) aspirin (A.S.A.)
        (7) codeine
        (8) ibuprofen (Motrin ®)
        (9) Brompton's ®)
    d. Adverse effects
        (1) Gastritis, ulcers
        (2) Dizziness
        (3) Headache
        (4) Sedation
        (5) Constipation
        (6) Rashes
        (7) Respiratory depression
        (8) Tinnitus (with A.S.A.)
        (9) Nausea and vomiting
        (10)Increased bleeding tendencies (with A.S.A.)
    e. Special considerations
        (1) Possible gastrointestinal bleeding.
        (2) Observe individual for bloody stools.
        (3) Possibly addictive.
        (4) Check respiratory rate before administering potent analgesics and contact staff nurse if rate is less than 12 per minute.

2. Muscle relaxants
    a. Action--reduce transmission of impulses from the spinal cord to the skeletal muscles.
    b. Use--to treat acute, painful musculoskeletal conditions.
    c. Examples
        (1) carisoprodol (Soma ®)
        (2) methocarbamol (Robaxin ®, Delaxin ®)
        (3) Parafon Forte ®--combination muscle relaxant and analgesic
        (4) cyclobenzaprine (Flexeril ®)

d. Adverse effects
   (1) Drowsiness
   (2) Headache
   (3) Weakness
   (4) Nausea
   (5) Anorexia
   (6) Gastrointestinal upset

e. Special considerations
   (1) Caution individual not to use alcohol.
   (2) Withdrawal symptoms may occur if the drug is stopped abruptly.
   (3) Weakness may cause increased incidence of falls.

D. ADDITIONAL INFORMATION ABOUT THE MUSCULOSKELETAL SYSTEM

1. Observe the individual's body alignment while in bed, in a chair, or while standing.
2. Observe the individual for any skin breakdowns.
3. Promote comfort and prevent contractions by proper turning and ambulation, and by Ensuring correct posture in wheelchairs.
4. Help the individual do range of motion (ROM) exercises when necessary. Contact your staff nurse for instructions on these exercises.
5. Observe the individual's nonverbal signs of musculoskeletal pain:
   a. Facial gestures
   b. Tightening of the muscles
   c. Favoring an area of the body
   d. Limping
   e. Tentative movement
6. Observe the individual for swollen, reddened, hot joints.
7. Good body posture, ROM, and proper medication will help keep the individual comfortable and mobile.
8. Exercise is necessary to maintain mobility, although it may be painful, especially in the morning. The individual's mobility will improve with movement.
9. Analgesics and anti-inflammatory drugs are sometimes given for months or years.
10. Adverse effects can be severe--watch the individual closely.

DEFINITIONS OF KEY TERMS

Analgesics--Medications that relieve muscle, joint and bone pain.

Anti-inflammatory--Medications used to reduce swelling, pain, and tenderness caused by inflammation.

Arthritis--Inflammation of a joint.

Fracture--Broken bone.

Muscle relaxant--Medications that help muscle tissue relax and be less tense and painful.

Muscle spasm--Condition of the muscles in which there is a sudden and violent tightening of the muscle.

Muscle strain--Condition in which the muscle is stretched.

Nonsteroidal anti-inflammatory agents (NSAIA)--Medications used to reduce symptoms of inflammation.

Osteoporosis--Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Range of motion--Moving a joint its full range in an attempt to prevent muscle contractures and joint deformity.

Sprain--Wrenching of a joint, with partial rupture of its ligaments. More severe than a strain and requires longer recuperation.

MUSCULOSKELETAL SYSTEM

1. List four functions of the musculoskeletal system.

2. List the major structures of the musculoskeletal system. (A diagram of the musculoskeletal system is included. You may use it to point out or label the structures.)

3. Define five key terms selected by the staff nurse.

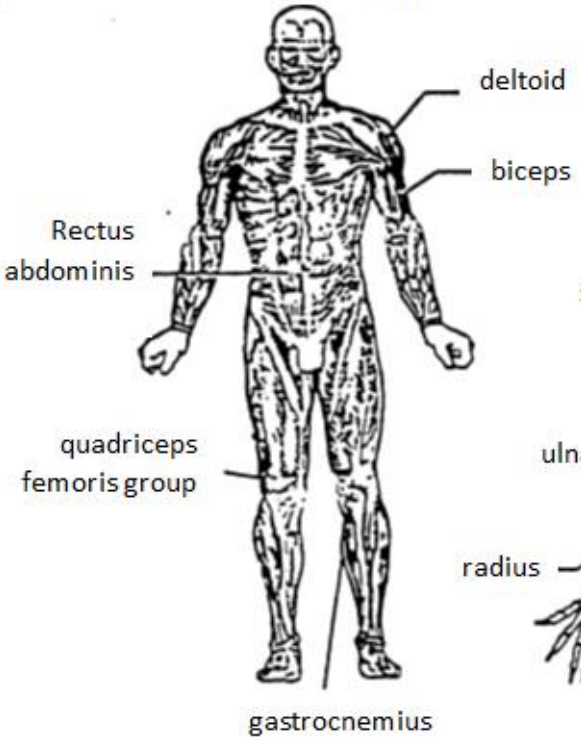
4. Describe four conditions of the musculoskeletal system including the cause, symptoms, and treatment of each.

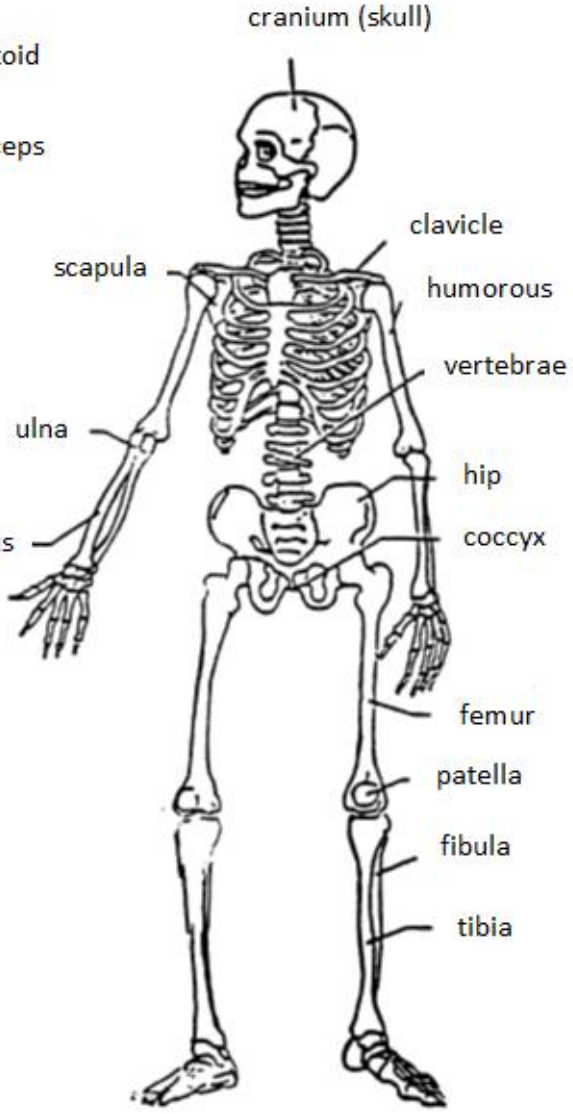
5. If a resident currently is receiving a musculoskeletal medication, describe the following for the medication:

a. brand name
   b. trade name
   c. uses
   d. actions
   e. side effects

The Musculoskeletal System

KEY





Function:

1. Support
2. Protection
3. Movement
4. Shape

SUPPLEMENT #8

MAJOR TRANQUILIZERS

INSTRUCTIONS

It is a tranquilizing medication used for the treatment of anxiety, tension and other mental or emotional problems. It is intended as an aid to reduce troublesome symptoms. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescription tells you to. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medicine and contact your therapist.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you take without prescription). Other depressant drugs including alcohol, certain high blood pressure medicines (guanethidine for example), narcotics and barbiturates may have serious addictive effects. If you have a heart disorder, are receiving medicine for convulsions, have known allergies, or are taking anticoagulants, be sure your therapist knows before you start taking this medication.

This medication can cause changes in the breasts of men, changes in the blood, skin rashes, increased sensitivity to sunlight, increased pigmentation of the skin, opacities of the cornea of the eye, increased cholesterol levels in the blood, changes in liver function and sometimes a drop in blood pressure. Do not give any of this medicine to anyone else. If you are pregnant, or think you might be pregnant, tell your therapist before you start taking the medications.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that this medication may cause drowsiness, uncontrollable muscle movements in the face or body, rigidity, stiff neck, confusion, hyperactivity, lethargy, restlessness, tremors, headache, dryness of the mouth, blurred vision, stomach upsets, changes in menstruation, skin disorders, fever, asthma, jaundice, blood changes, urinary retention, lowered blood pressure, etc. If you should develop any of these symptoms to an uncomfortable degree or if you think that the medicine is bothering you in some other way stop taking it temporarily and notify your therapist. Your dosage schedule may need to be changed or the medication may need to be discontinued.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you do not drive a car of other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator do not let it freeze. Do not save leftover medication, discard it on the expiration date shown on the container but do so in a way that will protect children or pets, for example, flush down the toilet.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local emergency medical service, then give first aid. If no professional help can be found, do not wait, take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #9

MINOR TRANQUILIZERS

INSTRUCTIONS

It is a tranquilizing medication used for the treatment of anxiety, tension and other mental or emotional problems. It is intended as an aid to reduce troublesome symptoms. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescribed dosage. This medicine should not be used in children under six months of age or in any patient who is severely depressed. In many cases it will not be necessary or desirable for you to take all of this medicine. Follow the instructions exactly. If the symptoms for which the medicine was prescribed improve or if you have any adverse reaction that you think may be caused by the medicine, stop taking it and contact your therapist for further instructions.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you take without prescription). You should not take alcohol, barbiturates or narcotics with this medicine. These and other drugs such as phenothiazines and anti-depressants may have significant additive effects. Do not stop taking it abruptly if you have been taking this medicine for a prolonged time. Do not give any of this medicine to anyone else. If you are pregnant or think you might be pregnant tell your doctor before you start taking this medicine. All tranquilizers have effects which can lead to tolerance (more and more medicine required to produce the same results), habituation and emotional dependence. Moreover, withdrawal symptoms can happen when you stop taking the drug.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time after you stop using the medicine or when your body adjusts to it. It is possible that this medication may cause drowsiness, fatigue, confusion, depression, unsteady walking gait, constipation, double vision, headache, changes in sex drive, nausea, skin rash, menstrual irregularities, excitement, hallucinations, insomnia and sleep disturbances. If you should develop any of these symptoms to an uncomfortable degree or if you think that the medicine is bothering you in some other way, stop taking it temporarily and notify your therapist. He/she may decide to change your dosage schedule or discontinue the medication.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator do not let it freeze. Do not save leftover medication. Discard it on the expiration date shown on the container, but do so in a way that will protect children or pets; for example, flush down the toilet.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local emergency medical services, then give first aid. If no professional help can be found do not wait, take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

INDIVIDUAL NAME_____RATER_____DATE_____

			(circle one)					
FACIAL AND ORAL MOVEMENTS:	1.	MUSCLES OF FACIAL EXPRESSION. e.g., movement of forehead eyebrows, periorbital area, cheeks, include frowning, blinking, smiling, grimacing	0	1	2	3	4	5
	2.	LIPS AND PERIORAL AREA. e.g., puckering, pouting, smacking	0	1	2	3	4	5
	3.	JAW. e.g., biting, clenching, chewing, mouth opening, lateral movement	0	1	2	3	4	5
	4.	TONGUE. Rate only increase in movement both in and out of mouth, NOT ability to sustain movement	0	1	2	3	4	5
EXTREMITY MOVEMENTS:	5.	UPPER (arms, wrists, hands, fingers) include chronic Movements (i.e., rapid, objectively purposeless, irregular, spontaneous) athetoid movements (i.e., slow, irregular, complex, serpentine). DO NOT include tremor (i.e., repetitive, regular, rhythmic).	0	1	2	3	4	5
	6.	LOWER (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0	1	2	3	4	5
TRUNK MOVEMENTS:	7.	NECK, SHOULDERS, HIPS. e.g., rocking, twisting, squirming, pelvic gyrations.	0	1	2	3	4	5
GLOBAL JUDGEMENTS:	8.	SEVERITY OF ABNORMAL MOVEMENTS	0	1	2	3	4	5
	9.	INCAPACITATION DUE TO ABNOMRAL MOVEMENTS						
	10.	INDIVIDUALS AWARENESS OF ABNORMAL MOVEMENTS- RATE ONLY INDIVIDUAL'S REPORT	No awareness Aware, no distress Aware, mild distress Aware, moderate distress Aware, severe distress					0 1 2 3 4
DENTAL STATUS:	11.	CURRENT PROBLEMS WITH TEETH AND/OR DENTURES	No Yes					0 1
	12.	DOES THE INDIVIDUAL USUALLY WEAR DENTURES	No Yes					0 1

EXAMINATION PROCEDURE

Either before or after completing the Examination Procedure, observe the individual unobtrusively, at rest (e.g., in the living room).

The chair to be used in this examination should be hard, firm, and without arms.

1. Ask individual whether there is anything in his/her mouth (i.e., gum, candy, etc.) and if there is, to remove it.

2. Ask individual about the current condition of his/her teeth. Ask individual if he/she wears dentures. Do teeth or dentures bother individual now?

3. Ask individual whether he/she notices any movements in mouth, face, hands, or feet. If yes. ask to describe and to what extent they currently bother individual or interfere with his/her activities.

4. Have individual sit in chair with hands on knees, legs slightly apart, and feet flat on floor. (Look at entire body for movements while in this position.)

5. Ask individual to sit with hands hanging unsupported. If male, between legs, if female and wearing a dress, hanging over knees. (Observe hands and other body areas).

6. Ask individual to open mouth. Observe abnormalities of tongue movement. Do this twice.

7. Ask individual to protrude tongue. Observe abnormalities of tongue movement. Do this twice.

8. Ask individual to tap thumb, with each finger, as rapidly as possible for 10-15 seconds; Separately with right hand, then with left hand. Observe facial and leg movements.

9. Flex and extend individual's left and right arms (one at a time). Note any rigidity.

10. Ask individual to stand up. Observe in profile. Observe all body areas again, hips included.

11. Ask individual to extend both arms outstretched in front with palms down. Observe trunk, legs, and mouth.

12. Have individual walk a few paces, turn, and walk back to chair. Observe hand and gait. Do this twice.

SUPPLEMENT #10

ANTI-DEPRESSANTS

INTRODUCTION

It is used for the treatment of depression. It is intended as an aid to reduce troublesome symptoms.

All anti-depressants may take at least three weeks to become effective, so you must be patient in awaiting improvement. If you are not seriously depressed and take this medication, there is a very good chance that you will become unhappy and unpleasant. Follow the instructions on the prescription exactly. Do not take a larger or smaller dose of the medication than the prescribed dosage. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medication and contact your therapist.

PRECAUTION

Using medicines together may sometimes cause unfavorable reactions, so tell your therapist about any medicine you are taking now (including drugs you buy without prescription). Alcohol, pain medicine, thyroid medicines. Ritalin, narcotics, antihistamines, and medicines used to treat high blood pressure, sedatives or anti-anxiety medicines, may all have their effects increased while you are taking this medication. You should not take other medicines for depression, particularly MAO inhibiting drugs, while you are taking this medication. Do not give any of this medication to anyone else. If you take medicine for high blood pressure, have glaucoma, seizures, urinary retention, thyroid disease, a recent heart attack or if you are pregnant or think you might be pregnant, tell your therapist before you start taking this medication.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder, or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that this medication might cause agitation, rapid pulse, confusion, dry mouth, blurred vision, skin rash, edema, nausea, vomiting headache, constipation, increased sweating, muscle tremors, stomach upsets, faintness on arising from bed or chair, hallucinations, jaundice, impotence, drowsiness, dizziness, and possible other disorders. If you should develop any of these symptoms to an uncomfortable degree or think the medicine is bothering you in some other way, stop taking it temporarily and notify your therapist. It may be decided to change your dosage schedule or discontinue the medication.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medicine affects you do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container, in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator, do not let it freeze. Do not save leftover medicine to use later. Discard it on the expiration date shown on the container but do so in a way that will protect children or pets. Flush down the toilet, for example.

REFILLS

All refills must be ordered by the doctor, either in the first prescription or later. Only the pharmacy that originally filled this prescription can refill it. If you go elsewhere you must have a new prescription. Call the pharmacist and order your refill by number. It can be ready when you go to pick it up. Use one pharmacy for the whole family if you can. That way a complete record of all your drugs can be kept and the pharmacist can communicate effectively with the doctor.

OVERDOSAGE AND TREATMENT

Call your doctor or your local life squad, then give first aid. If no professional help can be found do not wait. Take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #11
LITHIUM CARBONATE

INSTRUCTIONS

It is a medication used for the treatment of mania and depression, to reduce troublesome symptoms and to decrease reoccurrences. Follow the instructions on the prescription exactly, do not take larger or smaller doses of the medication that the prescribed dosage. Take all the medication prescribed even if you feel much better before you have taken all of it. If you have an adverse reaction, stop using the medicine and contact your therapist.

PRECAUTIONS

Using medicines together may sometimes cause unfavorable reactions so tell your therapist about any medicine you are taking not (including drugs you take without prescription). Any diuretics or water pills may cause serious complications and should not be taken in conjunction with the Lithium Carbonate. This medication must be used with caution if you have kidney trouble, thyroid trouble, high blood pressure or heart trouble. It is important to maintain an adequate salt intake and fluid intake. Laboratory tests will be done regularly as one of the ways of determining your necessary dose of this medicine. The blood should be drawn in the morning before you take your first dose of Lithium. However, it is not necessary to miss breakfast. If you are pregnant or think you might be pregnant, tell your therapist before you start taking the medication. Breast feeding by mothers on Lithium is not recommended. Do not give any of this medication to anyone else.

POSSIBLE SIDE EFFECTS

Effective medicine may cause "side effects" in some people. New symptoms may be caused by the medicine, the original disorder or a new illness that may develop. Most people experience few or no side effects and those that do happen tend to disappear in time when your body adjusts to the medication or when you stop using it. It is possible that medication may cause drowsiness, nausea, tiredness, increased output of urine, feeling of weakness, diarrhea, slight shaking of hands, thirst or sluggishness.

POSSIBLE TOXIC EFFECTS

Toxic effects or serious side effects may require re-evaluation of the dose or possible discontinuance of the treatment with this medication. Warning signs of toxicity are confusion, sleepiness, muscle tremor, vomiting, diarrhea, slurred speech, unsteady gait, ringing in the ears and giddiness. Stop the medication immediately and contact your therapist at once if you experience any of these symptoms.

YOUR ACTIVITIES OF DAILY LIVING

Until you experience how this medication affects you, do not drive a car or other vehicle, do not work around dangerous machinery, do not climb ladders and do not work in high places. Especially follow these restrictions if you also drink any beverage with alcohol or take any other medicine that might affect your alertness or reflexes such as tranquilizers, sedatives, antihistamines, medicine for pain and others.

STORAGE

Keep this medicine in a tightly closed container in a dry, cool place, away from heat or direct sunlight and out of reach of children. Do not use the bathroom cabinet because humidity is high there. If you store medicine in the refrigerator, do not let it freeze. Do not save leftover medication. Discard it on the expiration date shown on the container, but do so in a way that will protect children or pets. For example, flush down the toilet.

REFILLS

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OVERDOSE AND TREATMENT

Call your doctor or your local life squad, then give first aid. If no professional help can be found do not wait. Take the patient to the nearest emergency facility. Always take with you any remaining medicine and empty bottles.

SUPPLEMENT #12

THE NERVOUS SYSTEM AND SEIZURE DISORDERS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE NERVOUS SYSTEM

1. Structures of the nervous system
   a. Brain
   b. Spinal cord
   c. Nerves
   d. Autonomic Nervous System

2. Functions of the nervous system
   a. Carries and coordinates impulses from the outside world (external) and the body (internal) to the brain.

   b. Carries the brain's responses (reactions) to the body in reaction to impulses.

B. **MAJOR NERVOUS SYSTEM DISORDERS**

1. Slow or non-functioning nerves or brain cells
   a. Cause--unknown
   b. Symptoms--poor respiration, poor heartbeat

2. Over-functioning nerves or brain cells

   a. Cause--a sudden, abnormally excessive, electrical discharge within the brain.

   b. Symptoms--twitching, irregular movements, improper thought patterns, convulsions. Can last from a few seconds to several minutes.

   c. Example--epilepsy
      (1) Grand mal (tonic-clonic seizures)
      (2) Petit mal (absence seizures)
      (3) Psychomotor or temporal lobe epilepsy (complex partial seizures)

   d. Treatment

      (1) Grand mal
         (a) phenytoin (Dilantin ®)
         (b) phenobarbital (Luminal ®)
         (c) carbamazepine (Tegretol ®)

(2) Petit mal
(a) ethosuximide (Zarontin ®)
(b) valproic acid (Depakene®)

(3) Psychomotor, temporal lobe
(a) carbamazepine (Tegretol ®)
(b) phenytoin (Dilantin ®)

3. Interference of impulse on nerve pathway
   a. Cause--unknown
   b. Symptoms--loss of motion, uncontrollable movements
   c. Examples--Huntington's Disease, Myasthenia Gravis, Parkinson's Disease
   d. Treatment--medications help temporarily

4. Inflamed nerves or brain cells
   a. Cause—varied
   b. Symptoms--nerves or brain cells irritated and swollen, may be constant or intermittent condition, almost always accompanied by pain.
   c. Examples--neuritis, neuralgia, Tic Douloureux, sciatica

5. Infections of nerves or brain cells
   a. Cause--infections from other parts of body or germs that attack nerve cells and interfere with nervous system structures.
   b. Use--weight reduction, control hyperactivity
   c. Examples--Meningitis, Encephalitis, Poliomyelitis, Guillain-Barre Syndrome
   d. Treatment--medication

C. SELECTED MEDICATIONS BY CLASSIFICATION
1. Stimulants--Amphetamines
   a. Action--increase mental and physical alertness and activity.
   b. Use--weight reduction, control hyperactivity
   c. Examples
      (1) amphetamine sulfate
      (2) dextroamphetamine sulfate (Dexedrine ®)
      (3) methylphenidate HCl (Ritalin ®)

d. Adverse effects
    (1) Restlessness
    (2) Palpitations
    (3) Tachycardia
    (4) Hyperactivity

e. Special considerations
    (1) Do not give within six hours of going to sleep.
    (2) Individual should avoid drinks with caffeine.
    (3) Some amphetamines are controlled substances and can become habit-forming.

2. Depressants

a. Sedatives
    (1) Action--decrease sensitivity of nervous system.
    (2) Use--reduce physical and mental activity, control convulsions.
    (3) Example--phenobarbital (Luminal)
    (4) Adverse effects
        (a) Rash
        (b) Nausea
        (c) Dependence

b. Hypnotics
    (1) Action--decrease sensitivity of nervous system
    (2) Use--produce sleep
    (3) Example
        (a) temazepam (Restoril®)
        (b) ethchlorvynol (Placidyl®)
        (c) flurazepam HCl (Dalmane®)
        (d) triazolam (Halcion ®)
    (4) Adverse effects
        (a) Morning-after drowsiness
        (b) Stomach upset
    (5) Special considerations
        (a) Individual may become dependent on the drug.
        (b) Drug may have a cumulative effect.

c. Anesthetics
   (1) Action--decrease sensitivity of nervous system.
   (2) Use--to cause loss of sensation, treat burns.
   (3) Examples
      (a) dibucaine HCl (Nupercaine Cream ®)
      (b) lidocaine HCl (Xylocaine ®)
   (4) Adverse effects
      (a) Drowsiness
      (b) Palpitations

d. Anticonvulsants (Anti- Epileptic Drugs)
   (1) Action--decrease sensitivity of nervous system
   (2) Use--stop or prevent convulsions or seizures.
   (3) Examples
      (a) phenytoin sodium (Dilantin ®)
      (b) primidone (Mysoline ®)
      (c) haloperidol (Haldol ®)
      (d) carbamazepine (Tegretol ®)
      (e) valproic acid (Depakene ®, Depakote ®)
   (4) Adverse effects
      (a) Swelling and redness of gums
      (b) Drowsiness
      (c) Dizziness
      (d) Double vision
      (e) Tremors
      (f) Confusion

e. Special consideration--some of the drugs in this category may also be given parenterally by licensed personnel during a seizure.

D. ADDITIONAL INFORMATION CONCERNING COMMONLY ORDERED MEDICATIONS

1. phenobarbital (Luminal ®) - sedative
   a. Action--not completely known. Drug selectively blocks transmission of nerve impulses by impeding the transfer of sodium and potassium across cell membranes. This produces a sedative effect and suppresses the spread of nerve impulses that are responsible for epileptic seizures.

   b. Uses--a mild sedative to relieve anxiety or nervous tension and as an anticonvulsant to control grand mal epilepsy and all types of partial seizures.

c. Adult dosage range:
   (1) As a sedative--15 to 30 mg 2-4 times per day
   (2) As an anticonvulsant--100 to 200 mg given as a single dose at bedtime
   (3) Total daily dose should not exceed 600 mg.
   (4) Actual dosage and administration schedule must be determined individually by the individual's physician.

d. Adverse effects
   (1) Expected-- drowsiness, impaired concentration, mental and physical sluggishness.
   (2) Unexpected--allergic reactions (skin rash, hives), dizziness, unsteadiness, impaired vision, double vision, nausea, vomiting, diarrhea.

e. Special consideration--if used as an anticonvulsant, drug should not be discontinued abruptly. Sudden withdrawal can cause repetitive seizures. Gradual reduction in dosage should be made over a period of time.

2. temazepam (Restoril ®) - hypnotic
   a. Action--produces a calming effect by enhancing the action of a nerve transmitter.
   b. Use--a sedative used to induce sleep.
   c. Adult dosage
      (1) 15 - 30 mg at bedtime
      (2) Total dosage should not exceed 90 mg.
   d. Adverse effects
      (1) Expected--drowsiness, lethargy, and unsteadiness
      (2) Unexpected--allergic reactions, dizziness, slurred speech, nausea, indigestion
   e. Special considerations
      (1) Do not discontinue abruptly if taken continually for more than 4 weeks.
      (2) Using some over-the-counter drugs containing antihistamines (allergy and cold preparation, sleep aids) can cause excessive sedation in some persons
      (3) Avoid regular nightly use of any hypnotic.
      (4) Restoril can produce psychological and/or physical dependence if used in large doses for extended periods of time.

3. phenytoin (Dilantin ®) - anticonvulsant
   a. Action--not completely known but thought to promote loss of sodium from nerve fibers to lower and stabilize their excitability and thereby inhibit the spread of electrical impulses along nerve pathways.
   b. Uses--as an antiepileptic drug to control seizures, available in combination with phenobarbital as some seizure disorders require the combined actions of

both drugs for effective control.

c. Adult dosage

(1) Initial dose 100 mg three times per day

(2) Increase dose with caution by 100 mg/week as needed and tolerated

(3) Once optimal maintenance dose is established, total daily dose may be taken once per day if capsules are used.

(4) Total daily dosage should not exceed 600 mg.

Adverse effects

(1) Expected--dry mouth and throat, constipation, impaired urination.

(2) Unexpected--allergic reactions (skin rash, hives, itching), headache, dizziness, drowsiness, unsteadiness, fatigue, blurred vision, confusion, ringing in ears, loss of appetite, nausea, vomiting, indigestion, diarrhea, hair loss, water retention, frequent urination.

e. Special considerations

(1) Prompt action capsules and extended action capsules should not be substituted for each other; consult a physician.

(2) Must not be stopped abruptly.

(3) Dosage schedule must be individualized.

(4) Drug must be taken at the same time each day for successful management of seizure disorders.

4. carbamazepine (Tegretol ®) - anticonvulsant

a. Action--not completely known but thought to reduce excitability of certain nerve fibers in the brain.

b. Use--for control of several types of epilepsy.

c. Adult dosage

(1) Initially--200 mg/12 hours

(2) Total daily dosage should not exceed 1200 mg and must be determined by the physician for each individual.

d. Adverse effects

(1) Expected--dry mouth and throat, constipation, impaired urination.

(2) Unexpected--allergic reaction (skin rash, hives, itching), headache, dizziness, drowsiness, unsteadiness, fatigue, blurred vision, confusion, ringing in ears, loss of appetite, nausea, vomiting, indigestion, diarrhea, hair loss, water retention, frequent urination.

e. Special considerations

(1) Can cause serious adverse effects, therefore should be used only after less hazardous drugs have proven ineffective.

(2) Drug should not be discontinued suddenly.

(3) Should be taken at the same time every day.

5. valproic acid (Depakene ®, Depakote ®) - anticonvulsants

a. Action--not completely known. Thought to suppress spread of abnormal electrical discharges that cause seizures by increasing the availability of a nerve impulse transmitter.

b. Use--effective management of epilepsy (petit mal, grand mal, myoclonic), sometimes used in combination with other anticonvulsants.

c. Dosage

(1) Initially--15 mg/kg/24 hours and is increased cautiously by 5-10 mg/kg/24 hours every seven days as needed and tolerated.

(2) Usual dose is 1000 mg - 16000 mg in divided doses.

(3) Note: Preferably taken one hour before meals. May be taken with or after Food if needed to prevent stomach irritation.

d. Adverse effects

(1) Expected--drowsiness and lethargy
(2) Unexpected--allergic reaction, headache, dizziness, confusion, unsteadiness, slurred speech, nausea, indigestion, stomach cramps, diarrhea.

e. Special considerations

(1) Valproic acid can impair blood clotting mechanisms. If injured or having surgery or dental work, inform physician or dentist that individual is taking this drug.
(2) Avoid aspirin.
(3) Over-the-counter medications containing antihistamines (allergy and cold medications, sleep aids) can enhance sedative effects of the drug.
(4) Avoid concurrent use with Klonopin (could result in continuous petit mal episodes).
(5) To avoid mouth and throat irritation the tablet should not be crushed and the capsule should not be opened.
(6) Syrup can be diluted in water or milk.

E. **ADDITIONAL INFORMATION CONCERNING THE NERVOUS SYSTEM**

1. When working with an individual who is receiving medication for nervous system disorders, follow these guidelines:

    a. Speak in short, simple sentences.
    b. Be prepared to give frequent explanations.
    c. Approach the individual in a calm, unhurried manner.
    d. Listen to the individual's fears and concerns.

2. There are five major special considerations that the residential staff must follow for individuals taking nervous system medications:

    a. Safety
    b. Activity
    c. respite
    d. Structured environment
    e. Support

3. When working with an individual who has seizures it is important to:

    a. Help the individual maintain a healthy self-concept.
    b. Help the individual maintain independence.

4. Individuals with seizure disorders should carry an ID card and medication information with them at all times.

5. Individuals should always go swimming with a buddy.

6. Individuals should avoid:

    a. Working at great heights.
    b. Working around moving machinery.
    c. Large amounts of caffeine.
    d. Alcohol.
    e. Becoming overly tired.
    f. Activities that require a great deal of spinning.

7. Encourage the individual to brush and floss their teeth after every meal and snack. If circumstances during the day do not permit brushing after the noon meal, encourage the individual to floss. A disclosing agent may be used which will leave a mild stain on all the places where plaque remain. A water pick, or dental stimulators may also be used. Poor dental care will increase the chances of gum tissue overgrowth that is frequently painful, embarrassing, and must sometimes be corrected with oral surgery.

EPILEPSY: RECOGNITION AND FIRST AID

SEIZURE TYPE	WHAT HAPPENS	WHAT TO DO	WHAT NOT TO DO
Convulsive Generalized Tonic-clonic (Grand Mal)	Seizure lasting one to three minutes; beginning suddenly with an involuntary cry, loss of consciousness and falling, violent convulsive movement of the head, trunk and extremities, and excessive salivation. May have loss of bladder and/or bowel control. Person awakens spontaneously, is dazed and confused. Person usually falls into a deep sleep that lasts several hours. Does not remember the episode	Look for medical identification. Protect from nearby hazards. Loosen ties or shirt collars. Place folded jacket under head. Turn on side to keep airway clear. Reassure when consciousness returns. If single seizure lasted less than 10 minutes, ask if hospital evaluation is needed. If multiple seizures, or if one seizure lasts longer than 3-5 minutes, contact nurse.	Don't put any object in the mouth. Don't try to hold the tongue. It can't be swallowed. Don't try to give liquids during or just after a seizure. Don't use oxygen unless there are symptoms of a heart attack. Don't use artificial respiration unless breathing is absent after muscle jerks subside, or unless water has been inhaled. Don't restrain.
Non-convulsive Absence seizure (Petit Mal)	Seizure lasting several seconds, consisting of sudden momentary lapse of consciousness. During the seizure, person will have a blank stare and is unaware of surroundings, but does not actually lose consciousness, fall or convulse. May have a minor twitching of eyelid or facial muscle. Petit mal seizures may occur more than 100 times a day. Person resumes normal functioning after each seizure and does not remember attack.	No first aid necessary.	Don't restrain.

DEFINITIONS OF KEY TERMS

Analgesics--Medications that relieve muscle, joint, and bone pain.

Anesthetics--Medications that cause a loss of sensation.

Anticonvulsants--Medications used to stop or prevent convulsions or seizures.

Autonomic Nervous System (ANS)--The division of the vertebrate nervous system that regulates involuntary action (intestines, heart, and glands) and makes up the sympathetic and parasympathetic nervous systems.

Depressants--Medications used to decrease mental and physical activity.

Epilepsy--Chronic disorder characterized by recurring seizures that last from a few seconds to several minutes and require specific medication for prevention and control.

Extrapyramidal--Outside of the pyramidal tracts.

Hypnotics--Medications used to produce sleep.

Neuron--A nerve cell.

Pyramidal Tracts--Four columns of motor fibers that run in pairs on each side of the spinal cord.

Sedatives--Medications used to reduce physical and mental activity.

Stimulants--Medications used to increase mental and physical activity.

Tic Douloureux--Spasm of a nerve in the face.

SUPPLEMENTAL LESSON: THE NERVOUS SYSTEM

SEIZURE DISORDERS

PERFORMANCE

1. List three functions of the nervous system.

2. List the major structures of the nervous system. (A diagram of the nervous system is included. You may use it to point out or label the structures.)

3. Define six key terms selected by the staff nurse.

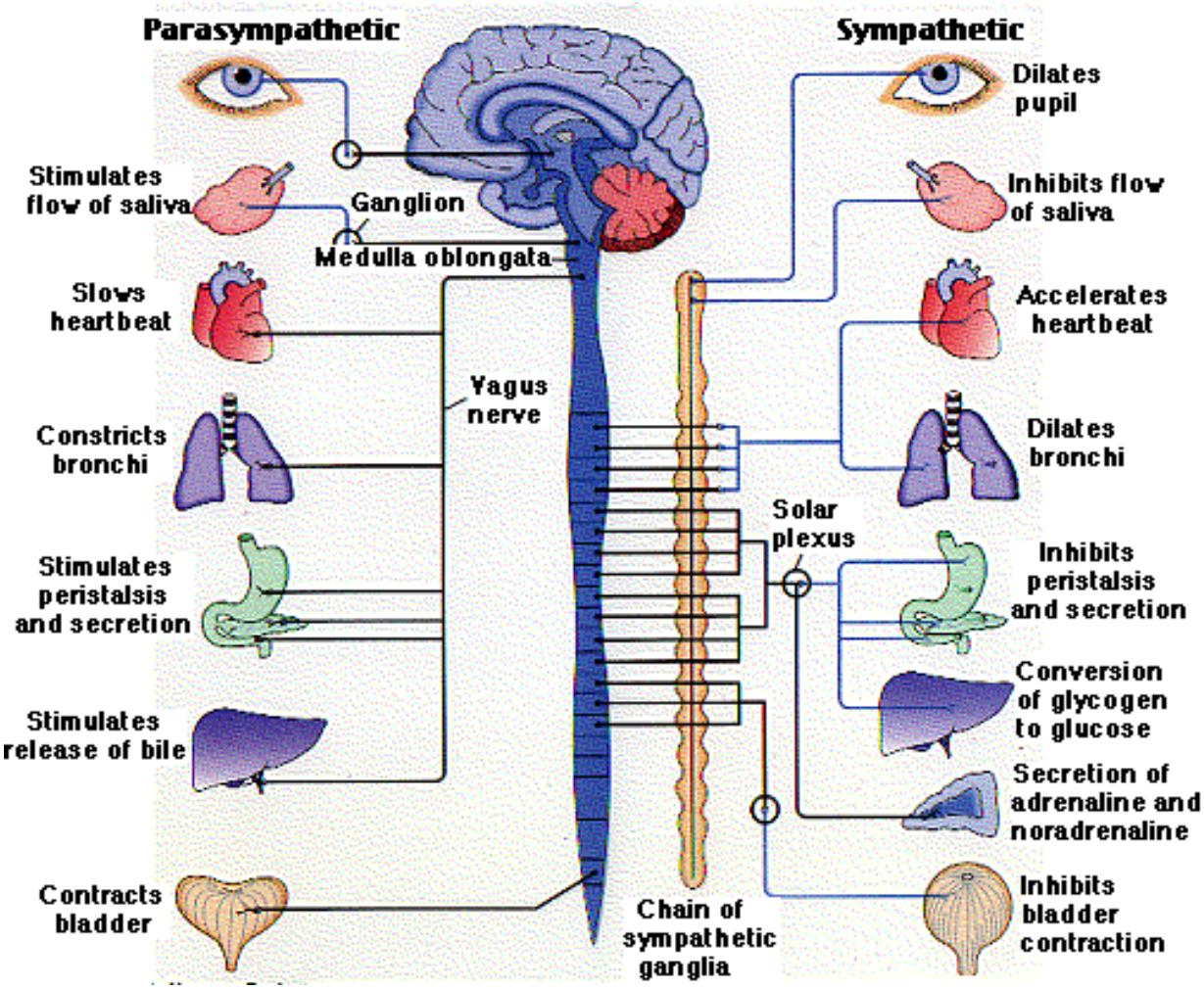
4. Describe three conditions of the nervous system including the cause, symptoms, and treatment of each.

5. If a resident currently is receiving a nervous system medication, describe the following for the medication:

    a. brand name
    b. trade name
    c. uses
    d. actions
    e. side effects

6. Name one anti-convulsive drug, its effects and uses.

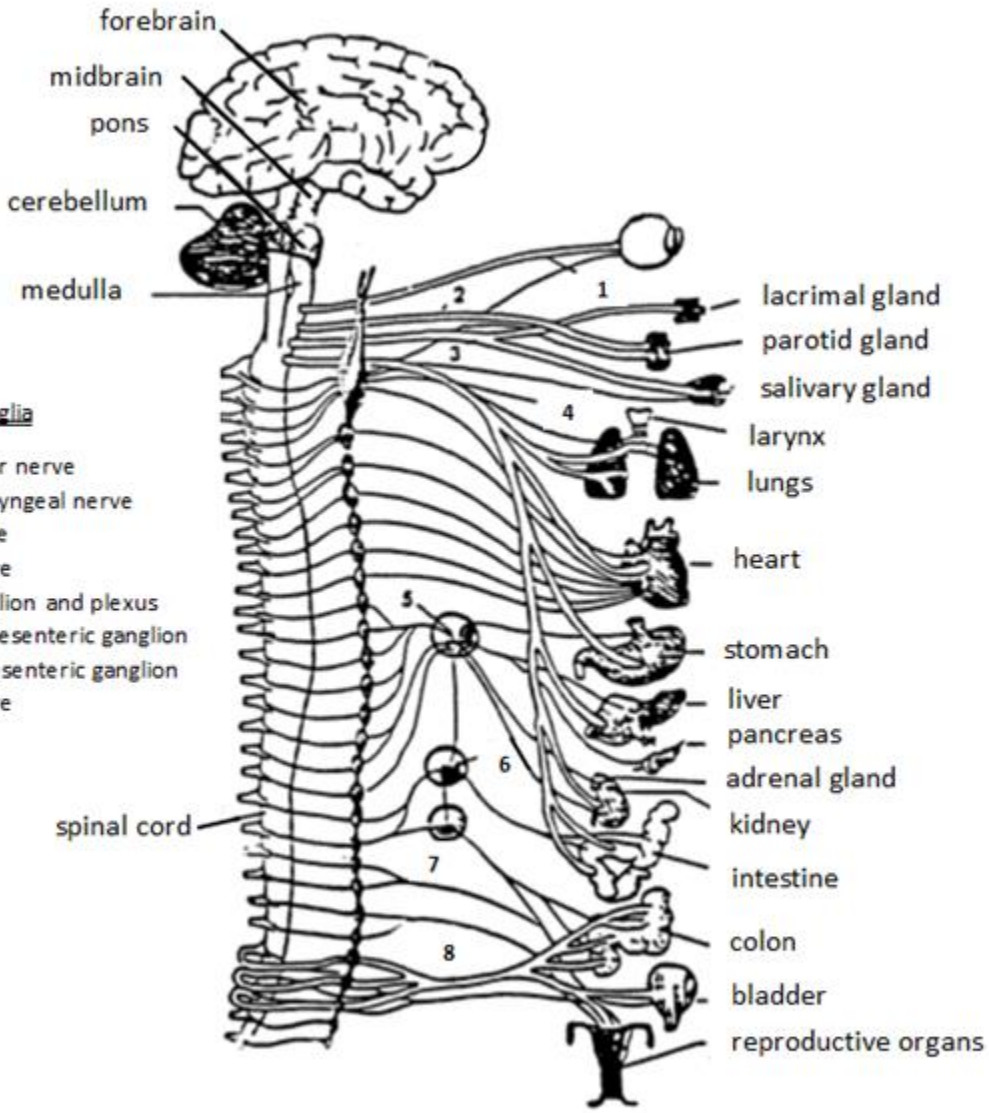
7. Describe grand mal and petit mal seizures. Include a description of what happens, what you should do, and what you should not do.



Functions:

1. Controls body activities
2. Coordinates body activities.
3. Carries impulses to and away from the brain.

The Nervous System



nerves and ganglia

1. oculomotor nerve
2. glossopharyngeal nerve
3. facial nerve
4. vagus nerve
5. celiac ganglion and plexus
6. superior mesenteric ganglion
7. inferior mesenteric ganglion
8. pelvic nerve

Function:

1. Controls body activities
2. Coordinates body activities
3. Carries impulses to and away from brain

SUPPLEMENT #13

SUBSTANCE ABUSE

Individuals who are taking over-the-counter and/or prescribed medications must be aware of the interactions that can occur between those medications and alcohol, marijuana, cocaine, and caffeine. Residential staff must also be aware of these interactions. A chart listing the interacting effects of alcohol and other drugs is included

If you suspect an individual is under the influence of alcohol or an illegal substance and it is time for the individual to receive medication, do not administer the medication to the individual. Contact the staff nurse immediately for further instructions.

A. **ALCOHOL**

1. Alcohol is a drug.

2. Alcohol can produce feelings of well-being, sedation, intoxication, unconsciousness, and death.

3. Metabolic process and alcohol:
   a. When drugs are forced to compete with alcohol for processing by the body, one or both are metabolized more slowly.
   b. The effect of alcohol and/or the drug is exaggerated because it remains active in the blood for an extended period of time.

4. Adverse effects
   a. Liver damage resulting from prolonged drinking can reduce the metabolism of many drugs, causing a normal dose to be unexpectedly potent.

   b. Barbiturates or sedatives will have less effect in heavy drinkers during periods of sobriety.
      (1) Excessive drinking has increased the body's ability to metabolize these drugs.
      (2) Heavy drinkers will begin to take larger doses of these drugs, because the usual dose will have little effect.
      (3) Results of taking the large dose and then drinking can be fatal.

   c. Combination of downers, alcohol and diazepam (Valium ®) to combat a cocaine crash, can cause delay withdrawal of up to ten days. This may lead to the possible onset of delayed or "unexpected" seizures and improper diagnosis because of the delay.

B. **MARIJUANA**
1. Physical effects--faster heartbeat and pulse rate, bloodshot eyes, and a dry mouth and throat.
2. Mental effects--impair or reduce short-term memory, alter sense of time, and reduce ability to do things which require concentration.
3. Marijuana and the body systems
   a. Reproductive system
      (1) Influences levels of some hormones relating to sexuality.

(2) Irregular menstrual cycles.
(3) Temporary loss of fertility.

b. Cardiovascular system
(1) Increase the heart rate as much as 50 percent.
(2) Can cause chest pain.

c. Respiratory system
(1) Irritates the lungs and damages the way they work.
(2) Combined with nicotine, can cause cancer and emphysema.

C. **COCAINE**

1. Addictive

2. Immediate effects
a. Dilated pupils and increases in blood pressure, heart rate, breathing rate, and body temperature.
b. Effects begin within a few minutes and peak in about 15 to 20 minutes and disappear within an hour.

3. Long-term effects
a. Depression
b. Hallucinations
c. Signs of psychosis
d. Early signs of trouble--increased irritability, short temper, and paranoia.

4. Cardiovascular system--moderate doses can overtax the heart and may be fatal. Regular use can cause heart palpitations, angina, arrhythmia, and even a heart attack.

5. Effects on the brain--overstimulate the neurotransmitters.

6. Combining cocaine with other drugs
a. Combining with depressants such as heroin, barbiturates, or sedatives may result in the build-up of either drug to seriously toxic levels.
b. Combining it with other stimulants (cocaine is a stimulant) can be especially dangerous.
c. Local anesthetics and cocaine are also hazardous.

D. **CAFFEINE**

1. Immediate effects
   a. Increase in heart rate and breathing.
   b. Increase in blood pressure.
   c. Increase in body temperature.
   d. Quickening of overall body processes.
   e. Increase in the speed in which you react to stimuli.
   f. Increase in stomach acids.
   g. Decrease in the body's ability to burn sugar.
   h. Increase in urine production.
   i. Increase of sensitivity to sensory stimuli.

2. Caffeine is included in many over-the-counter and prescription drugs because it is a mild stimulant; it offsets the drowsiness other ingredients in the medicine cause, and it gives you a lift and helps you feel better.

3. Caffeinism--reaction of the body to too much caffeine.
   a. Physical problems
      (1) Headaches
      (2) Loss of appetite
      (3) Loss of weight
      (4) Diarrhea
      (5) Frequent loose stools
      (6) Stomach upset
      (7) Muscle tremors
      (8) Heart palpitations
      (9) Rapid breathing
      (10) Ringing in ears
      (11) Sleeping problems

   b. Emotional problems
      (1) Mood changes
      (2) Emotional upset
      (3) Feelings of nervousness
      (4) Agitation
      (5) Anxiety or depression
      (6) Exaggerated or unnecessary concern

DEFINITIONS OF KEY TERMS

Alcohol--Any beverage that contains ethyl alcohol (ethanol), the intoxicating sedative-hypnotic in fermented and distilled liquors. A CNS depressant, depending on the amount consumed, alcohol acts as an analgesic, tranquilizer, sedative-hypnotic, soporific, intoxicant, anesthetic, or narcotic.

Caffeine--A white, bitter, crystalline substance that has stimulant effects and constricts blood vessels in the brain.

Caffeinism--Excessive ingestion of large amounts of caffeine, usually in coffee or tea, for prolonged periods.

Cocaine--From the coca plant, a short-acting but very powerful stimulant. Heavy usage can lead to
"paranoid syndrome" in which the user is highly suspicious or nervous.

Marijuana--The dried leaves and flowering tops of the pistillate hemp plant that yield THC and is usually smoked.

INTERACTIONS BETWEEN ALCOHOL AND OTHER DRUGS

TYPE OF DRUG	GENERIC NAME	INTERACTION EFFECT WITH ALCOHOL
Analgesics	salicylates	Heavy concurrent use of alcohol with analgesics can increase the potential for gastrointestinal bleeding. Special caution should be exercised by individuals with ulcers. Buffering of salicylates reduces possibility of this interaction.
Narcotic	codeine morphine oxycodone propoxyphene pentazocine meperidine	The combination of narcotic analgesics and alcohol interact to reduce functioning of the CNS and can lead to loss of effective breathing function or respiratory arrest; death may result.
Antianginal	nitroglycerine isosorbid dinitrate	Alcohol in combination with antianginal drugs will cause the blood pressure to lower--creating a potentially dangerous situation.
Antibiotics, Anti-infective agents	furazolidone metronidazole nitrofurantoin	Certain antibiotics, especially those taken for urinary tract infections have been known to produce disulfiram-like reactions (nausea, vomiting, headaches, hypotension) when combined with alcohol.
Anticoagulants	sodium warfarin acenocoumarol coumarin derivatives	Chronic heavy drinking can reduce the effectiveness of anticonvulsant drugs to the extent that seizures previously controlled by these drugs can reoccur if the dosage is not adjusted appropriately. Enhanced CNS depression may occur with concurrent use of alcohol.
Anticonvulsants	phenytoin	The interaction of alcohol and either insulin or oral antidiabetic agents may be severe and unpredictable. The interaction may induce hypoglycemia or hyperglycemia. Also disulfiram-like reactions may occur.
Antidiabetic agents, Hypoglycemics	chlorpropamide acetohexamide tolbutamide tolazamide insulin	Enhanced CNS depression may occur with concurrent use of alcohol and antidepressant drugs.
Antihistamines	diphenhydramine	Increased drowsiness and dizziness

TYPE OF DRUG	GENERIC NAME	INTERACTION EFFECT WITH ALCOHOL
Antihypertensive	rauwolfia prep reserpine guanethidine hydralazine pargyline methyldopa	Alcohol in moderate dosage will increase the blood pressure lowering effects of these drugs, and can produce postural hypotension. Additionally, an increased CNS depressant effect may be seen with the rauwolfia alkaloids and methyldopa
CNS Depressants	phenobarbital pentobarbital butabarbital amobarbital	Since alcohol is a depressant, the combination of alcohol and other depressants interact to further reduce CNS functioning. It is extremely dangerous to mix these drugs, since it can cause coma or fatal respiratory arrest.
Non-barbiturate hypnotics	methaqualone glutethimide bromides flurazepam chloral hydrate	Many accidental deaths of this nature have been reported. A similar danger exists in mixing the non-barbiturate hypnotics with alcohol.
Tranquilizers (MAJOR)	thioridazine chlorpromazine haloperidol	The major tranquilizers interact with alcohol to enhance CNS depression, resulting in impairment of voluntary movement such as walking or hand coordination; larger doses can be fatal.
Tranquilizers (MINOR)	diazepam meprobarnate chlordiazepoxide HCI oxazepam	The minor tranquilizers depress CNS functioning. Serious interactions can occur when using these drugs and alcohol.
CNS Stimulants	caffeine amphetamines dextroamphetamine methamphetamine	The stimulant effect of these drugs can reverse the depressant effect of alcohol on the CNS, resulting in a false sense of security. They do not help the intoxicated person gain control over coordination or psychomotor activity.
Disulfiram (anti-alcohol preparation)	disulfiram	Severe CNS toxicity follows ingestion of even small amounts of alcohol. Effects can include headache, nausea, vomiting, convulsions, rapid fall in blood pressure, unconsciousness--and with sufficiently high doses--death.
Diuretics (also anti-hypertension)	hydrochlorothiazide chlorothiazide furosemide quinethazone	Interaction of diuretics and alcohol enhances the blood pressure--lowering the effects of the diuretic; and could possibly precipitate postural hypotension.
Monoamine Oxidase Inhibitors (MAOI)	pargyline isocarboxazid phenelzine	Alcoholic beverages (such as beer and wines) contain tyramine, which will interact with an MAOI to produce a hypertensive, hyperpyrexic crisis.

SUPPLEMENTAL LESSON: SUBSTANCE ABUSE

PERFORMANCE

1. Describe the adverse effects of alcohol, marijuana, cocaine, and caffeine.
2. Define three of the key terms selected by the staff nurse.
3. Describe the interaction effect alcohol has with the following types of drugs:

    a. non-narcotic analgesics
    b. narcotic analgesics
    c. antibiotics
    d. antidepressants
    e. antidiabetic agents
    f. major tranquilizers
    g. minor tranquilizers
    h. barbiturate hypnotics

SUPPLEMENT #14

ENDOCRINE SYSTEM

STRUCTURE AND FUNCTION

PITUITARY GLAND: This gland is located under the brain. The hormones secreted by this gland control growth, urine production, contractions of involuntary muscles, and influence the activity of all the other glands. Because it controls other glands, the pituitary is called the "master gland".

THE PINEAL BODY: This is a small gland also located in the skull beneath the brain. Very little is known about this gland. It is thought to be somehow related to sexual growth since it tends to disappear with maturity.

THE ADRENAL GLANDS: There are two adrenal glands, one located on each of the two kidneys. They secrete adrenaline and cortisone which are widely used as medications. In general, the adrenal hormones control the water/salt balance in the body and the release of energy to meet emergencies.

REPRODUCTIVE GLANDS (GONADS: The term "gonads" refers to the male and female sex glands. The female glands are the two ovaries located on either side of the uterus. When stimulated by the pituitary gland, they produce two hormones: estrogen and progesterone. These hormones are responsible for the development of female characteristics, such as the development of the breasts, the appearance of pubic and axillary hair, the onset and regulation of menstruation, and pregnancy.

The male gonads, the two testes, are located outside the body in a pouch called the scrotum. They produce the hormone, testosterone, which is responsible for secondary male characteristics. These characteristics include muscular development, deepening voice, and hair growth. The male and female gonads also produce the special cells (sperm and egg) which unite to form a new person.

THE THYROID GLAND: This gland is found in the neck. Thyroxin is the main hormone secreted by this gland which helps to regulate the production of heat and energy by the body. In order for the thyroid gland to produce thyroxin, sufficient iodine must be present in the diet.

THE PARATHYROIDS: These are tiny glands embedded in the thyroid gland in the neck. The hormone they manufacture controls the use of two minerals, calcium and phosphorus, by the body.

THE ISLETS OF LANGERHANS: The Islets of Langerhans are small groups of cells found within the pancreas. These cells produce the hormone insulin. Insulin must be present in order for the body to utilize sugar.

There is a wide variety of medications which affect the endocrine system. The medications are prepared to duplicate the actions of hormones or to interfere with the hormonal activity. People who have some type of hormonal deficiency may require medication therapy. For example, the child who is born with a deficiency of growth hormones (produced by pituitary) may stay small in stature unless the hormone is replaced.

Medications which duplicate hormone activity may also be given to treat various body disorders. For example, a person who has arthritis may benefit from medications called steroids. The actions of steroids resemble actions of the hormone, cortisone, which is produced by the pituitary gland.

The chart on page 478 presents a brief description of some of the glands' activities, specific medications, therapeutic use and side effects.

COMMON DISORDERS OF THE ENDOCRINE GLANDS

GLAND	HORMONE	FUNCTION	OVERPRODUCTION	TREATMENT	UNDERPRODUCTION	TREATMENT
Pituitary (anterior/posterior) Master Gland	ACTH, FSH, TSH GH, LH, Prolactin	Helps regulate the function of other Endocrine glands	Hyperpituitarism, skeletal overgrowth (gigantism), bone formation	Curb production of hormone, surgery hormone replacement	Hypopituitarism (dwarfism), pubertal delay, Diabetes Insipidus	Hormone replacement
Thyroid	T3, T4	Regulates metabolism	Hyperthyroidism, goiter weight loss, anxiety, sweating diarrhea	Surgery, anti-thyroid medications	Hypothyroidism, fatigue, forgetfulness, cold sensitivity weight gain, dry skin, puffy hands and feet	Hormone replacement iodine, potassium
Pancreas (Islets of Langerhans)	Insulin	Transports sugar into the cells for energy	Hyperinsulinism, low blood sugar (hypoglycemia), fatigue, nervousness, hunger, headaches, trembling and confusion	High protein diet carbohydrates	Hypoinsulinism, hyperglycemia, Diabetes Mellitus, increased urination, thirst, weight loss, hunger, visual disturbances	Insulin, diet, oral hypoglycemics
Adrenals (there are 2)	ACTH, corticosteroids, Adrenaline, Catecholamines	Regulates BP, energy metabolism, CNS activity, salt, sugar	Cushing's Syndrome, moon face, stretch marks, buffalo hump, sugar in urine, protruding abdomen upper leg edema	Surgery, radiation drug therapy	Addison's Disease, weight loss anemia, thinning hair, dehydration, bronzing of skin, tremors	Corticosteroid replacement
Parathyroids (there are 4)	Parathyroid Hormone (PH)	Regulates calcium levels,	Kidney failure or stones, weak bones, bone tenderness, weak muscles, skeletal deformities	Peritoneal dialysis, surgery, medication	Convulsions, tetany, paralysis, difficult breathing, death from exhaustion	Large doses of IV calcium and vitamins
Testes (male gonads)	Testosterone	In boys stimulates proper sex characteristics and in adults maintains libido, muscle strength and bone density, sperm production	Premature maturation of secondary sex characteristics before puberty, before age 9	Depending on cause medication or surgery to remove tumor	Hypogonadism, no maturation of sex characteristics, in adulthood, low sperm count, diminished muscle mass, decreased libido	Hormonal replacement
Ovaries (female gonads)	Estrogen and Progesterone	Female secondary sex characteristics at puberty, Reproductive development	Premature development of secondary sex characteristics before age 10	Depends on cause	Menopause with cessation of menstruation	Hormone replacement
Pineal Gland	Melatonin	Maintains circadian rhythm and regulates reproductive hormones	Unknown	None	Sleep disturbance	Hormone replacement

Note: The Hypothalamus Gland is the link between the endocrine and nervous systems. It is the portion of the brain that maintains the body's internal balance (homeostasis). The hypothalamus produces releasing and inhibiting hormones, which stop and start the production of other hormones throughout the body. The hypothalamus plays a significant role in the endocrine system. It is responsible for maintaining your body's internal balance, which is known as homeostasis. To do this, the hypothalamus helps stimulate or inhibit many of your body's key processes, including:

- Heart rate and blood pressure
- Glandular secretions of the stomach and intestine
- Body temperature
- Sleep cycles.
- Fluid and electrolyte balance, including thirst appetite and body weight
- Production of substances that influence the pituitary gland to release hormones

THE ENDOCRINE AND FEMALE REPRODUCTIVE SYSTEMS

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE ENDOCRINE SYSTEM

1. Structures of the endocrine system (for further information refer to the chart Common Disorders of the Endocrine Glands located at the end of this lesson on page 116).

    a. Pineal gland
    b. Pituitary gland (master gland)
    c. Thyroid gland
    d. Parathyroid glands
    e. Thymus gland
    f. Adrenal glands
    g. Pancreas
    h. Testes (male gonads)
    i. Ovaries (female gonads)

2. Functions of the endocrine system:

    a. the endocrine glands secrete hormones that are the chemical regulators of all cell activity.
    b. Hormones can either excite or inhibit physiological processes.

B. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE FEMALE REPRODUCTIVE SYSTEM

1. Internal structures:
    a. Two ovaries
    b. Two fallopian tubes
    c. Uterus
    d. vagina

2. External structures:
    a. Genital area
        (1) Mons-pubis
        (2) Labia
        (3) Clitoris
        (4) Vestibule area

    b. Chest area
        (1) Breasts
        (2) Mammary glands

3. Functions of the female reproductive system:
    a. Hormones stabilize the female physically and emotionally.
    b. Provide a place for conception (fertilization).
    c. House and nourish a developing baby.

C. **COMMON DISORDERS OF THE ENDOCRINE AND FEMALE REPRODUCTIVE SYSTEM**

1. Disorders of the endocrine glands
   a. Hypothyroidism
      (1) Cause--underproduction of the thyroid gland
      (2) Symptoms--fatigue, unexplained weight gain, dry skin, sensitivity to cold
      (3) Treatment--medication, thyroid hormone replacement

   b. Hyperinsulinism
      (1) Cause--overproduction of the pancreas
      (2) Symptoms--low blood sugar, fatigue, headaches, hunger, confusion
      (3) Treatment--diet

2. Common disorders of the female reproductive system

   a. Vaginitis
      (1) Causes--poor hygiene, changes in vaginal lining after menopause.
      (2) Symptoms--whitish vaginal discharge, foul odor, burning and itching of genital area, especially around the vaginal opening.
      (3) Treatment--keep area clean and dry, use medicated vaginal creams, jellies, suppositories and douches.
      (4) Special consideration--can be resistant to treatment.

   b. Breast cancer
      (1) Causes--unknown, estrogen suspected, many victims began menses early, menopause late, and experience constant stress.
      (2) Symptoms--lump, dimpling, or indented areas in breast tissue, fluid oozing from nipples, orange peel appearance of skin, change in breast size or shape.
      (3) Treatment--surgery, x-ray radiation, chemotherapy.

   c. Menopause
      (1) Causes--usually occurs between age 45 and 52, age of onset influenced by nutritional, cultural or genetic factors. The physiologic mechanisms that trigger onset are unknown.

      (2) Symptoms--mucous membranes become dry, pubic hair thins turning gray or white and may disappear, pelvic muscles atrophy, breasts become pendulous and decrease in size and firmness, sexual activity may increase in some women as the need for contraceptives disappears, some women experience "hot flashes" - sweating and occasional chills.

      (3) Treatment--low-dose estrogen therapy, vaginal creams, counseling to assist the woman in coming to terms with the changes that are occurring.

D. **SELECTED MEDICATIONS BY CLASSIFICATION**

1. Adrenal cortex hormones
   a. Action--decreases inflammation

   b. Uses--treat allergies, arthritis, dermatitis

   c. Examples
      (1) prednisone (Deltasone ®)
      (2) dexamethasone (Decadron ®)
      (3) methylprednisolone (Medrol®)

   d. Adverse effects
      (1) Moon face
      (2) Fluid retention
      (3) Depression
      (4) Increased blood sugar
      (5) Hair loss
      (6) Night sweats
      (7) Thin, shiny skin

   e. Special considerations
      (1) May mask infection.
      (2) Serious reactions such as decreased blood pressure, fatigue, depression, anorexia, and rebound inflammation, may occur if the medication is stopped suddenly.

2. Thyroid hormones

   a. Action--affect how the body cells use food substances, also affect growth and development.

   b. Use--replacement therapy for when thyroid is not producing enough hormones.

   c. Examples
      (1) levothyroxine sodium (Synthroid ®)
      (2) liotrix (Euthroid ®)

   d. Adverse effects
      (1) Nervousness
      (2) Insomnia
      (3) Palpitations
      (4) Sweating
      (5) Tremors
      (6) Chest pains

   e. Special consideration--report chest pains immediately.

3. Gonadal hormones

    a. Estrogen
        (1) Action--maintain normal menstrual cycle and secondary sex characteristics.

        (2) Uses--replacement therapy for symptoms of menopause and treat symptoms of prostate and breast cancer.

        (3) Examples
            a. diethylstilbestrol (DES ®)
            b. Premarin ®

        (4) Adverse effects
            a. Depression
            b. Hair loss
            c. Thrombophlebitis
            d. Breast tenderness
            e. Increase in blood pressure

    b. Androgens

        (1) Action--maintain male secondary sex characteristics and stimulate repair of body tissues.

        (2) Uses--treat symptoms of several types of cancers.

        (3) Example--testosterone (Histerone ®, Malogen ®, Oreton ®)

        (4) Adverse effects
            a. Headache
            b. Depression
            c. Growth of facial hair
            d. Edema
            e. Weight gain

        (5) Special considerations
            a. Watch a diabetic individual for symptoms of hypoglycemia.
            b. Bedridden individuals should be given range of motion exercises to prevent the loss of calcium from the bone.

DEFINITIONS OF KEY TERMS

Androgens--Male hormones.

Estrogen--Female hormones.

Hormone--A chemical substance secreted into the body fluids by an endocrine gland, which has a specific effect on the activities of other organs.

Hyperglycemia--An abnormally high level of sugar in the blood.

Hypoglycemia--An abnormally low level of sugar in the blood.

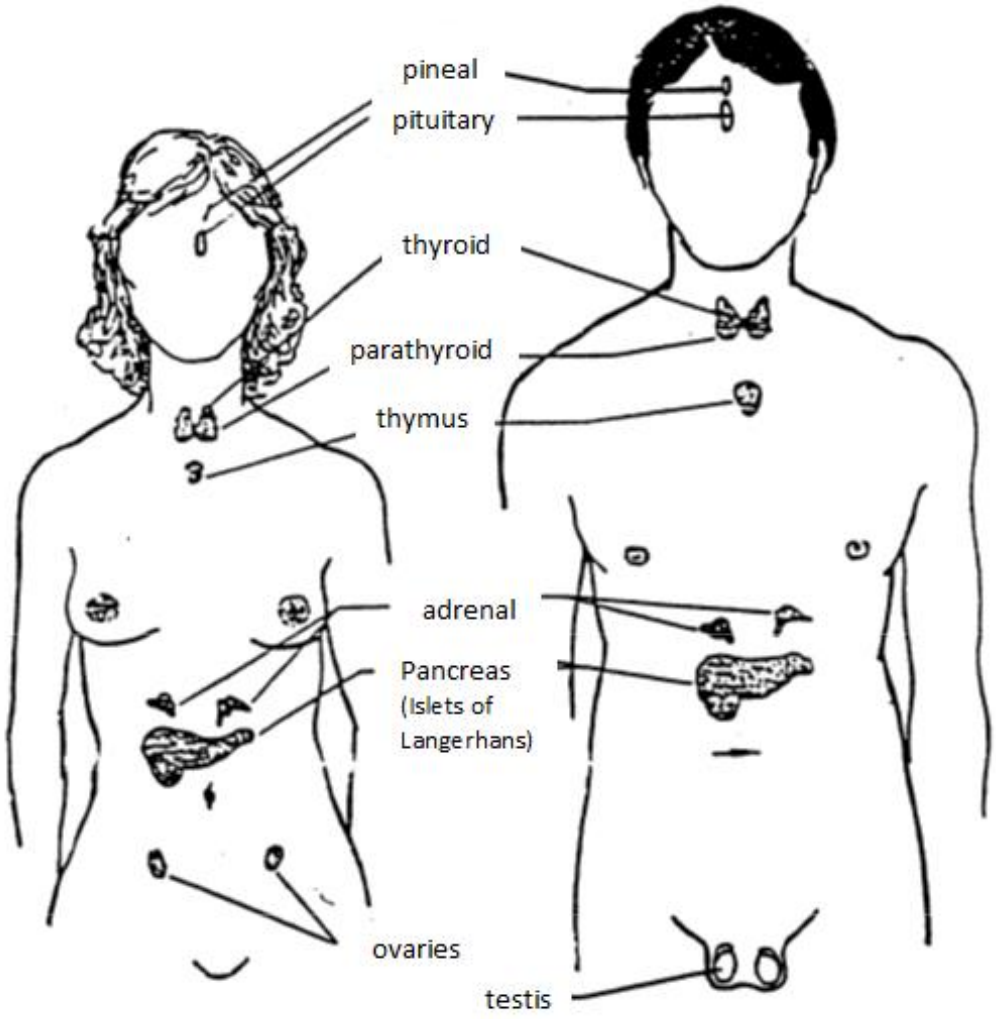
Labia--Folds of skin or mucus membrane that surround the vagina.

Mons pubis--Soft fatty tissue covering the joint of the pubic bones.

Vestibule area--Contains the opening to the urethra.

The Endocrine System

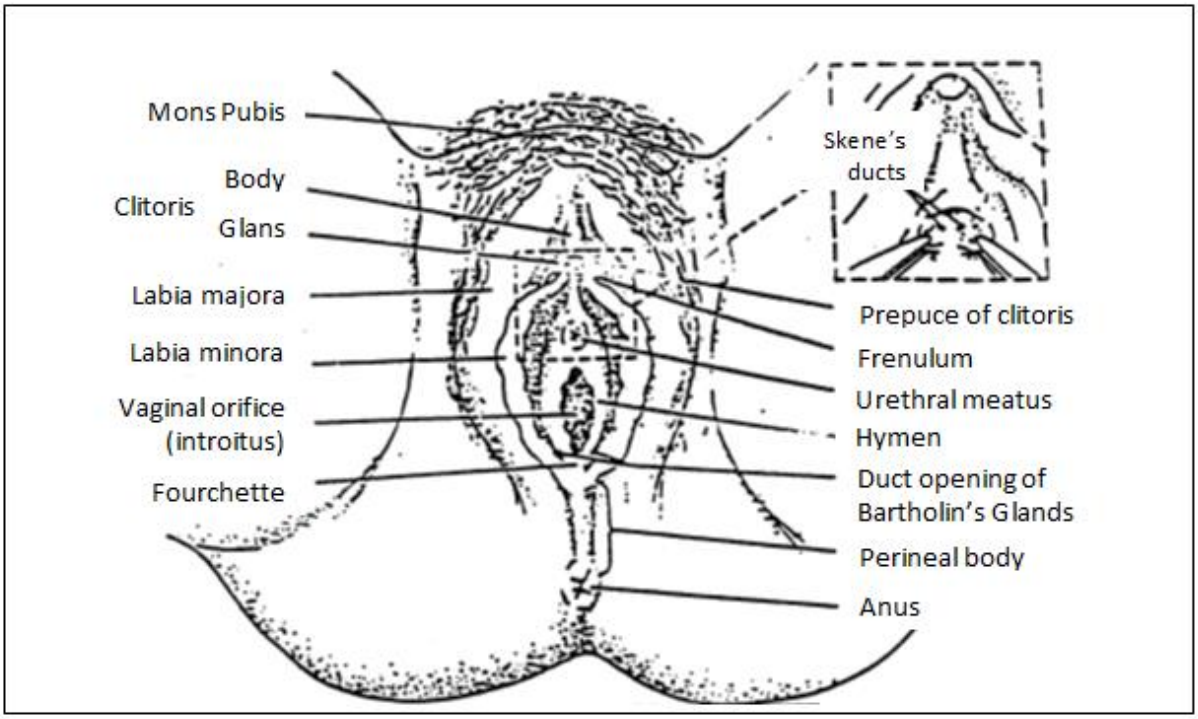
KEY

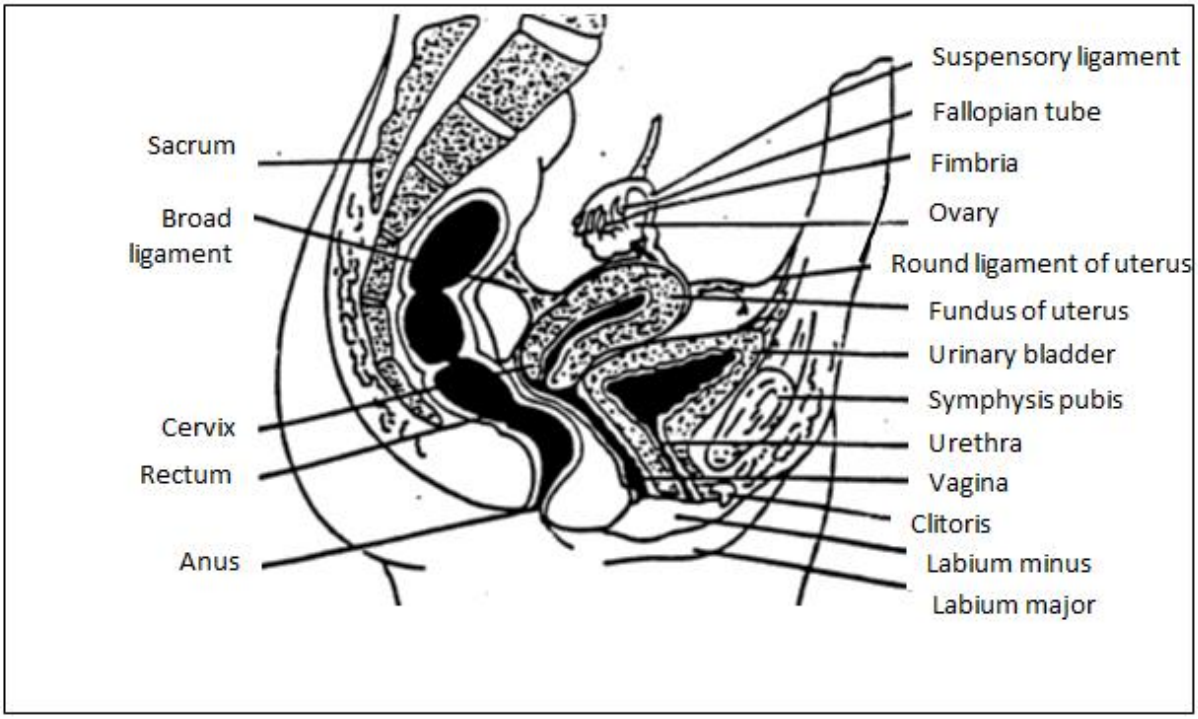


Function:

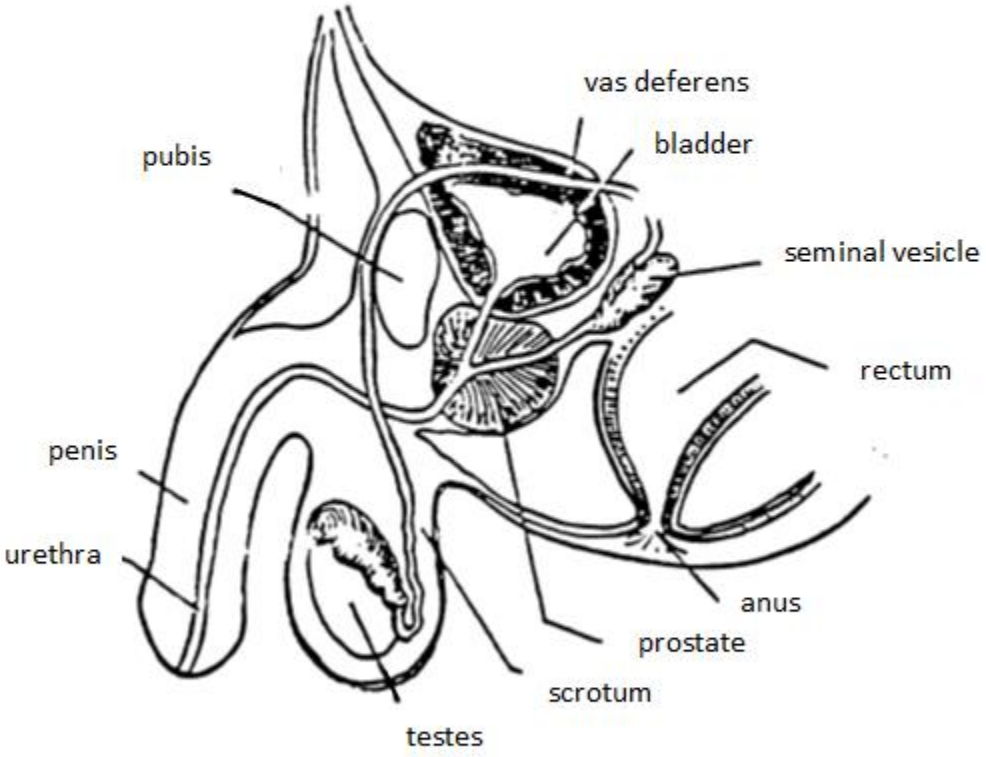
1. Secrete hormones to regulate body processes of growth and development
2. Regulates body functions, metabolism, and reproduction

FEMALE ANATOMY





The Male Reproductive System



Function:

1. Produces male hormones
2. Produces male sex cells

SUPPLEMENT #15
DIABETES

A. MANAGEMENT OF DIABETES

1. Cause--partial or complete failure of the Islets of Langerhans to produce insulin which results in abnormally large amounts of sugar (glucose) collecting in the bloodstream. The glucose does not enter the cells of the body and so is not used as fuel.

2. Symptoms--increased appetite, weight loss, development of diabetic ketoacidosis, frequent urination, increased amounts of urine, thirst.

3. Types of diabetes

    a. Insulin Dependent Diabetes Mellitus (IDDM) Type I-usually occurs in younger people.
        (1) Causes--cells in pancreas fail to produce and release insulin, diet is low in sugar and high in protein and carbohydrates.
        (2) Treatment--injectable insulin, carbohydrates must be replenished by medication if lacking in the diet.

    b. Non-Insulin Dependent Diabetes Mellitus (NIDDM) Type II--usually occurs after age thirty-five.
        (1) Cause--cells in the pancreas fail to produce enough insulin or the insulin produced is ineffective.
        (2) Treatment--can often be controlled by a carefully balanced diet, may receive oral hypoglycemic medication and/or insulin.

B. ANTIDIABETIC AGENTS

1. Insulin
    a. Action--replace insulin in the body when it is not produced by the islets of Langerhans.

    b. Use--treat diabetes

    c. Examples
        (1) insulin zinc suspension (Lente ® Insulin)
        (2) protamine zinc insulin suspension (Iletin®)
        (3) isophane insulin suspension [NPH] (Humulin ®, Iletin NPH ®)
        (4) regular insulin concentrated (Regular Iletin ®)
        (5) prompt insulin zinc suspension (Semi Lente ®)

    d. Adverse effects
        (1) Perspiration
        (2) Irritability
        (3) Drowsiness

(4) Skin irritation at site of injection
(5) Urticaria
(6) Hypoglycemia

2. Oral hypoglycemics (antidiabetic agents)

a. Action--stimulate islets of Langerhans cells to produce insulin and lower blood sugar.
b. Use--treat type II diabetes, sometimes given along with insulin in Type I.
c. Examples
(1) acetohexamide (Dymelor ®)
(2) chlorpropamide (Diabinese ®)
(3) tolbutamide (Orinase ®)
(4) tolazamide (Tolinase ®)
(6) glipizide (Glucotrol ®)

d. Adverse effects
(1) Renal impairment
(2) Sulfonamide sensitivity
(3) Liver dysfunction
(4) Skin rash
(5) Nausea and vomiting
(6) Heartburn
(7) Hypoglycemia

e. Special considerations
(1) These drugs interact with many others. Be aware of what other medications the individual is taking and watch for signs and symptoms of drug interactions.
(2) Watch the individual for hypoglycemia.
(3) Report any change in the urine test to the staff nurse.
(4) Administer hypoglycemics 1/2 hour before a meal.

C. **DRAWING INSULIN (ONLY DONE BY NURSE)**

1. Assemble all supplies:
a. Bottle of insulin
b. Alcohol swabs
c. Insulin syringe

2. Wash your hands.

3. Mix the insulin:
a. Slowly roll the bottle between your hands.
b. NEVER shake the bottle.

4. Inspect the bottle of insulin:
a. Insulin should appear uniformly cloudy after mixing. (This is for NPH and other cloudy long-lasting insulins).

b. Do not use if the insulin material remains at the bottom of the bottle after mixing
c. Do not use if clumps are floating in the mixture.
d. Do not use if particles on the bottom or sides give the bottle a frosted appearance.

5. Clean the rubber stopper on the insulin bottle with an alcohol swab.

6. Draw air into the syringe by pulling out on the plunger to the approximate dose.

7. Insert the needle into the rubber stopper on the upright bottle and push the plunger down.

8. Turn the bottle and syringe upside down.

9. Slowly pull the plunger down above five units past the dose.
   a. If there are not bubbles--push the top of the plunger tip up to the line which marks the exact dose.
   b. If there are air bubbles:
      (1) Flick or tap the syringe at the bubble with your finger.
      (2) When the bubble goes to the top of the syringe, push the plunger tip up to the exact dose.

10. Remove the syringe from the bottle, place cap over needle, and place on a flat surface.

D. **INJECTING INSULIN (ONLY DONE BY NURSE)**

1. Site selection
   a. Insulin should be injected into the subcutaneous tissue--the tissue between the fat layer under the skin and the muscles which lie below that.
      (1) the upper, outer area of the arms.
      (2) the front and side of areas of the thighs
      (3) the buttocks
      (4) just above the waist on the back
      (5) The abdomen, except the area around the navel and at the waistline

   b. If the individual is going to be running, jogging, or exercising during the day, the legs should not be used as an injection site.

   c. If the individual is going to be performing tasks that require heavy lifting, the arms should not be used as an injection site that day.

   d. If an injection site has developed unusual bumps and dimples, it should not be used for two weeks. If after two weeks the bumps are still there, the site cannot be used again. The fats have atrophied

2. Site rotation:
   a. System of choosing a pattern of injection sites that will help the individual choose different sites for each injection.
   b. Rotation of sites will help to avoid a spot that might still be tender from a recent injection.

3. Injecting insulin
    a. Clean the injection site with an alcohol swab.
    b. Pinch up a large area of skin.
    c. Insert the needle into the skin at a 90 degree angle making sure the needle is all the way in.
    d. Quickly push the plunger all the way down.
    e. Hold the alcohol swab near the needle tip and pull the needle straight out of the skin.
    f. Dispose of all supplies according to agency policy.
    g. Chart injection and rotation site used.

E. DIABETIC REACTIONS

1. Hypoglycemia (low blood sugar)
    a. Cause--insulin reaction from too much insulin, increase in exercise and/or a decrease in food intake, low blood sugar.

    b. Symptoms
        (1) early symptoms--headache, nervousness, paleness, irritability, moody, profuse perspiration, blurred vision, numbness of extremities, giddiness, hunger,
        drowsiness, confusion.
        (2) Late symptoms--Kussmaul breathing (deep and fast), unconsciousness, coma, death.

F. MONITORING MEDICATION RESPONSE

1. Urine tests detect:
    a. Ketones
        (1) Ketostix ®--test urine for ketones.
        (2) Diastix ®--test urine for sugar and ketones.
    b. Sugar
        (1) Tes-tape ®--strip of tape dipped into urine; if glucose is present, the tape will turn green or blue.
        (2) Clinitest--ten drops of water are placed in the test tube with five drops of urine and Clinitest® tablet. The color of the solution is compared to a chart to determine the amount of sugar in the urine.
        (3) Clinistix®--plastic strips that are dipped into urine and compared to a color chart.
        (4) Diastix ®--similar to Clinistix ®.

    c. Regular urine testing before meals and at bedtime provides necessary information for proper adjustment of insulin dosage.

    d. Accuracy is improved if bladder is emptied first and then urine to be tested is collected 30 minutes later. The sugar content of the second collection is more representative of the current blood sugar level.

2. Blood tests
    a. Fasting blood sugar (FBS)--blood drawn in morning after eight hours without food.

b. Postprandial glucose--blood tested for sugar after two hours without food.
c. Monitoring of blood for sugar levels is the method of choice for managing diabetes. Blood sugar strips such as Chemstrip bg and Visidex II may be used for this purpose; or a Glucometer.

3. Observe, chart, and record the individual's dietary intake. Some individuals need replacement of carbohydrates. Report uneaten items to staff nurse.

G. **INTERACTIONS WITH OVER-THE-COUNTER MEDICATIONS**

1. Avoid:
   a. Products containing sugar--sugar adds calories and raises blood sugar
   b. Products containing alcohol.
   c. Liquid medications--choose tablets or capsules instead.
   d. Oral decongestants--these can raise blood sugar.
   e. Aspirin in large doses.

2. Examples of products which can be used: (The following list contains a few examples of medications that might be used and is not all inclusive).

   a. Cough medications
      (1) Colrex ® expectorant
      (2) Hytuss ® tablets

   b. Sore throat products
      (1) Chloraseptic ® spray
      (2) Salt water gargles

   c. Decongestants
      (1) Afrin ®
      (2) Neo-Synephrine ®

   d. Fever reducers/pain relievers
      (1) Tylenol ®
      (2) Datril ®

   e. Cold and Allergy medications
      (1) Chlor-Trimeton ®
      (2) Use face masks

   f. Antidiarrheals
      (1) Pepto-Bismol ®
      (2) Kaopectate ®

   g. Laxative
      (1) Konsyl ®

   h. Vitamins
      (1) Thera-Gran Liquid ®

(2) Tri-Vi-Sol Drops ®

i. Antacids
(1) Di-Gel ®
(2) Mylanta ®

j. Nausea/Vomiting
(1) Bonine®
(2) Dramamine ®

H. INTERACTIONS WITH PRESCRIPTION MEDICATIONS

1. Examples of drugs that can raise blood glucose:
   a. Lithium ®
   b. Estrogens
   c. Caffeine
   d. Morphine
   e. Nicotine
   f. Corticosteroids
   g. Epinephrine-like drugs
   h. Phenytoin

2. Examples of drugs that can decrease blood glucose:
   a. Ethyl alcohol
   b. Insulin
   c. Sulfonylureas
   d. Anabolic steroids
   e. Fenfluramine salicylates in large doses

I. HEALTH CARE

1. Skin care
   a. Avoid scratches, punctures and other injuries.
   b. Individuals should wear gloves if participating in an activity that might injure their hands.
   c. Avoid getting sunburned.
   d. Treat all injuries promptly. If injuries do not start to heal within 24 hours, or if they become infected, contact the staff nurse.

2. Foot care
    a. check feet daily for sores, changes in color, temperature, or shape, and signs of infections.
    b. Clip toenails straight across.
    c. Contact the staff nurse concerning removal of corns and calluses.
    d. Avoid going barefoot.
    e. Do not use hot water bottles, heating pads, etc., on the individual's feet.

3. Sick days
    a. Individual should have a sick-day plan. Check with the staff nurse.
    b. Individual should always take the medication.
    c. Encourage the individual to drink fluids.
    d. Monitor blood glucose as necessary.

J. **ADDITIONAL INFORMATION CONCERNING DIABETES**

1. Know which individuals are on insulin so that you can observe dietary intake and reactions to the medication.

2. Oral hypoglycemic agents are primarily used in adult onset diabetics.

3. Use all of your senses to observe and monitor these high-risk individuals. Observe their skin condition closely.

4. Diabetic medications along with cardiovascular medications should have priority in administration if important medications need to be given before others.

5. Goals of drug treatment:

    a. Normalize carbohydrate, protein and fate metabolism.
    b. Control blood sugar.
    c. Eliminate acidosis.
    d. Prevent hypoglycemia (insulin shock).
    e. Promote normal growth

DEFINITION OF KEY TERMS

Diabetes--A disorder of carbohydrate, protein, and fate metabolism that prevents the body from properly converting foods into energy for carrying out vital functions.

Insulin--A preparation derived from the pancreas of the pig, ox, or developed from semi-synthetic human insulin that is used in the medical treatment of diabetes.

Ketoacidosis--Result of fat being used for energy resulting in an acidotic state. Form of acidosis in which sodium, potassium, and ketone bodies are lost in the urine; found in individuals who have diabetes mellitus.

Oral-hypoglycemics--Stimulate specialized cells in the pancreas to produce insulin.

ACTION OF INSULINS

NAME	TYPE OF INSULIN	ACTION ONSET	ACTION PEAK	DURATION
Regular	**Short-Acting**			
Humulin®	"	1/2 hour	2.5-5 hours	4-12 hours
Novolin®	"	1/2 hour	2.5-5 hours	4-12 hours
Aspart-Novolog®	**Rapid Acting**	12-18 minutes	1-3 hours	3-5 hours
Lispro-Humalog®	"	15-30 minutes	.5-2.5 hours	2-4 hours
NPH	**Intermediate**			
Novolin N®	**Acting**	1-2 hours	4-12 hours	14 -24 hours
Humulin N ®	"	"	"	"
Lente ®		1.5 hours	6-12 hours	24-48 hours
	Long Acting			
Levemir® (detemir)	"	3-4 hours	10-30 hours	36 hours
Lantus® (glargine)	"	3-4 hours	No peak	22-24 hours

ORAL HYPOGLYCEMIC MEDICATIONS

NAME	ACTION ONSET	DURATION
(glimepiride) Amaryl®	1/2 hour	24 hours
(repaglinide) Prandin®	< 1 hour	5-8 hours
(glipizide) Glucotrol ®	15-30 minutes	10-24 hours
(metformin hydrochloride) Metformin® Glucophage® Glucophage XR®	1-3 hours	12 hours
(pioglitazone) Actos®	30 minutes	16-24 hours

PROBLEM	SYMPTOMS	WHAT TO DOCUMENT	WHEN TO CALL THE DOCTOR
HYPERGLYCEMIA	Excessive thirst Excessive hunger Excessive urination	Date, frequency, specific symptoms	Two or more fasting blood sugars more than 240 mg/dl. Urine glucose tests 3+ or 4+ times in a row. If ill and unable to eat.
	Ketones in urine	Time, date, results of ketone tests	Moderate to large amounts of ketones if ill.
HYPOGLYCEMIA	Hunger Headaches Confusion Shakiness Sweating Nervousness	Time, date, frequency, specific symptoms.	Low blood sugar if on oral agents. More than two low blood sugars weekly if on insulin.
	Convulsions Loss of consciousness	Time, date, dietary intake.	Any episode of unconsciousness. Call immediately.
VISUAL CHANGES	Pain Blurriness for 1-2 days Black spots "Cobwebs" Flashing lights Loss of vision	Time, date, specific symptoms.	Call and make an appointment as soon as possible
FEET AND LEGS	Pain in legs/feet. Burning/numbness or cramps in legs at rest. Cramps while walking. Change of temperature	Date, frequency, specific symptoms.	Call, make appointment as soon as possible.
	Open sore	Date, treatment, appearance of sore.	Call immediately.
ELIMINATION AND DIGESTION	Nausea Vomiting Abdominal discomfort	Date, time, frequency.	Call if symptoms persist more than one day.
	Painful or difficult diarrhea after meals or at bedtime.	Date, frequency.	Call immediately.
	Constipation		Call immediately if severe, otherwise, mention at next visit.
CARDIO-VASCULAR	Shortness of breath Chest pains Dizziness Sudden, severe headaches	Date, time, specific symptoms. Activity at time symptoms occurred.	Call immediately. Call immediately. Call immediately. Call immediately.

CHARTING PROBLEMS FOR DIABETICS

SUPPLEMENTAL LESSON: DIABETES

Performance:

1. Demonstrate the procedure for drawing insulin.

2. Demonstrate the procedure for injecting insulin.

3. Distinguish between Insulin Dependent Diabetes Mellitus (IDDM) or Type I and Non-Insulin Dependent Diabetes Mellitus (NIDDM) or Type II diabetes.

4. Distinguish between hypoglycemia and hyperglycemia and describe the symptoms of each.

5. Demonstrate the procedure for testing urine using the procedure used in your facility or with your resident (i.e., Ketostix, Clinitest, etc.).

6 List two foods and three over-the counter medications the individual with diabetes should avoid.

7. Define three of the key terms selected by the staff nurse.

SUPPLEMENT #16

GASTROINTESTINAL SYSTEM

STRUCTURE AND FUNCTION

THE MOUTH: Food is chewed by the teeth so that it can be swallowed and digested easily.

THE STOMACH: After the food has been chewed and swallowed, it passes to the stomach. The stomach is a hollow, muscular organ where food is mixed with and acted upon by stomach enzymes. In addition to enzymes, the cells of the stomach lining produce hydrochloric and (HCl), which assist in digestion.

THE INTESTINES: When food leaves the stomach it enters the small intestine where any undigested nutrients are broken down by intestinal and pancreatic enzymes and bile from the liver. Materials are moved through the intestines by waves of rhythmic contractions in the intestinal walls. The rhythmic contractions are called peristalsis. Most of the nutrients and food the body needs are absorbed into the bloodstream through the walls of the small intestine.

The small intestine connects to the large intestine (colon). Water is absorbed through the walls of the large intestine, changing wastes to a more solid form. In this way the large intestine helps to maintain water balance of the body. Peristalsis moves waste through the large intestine until it reaches the rectum. When a certain amount has been collected in the rectum, it is eliminated as feces through the anus.

THE LIVER AND GALL BLADDER: The liver is a large gland located just beneath the ribs. It helps to control the amount of proteins and sugar in the blood. The liver manufactures bile, which is used for digestion and is stored in the gallbladder. When needed, bile is sent from the gallbladder to the small intestines. Bile gives stools their brown color.

THE PANCREAS: This glandular organ extends from behind the stomach into a curve of the small intestine. It manufactures pancreatic juice which is sent to the intestines to aid in the digestion of food. Remember, too, that special cells in the pancreas produce insulin.

Many of the medications discussed in this section can be obtained without a prescription, however, this does not mean that they are harmless. Caution should be used with all medications (see Section 11, over-the-counter medications - OTC) particularly, because OTC's can interact with prescribed medications.

THE GASTROINTESTINAL SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE GASTROINTESTINAL SYSTEM

1. The digestive system changes food into a form the body can use for maintenance, repair, energy, and growth.

2. The gastrointestinal system is divided into two parts:
   a. Alimentary canal or tract
      (1) Mouth (oral cavity)
      (2) Throat (pharynx)
      (3) Esophagus
      (4) Stomach
      (5) Small intestine
      (6) Large intestine

   b. Accessory organs
      (1) Teeth
      (2) Tongue
      (3) Salivary glands
      (4) Pancreas
      (5) Liver
      (6) Gallbladder

B. DISORDERS OF THE GASTROINTESTINAL SYSTEM

1. Disorders of the mouth:
   a. tooth decay
      (1) Cause--poor oral hygiene
      (2) Symptoms--loss of appetite, inability to eat meat which can cause anemia, abscesses which can cause systemic infection.
      (3) Treatment--daily mouth care, dental work

   b. Pyorrhea
      (1) Cause--poor oral hygiene
      (2) Symptoms--loss of teeth due to bone infection
      (3) Treatment--special mouthwash and mouth care

2. Disorders of the stomach
   a. Nausea and vomiting
      (1) Causes--infectious disease, allergy, reactions to medications
      (2) Symptoms of many diseases
      (3) Treatment--antiemtics are sometimes used

   b. Dyspepsia
      (1) Cause--changes in the lining of the stomach, change in the amount of gastric secretions.

(2) Symptoms--heartburn, feeling of fullness in the stomach, irritability.
(3) Treatment—medications

c. Ulcer--found in stomach or small intestine (duodenum area)
(1) Cause--repeated irritations of the stomach lining or duodenum until a sore (ulcer) forms.
(2) Symptoms--intolerance to certain foods, dyspepsia, bleeding may occur if the ulcer is near a blood vessel, perforation (a hole) may occur and the stomach contents may leak into the area outside the stomach.
(3) Treatment--Medications.

d. Motion Sickness
(1) Cause--irregular motion, especially up and down motion
(2) Symptoms--nausea and vomiting, loss of balance, often experienced while on a moving boat, train airplane, or car.
(3) Treatment--antiemtics and antihistamines

3. Disorders of the intestines
a. Diarrhea
(1) Cause--infection, allergy, medication, tumor
(2) Symptoms--cramping, gas formation, body fluids are lost rapidly, dehydration
(3) Treatment--antidiarrheal medications

b. Constipation
(1) Cause--inactivity, poor diet, change in diet, medications
(2) Symptoms--stool may become hard, making elimination painful, impaction may occur with diarrhea leaking around the impaction.
(3) Treatment--medications, increase fiber in diet according to physician's order.

4. Disorders of the liver
a. Viral hepatitis
(1) Types
a. Type A - infectious
b. Type B - serum
c. Type non-A, non-B - post transfusion
(2) Causes--ingestion of contaminated food, contaminated needles, contact with infected human blood, serum, feces, semen, or secretions, or blood transfusions
(3) Symptoms--generalized, fever usually present
(4) Treatments--medication, fluids, rest
(5) Prevention--gamma globulin B given to persons who have been exposed to disease to prevent type B hepatitis, follow universal precaution procedures.

b. Chemical hepatitis
(1) Cause--exposure to toxic chemical or drugs
(2) Symptoms--occur within 24-48 hours for chemical toxicity, of 2-5 weeks for drug toxicity. Symptoms resemble those of viral hepatitis.
(3) Treatment--remove the chemical or drug from the body

c. Cirrhosis
   (1) Cause--alcoholism, previous liver disease
   (2) Symptoms--loss of appetite, fatigue, weight loss, fever, jaundice
   (3) Treatment--includes vitamins, good diet, no alcohol

C. SELECTED GASTROINTESTINAL MEDICATIONS BY CLASSIFICATION

1. Antiflatulants
   a. Action--decreases gas formation
   b. Use--treat indigestion
   c. Example--simethicone (Mylanta ®, Mylicon ®)
   d. Adverse effects--belching, flatus

2. Digestants
   a. Action--replace digestive enzymes
   b. Use--assist with digestion
   c. Example--pancrelipase (Pancreas ®)
   d. Adverse effects
      (1) Nausea
      (2) Diarrhea, which occurs with increased doses

3. Antiemtics
   a. Action--inhibit nausea and vomiting
   b. Uses--treat nausea, vomiting
   c. Examples
      (1) prochlorperazine maleate (Compazine ®)
      (2) trimethobenzamide HCl (Tigan ®)
      (3) scopolamine (Transderm-Scop ®)
      (4) metoclopramide HCl (Reglan ®)
      (5) dimenhydrinate (Dramamine ®, Travamine ®)
      (6) meclizine HCl (Antivert ®, bonamine, Bonine ®)
   d. Adverse effects
      (1) Drowsiness
      (2) Dizziness
      (3) Dry mouth
   e. Special consideration--monitor blood pressure for hypotension

4. Anticholinergics (Antimuscarinics)
   a. Action--decrease the secretion of digestive juices and peristaltic action. May act on other systems.
   b. Uses--treat dyspepsia, ulcers, irritable bowel
   c. Examples
      (1) methantheline (Banthine ®)
      (2) clidinium bromide and chlordiazepoxide HCl (Librax ® Capsules)
      (3) belladonna leaf (Belladonna ®)
      (4) methscopolamine bromide (Pamine ®)
   d. Adverse effects
      (1) Headache

(2) Drowsiness
(3) Confusion and agitation
(4) Urinary retention
(5) Blurred vision

Miscellaneous Gastrointestinal

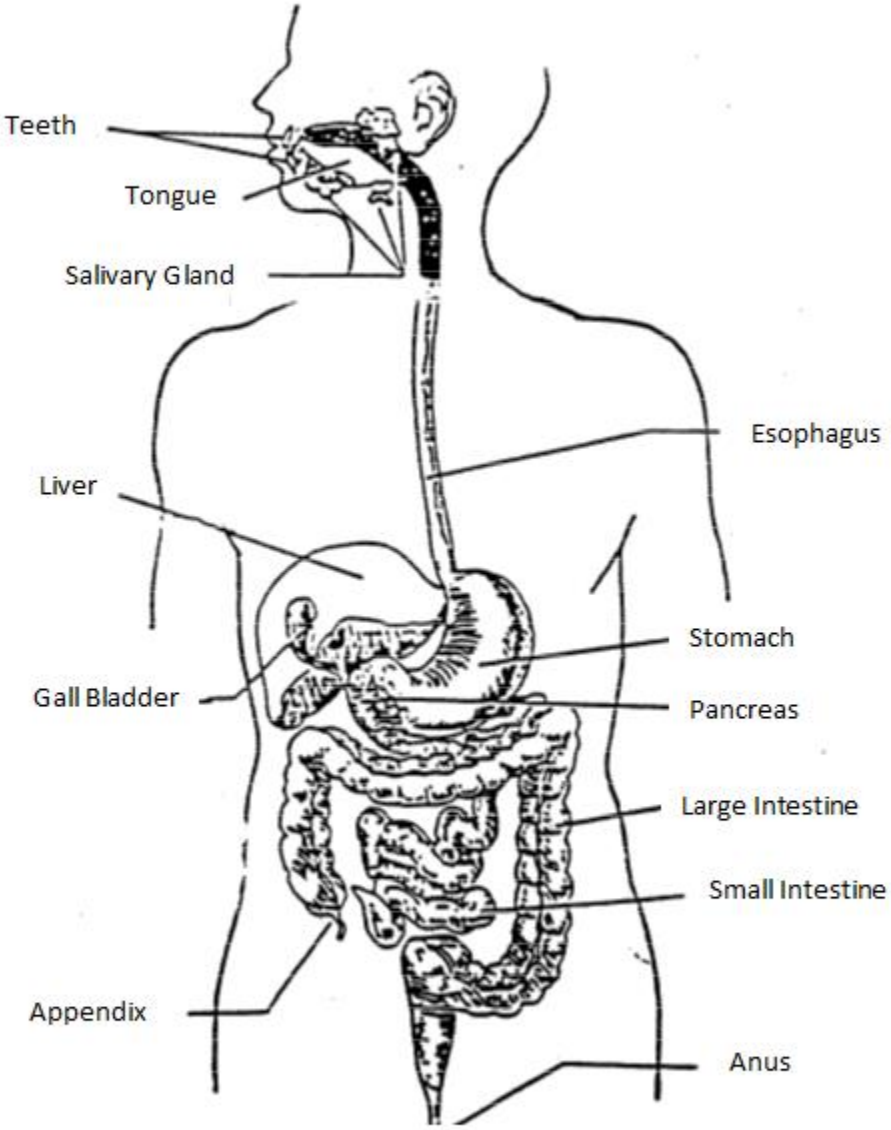
a. Action--lessen production of gastric juice
b. Use--prevent duodenal ulcers or ulcer
c. Examples
   (1) cimetidine (Tagamet ®)
   (2) ranitidine (Zantac ®)
   (3) famotidine (Pepcid ®)

d. Adverse effects
   (1) Mental confusion
   (2) Dizziness
   (3) Headaches
   (4) Constipation
e. Special consideration--dissolve the tablet in water

D. ADDITIONAL INFORMATION ABOUT THE GASTROINTESTINAL SYSTEM

1. Fluid intake is important to facilitate proper bowel movement.
2. Bulk producing or forming laxatives can cause obstructions if not given with enough liquids.
3. When giving gastrointestinal medication, monitor for any change in mouth odor. Monitor for signs of stomach cramps, decrease in appetite, and enlarged abdomen.

Gastrointestinal System



FUNCTIONS:

1. Ingests food
2. Prepares food for use by the body
3. Excretes wastes

SUPPLEMENT #17

FUNCTIONS OF THE SKIN

FUNCTIONS OF THE SKIN INCLUDE:

Protection: The intact skin is a mechanical barrier to injury and disease.

Heart Regulation: Many small blood vessels are present in the deeper part of the skin (dermis). When they dilate with blood, heat is brought to the surface where it escapes from the body. When heat needs to be conserved, these vessels constrict, thereby preserving heat within the body.

Storage: Energy in the form of fat as well as some vitamins are stored in this vital area.

Eliminations: Some waste products as well as excess water are cast off (excreted) as perspiration through the activities of the sweat glands.

Sensory perception: Many nerve endings are found in the skin. They tell us much about our environment. They respond to heart, cold, pain, and pressure. These nerve endings provide us with our sense of touch.

THE SKIN AND SENSORY SYSTEMS

I. THE SKIN

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE SKIN

1. Structures of the skin:
   a. Epidermis--outer layer--protects the inner layer. Old cells are constantly rubbed off of this layer.
   b. Dermis--inner layer--sometimes called the "true skin." The dermis is composed of live cells, nerve endings, blood vessels, sweat glands, hair sacs with hairs, oil glands, some fat cells, and pigment for the skin.
   c. Directly beneath the skin "subcutaneous" is a thick area of fat cells.

2. Functions of the skin:
   a. Protects all underlying structures.
   b. Receptor of sensations of heat, cold, pain, and texture (through nerves connected to the skin).
   c. Absorbs substances.
   d. Excretes waste products (through perspiration).
   e. Helps control temperature of the body.
   f. Defends against disease-producing organisms.

B. COMMON SKIN DISORDERS

1. Dermatitis
   a. Cause--allergic response to food, drugs, insect stings, inhalants, plants
   b. Symptoms--rash that causes itching
   c. Treatment--medications for symptoms

2. Acne
   a. Cause--poor personal hygiene, use of oil-based cosmetics, excessive heat, changes associated with puberty
   b. Symptoms--blackheads, skin ruptures
   c. Treatment--topical and systemic medications

3. Scabies
   a. Cause--mites that burrow under the skin. Contamination occurs from infested bed clothing, undergarments, or close body contact with an infested person.
   b. Symptoms--itching that gets worse at night, tiny thread-like blisters which generally appear between fingers, on wrist, and inside elbows; lesions may occur under arms, around the waist
   c. Treatment--cream or lotion topical medications

4. Pediculosis
    a. Cause--lice which infest different body areas, usually spread by direct body contact by using contaminated personal articles, such as hats, combs, or bedding
    b. Symptoms--itching of scalp or body, small red bumps on shoulders, trunk, or buttocks
    c. Treatment--medicated shampoo, ointment or lotion containing a pediculicide clothes, sheets, and other personal articles must be laundered to prevent reinfestation

5. Athlete's foot
    a. Cause--highly contagious fungus found in warm damp places such as shower rooms and public baths
    b. Symptoms--scaling and blistering between toes, burning and itching
    c. Treatment--antifungal powder, ointment, or spray

6. Psoriasis
    a. Cause--genetic tendency, possible effect of trauma, onset influenced by environmental factors, such as stress, may be accompanied by arthritic symptoms. Common in individuals who have Parkinson's Disease
    b. Symptoms--skin has red patches covered with silvery scales that have a tendency to shed. Skin surfaces may have pinpoint bleeding
    c. Treatment--topical medications, ointments to soften and remove the scales, oral medications may be ordered if symptoms are severe

7. Eczema
    a. Cause--allergic reaction, may flare up in response to extremes in humidity or temperature, sweating, or psychological stress
    b. Symptoms--itching, crusting of broken vesicles on the skin
    c. Treatment--remove cause of irritation, topical medications to control itching

8. Burns
    a. Cause--accidental injury
    b. Symptoms
        (1) First degree burn--skin area is red
        (2) Second degree burn--skin is blistered
        (3) Third degree burn--skin may appear charred or pearly white
    c. Treatment--dependent upon degree and type of burn

9. Decubitus ulcer
    a. Cause--continuous pressure on body areas, which leads to decreased blood circulation to tissues

b. Symptoms
   (1) Stage I--reddened areas
   (2) Stage II--blistered area or break in the skin
   (3) Stage III--tissue invasion and necrosis
   (4) Stage IV--muscle and bone involvement
c. Treatment--the best treatment is prevention: turn individuals at least every two hours, according to agency policy.

C. SELECTED SKIN MEDICATIONS BY CLASSIFICATION

1. Local Anti-Infectives
   a. Action--destroy bacteria or fungus
   b. Use--treat athlete's foot, infection
   c. Examples
      (1) tolnaftate (Aftate ®, Tinactin ®)
      (2) neomycin (Neocin ®)
      (3) clotrimazole (Lotrimin ®)
   d. Adverse effects
      (1) Itching
      (2) Rashes

2. Scabicides and Pediculicides
   a. Action--destroy parasites
   b. Use--kill scabies, mites, and lice
   c. Examples
      (1) lindane (Kwell ®)
      (2) pyrethrins (A-200 Pyrinate ®)
   d. Adverse effect--skin irritation

3. Anti-inflammatory Steroids
   a. Action--reduce inflammation
   b. Use--treat dermatitis
   c. Examples
      (1) betamethasone valerate (Valisone ®)
      (2) flurandrenolide (Cordran ®)
      (3) triamcinolone acetonide (Aristocort ®, Kenalog ®)
   d. Adverse effects--burning, itching, and dry skin
   e. Special considerations
      (1) Watch diabetic individuals for change in urine glucose or fasting blood sugar
      (2) Withdrawal symptoms occur if stopped abruptly

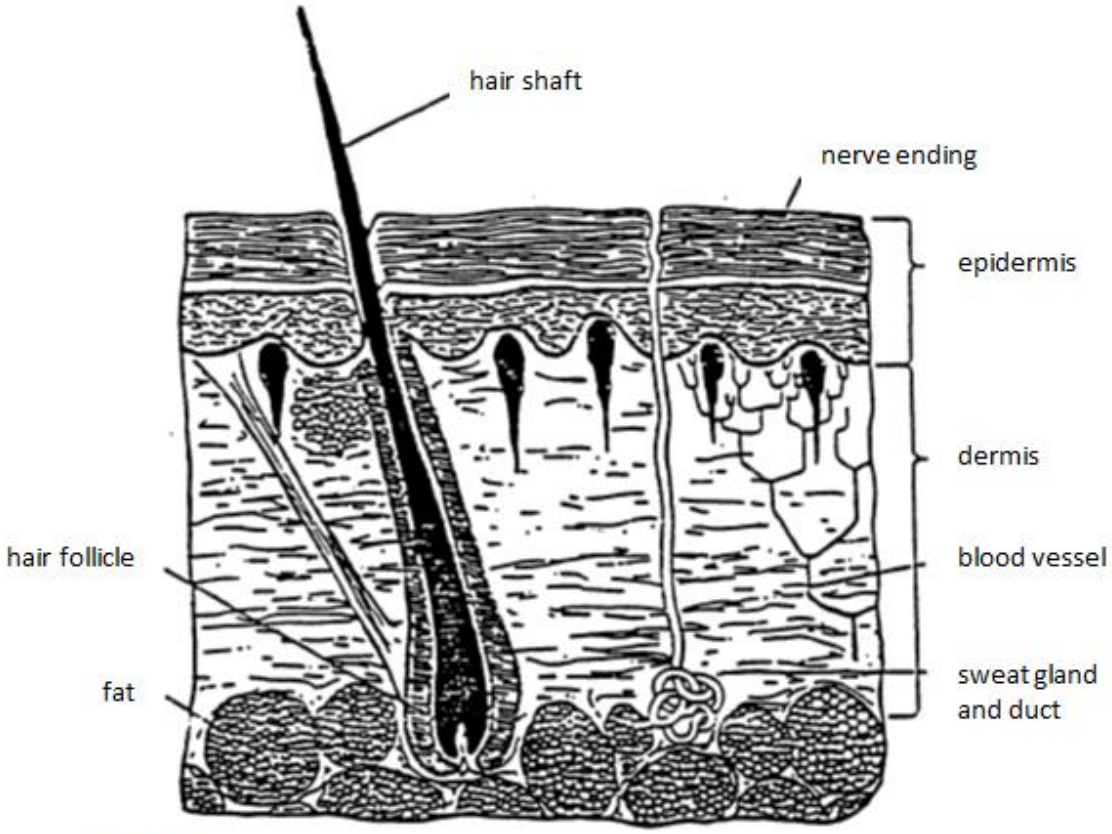
4. Antipruritics and local anesthetics
   a. Action--relieve localized itching and pain
   b. Use--treat hemorrhoids, sunburn, and poison ivy

c. Examples
   (1) benzocaine (Solarcaine ®, Americaine ®)
   (2) dibucaine (Nupercainal ®)
   (3) Caladryl lotion ®
d. Adverse effect--sensitization to medication

5. Protectants
   a. Action--cover and protect the skin
   b. Use--reduce irritation and friction, irritation from urine and stool, provide sunburn protection
   c. Examples
      (1) petrolatum (Vaseline ®)
      (2) talc
      (3) vitamins A and D ointment (Desitin ®)
      (4) para-aminobenzoic acid (Pre Sun ®, Rv paba Lipstick ®)
   d. No adverse effects

6. Debridement medications
   a. Action--enzymatic destruction of necrotic tissue
   b. use--treat decubitus ulcers
   c. Examples
      (1) lytic enzymes (Elase ®, Travase ®)
      (2) collagenase (Santyl ®)
      (3) hydrogen peroxide
   d. Adverse effect--hypersensitivity to the medication
   e. Special consideration--can be applied only by licensed personnel.

The Integumentary System



Function:

1. Protects the body
2. Regulates temperature
3. Discharge waste
4. Manufactures vitamin D
5. Makes human appearance presentable

II. THE SENSORY SYSTEM

A. REVIEW OF THE STRUCTURES AND FUNCTIONS OF THE SENSORY SYSTEM

1. Structures of the sensory system
   a. Eyes
   b. Ears
   c. Nose
   d. Tongue
   e. Skin

2. Function of the sensory system--connects outside sensations to the proper nerves, producing visual images, sound, odors, tastes, temperature, pain, textures.

B. SENSORY SYSTEM DISORDERS

1. Eye Disorders
   a. Conjunctivitis
      (1) Cause--irritation, allergies, bacteria
      (2) Symptoms--redness, itching, swelling, tearing
      (3) Treatment--systemic or local medication
   b. Glaucoma
      (1) Cause--an obstruction, or overproduction of fluid in the eye
      (2) Symptoms--mild aching in the eye, loss of peripheral vision, perception of halos around lights, inability to see well at night
      (3) Treatment--use of medications to decrease intraocular Pressure
   c. Cataracts
      (1) Cause--secondary infection, congenital disorder, reaction to drugs, or chemical toxicity
      (2) Symptoms--gradual blurring of vision, milky white pupil
      (3) Treatment--surgery, lens implantation or corrective glasses

2. Ear disorders
   a. Impacted ear canal
      (1) Cause--wax build-up in the ear canal, or foreign object
      (2) Symptoms--pain, hearing loss
      (3) Treatment--medication, irrigation, or extraction of foreign object by the physician

   b. Ear infections
      (1) Swimmer's ear
         a. Cause--bacteria, fungus
         b. Symptoms--pain, fever, itching, partial hearing loss, possible discharge
         c. Treatment--medication

(2) Otitis media
a. Cause--respiratory, viral, or throat infections
b. Symptoms--pain, fever, dizziness, nausea, vomiting, drainage
c. Treatment--antibiotics

(3) Meniere's Syndrome
a. Cause--chronic disturbance of inner ear
b. Symptoms--dizziness, ringing in the ears, nausea, and vomiting; loss of hearing as disease progresses
c. Treatment--medication to relieve symptoms

C. SELECTED SENSORY SYSTEM MEDICATIONS BY CLASSIFICATION

1. Eye medications
   a. Miotics
      (1) Action--decrease eye pressure
      (2) Use--to treat glaucoma
      (3) Example--pilocarpine HCl (Pilocar ®)
      (4) Adverse effects
         a. Headache
         b. Perspiration
         c. Salivation
         d. Night blindness
         e. Blurred vision
      (5) Special consideration--place inside the lower lid, not directly on the eye

. b. Mydriatics
      (1) Action--dilate pupil
      (2) Use--facilitates eye examination
      (3) Example--atropine sulfate
      (4) Adverse effects
         a. Dry mouth
         b. Blurred vision
      (5) Special consideration--place inside the lower lid, not directly on the eye

   c. Beta blocker
      (1) Action--lower intraocular pressure
      (2) Use--to treat glaucoma
      (3) Example--timolol maleate (Timoptic Solution ®)
      (4) Adverse effects
         a. Eye irritations
         b. Blurred vision

2. Ear medications
   a. Wax control agents
      (1) Action--soften and dissolve ear wax
      (2) Use--prevent wax build-up
      (3) Example--carbamide peroxide (Debrox ®)

(4) Adverse effects
    a. Pruritus
    b. Erythema
(5) Special considerations
    a. do not use if the ear is draining
    b. Do not use for more than four days in a row
    c. The ear often requires irrigation to facilitate removal of the wax

b. Antibiotics and steroids may be given to treat ear inflammation and infection.

DEFINITIONS OF KEY TERMS

Acne--A disorder of the hair follicles and oil-producing glands of the skin.

Athlete's Foot--A contagious fungus infection of the feet.

Burns--Injury to the skin by strong chemicals, electricity, high temperatures, or radiation.

Cataracts--The lens or capsule of the eye loses its transparency or translucency causing partial or total blindness.

Conjunctivitis--Inflammation of the mucous membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball.

Decubitus ulcer--An open wound that is caused by the pressure of lying or sitting in one position for a long period of time. Also called a pressure sore or bedsore.

Dermis--A layer of skin.

Eczema--A noncontagious inflammation of the skin, marked mainly by redness, itching, and the outbreak of lesions that discharge fluid and become encrusted and scaly.

Epidermis--The outer protective layer of skin.

Glaucoma--A disease of the eye characterized by high intraocular pressure, damaged optic disk, hardening of the eyeball, and partial or complete loss of vision.

Miotics--An agent that causes contraction of the pupil of the eye.

Mydriatics--A drug that produces dilation of the pupils.

Pediculosis--A contagious infestation of the hair, body, and pubic area caused by lice.

Psoriasis--A chronic, noncontagious disease characterized by inflammation, reddened lesions, and white, scaly patches.

Scabies--A contagious skin condition caused by mites that burrow under the skin; characterized by tiny, thread-like blisters that itch.

Sensory system--Receives outside sensations and relates these sensations to the proper nerves.

SUPPLEMENTAL LESSON: THE SKIN AND SENSORY SYSTEM

Performance:

1. List five functions of the skin.

2. Describe four skin disorders including the cause, symptoms, and treatment of each.

3. What is a decubitus ulcer? Describe the stages of the decubitus ulcer.

4. If a resident currently is receiving a skin medication, describe the following for the medication:

   a. brand name
   b. trade name
   c. uses
   d. actions
   e. side effects

5. List the structures of the sensory system

6. Describe the function of the sensory system.

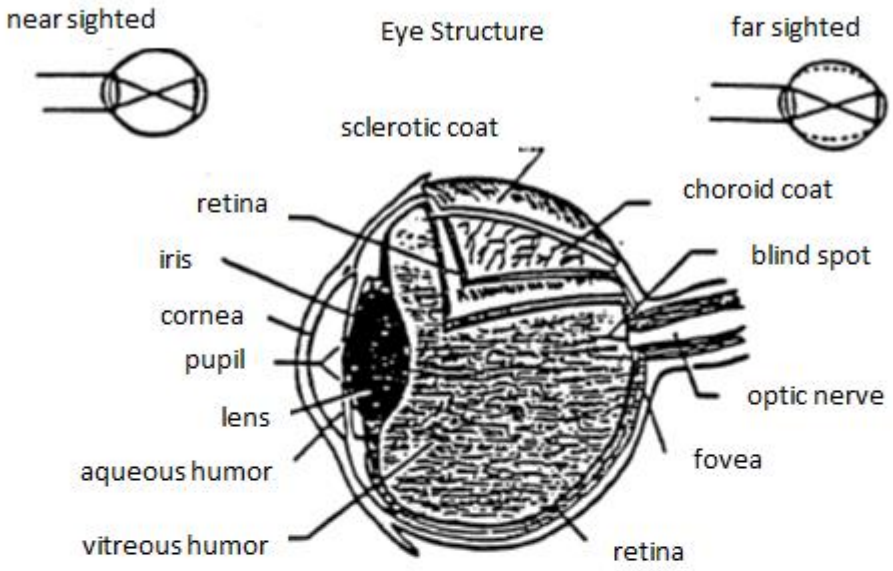
7. Describe one eye and one ear disorder, including the cause, symptoms, and treatment of each.

8. If a resident currently is receiving a skin medication, describe the following for the medication:
   a. brand name
   b. trade name
   c. uses
   d. actions
   e. side effects

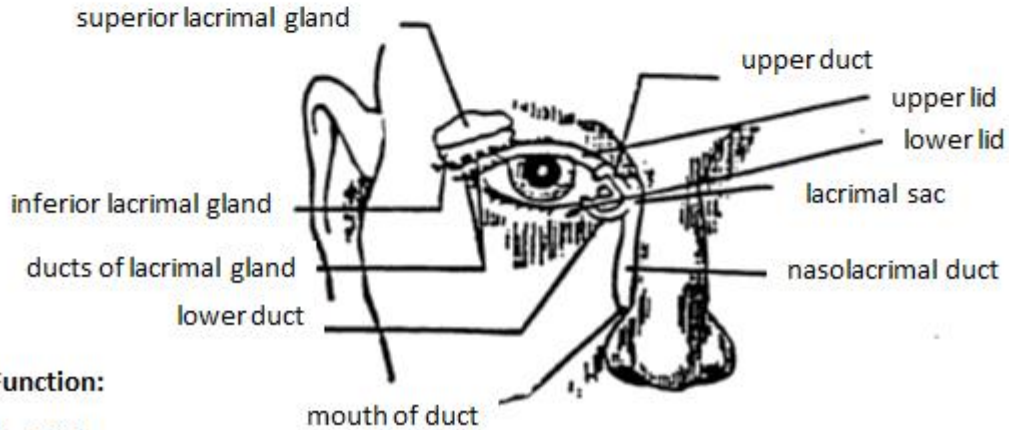
9. Define eight key terms selected by the staff nurse.

10. Use the performance checklists included earlier in this manual to demonstrate proper procedures for administering medications for the skin and sensory systems.

The Sensory System



Lacrimal Apparatus



Function:

1. Vision

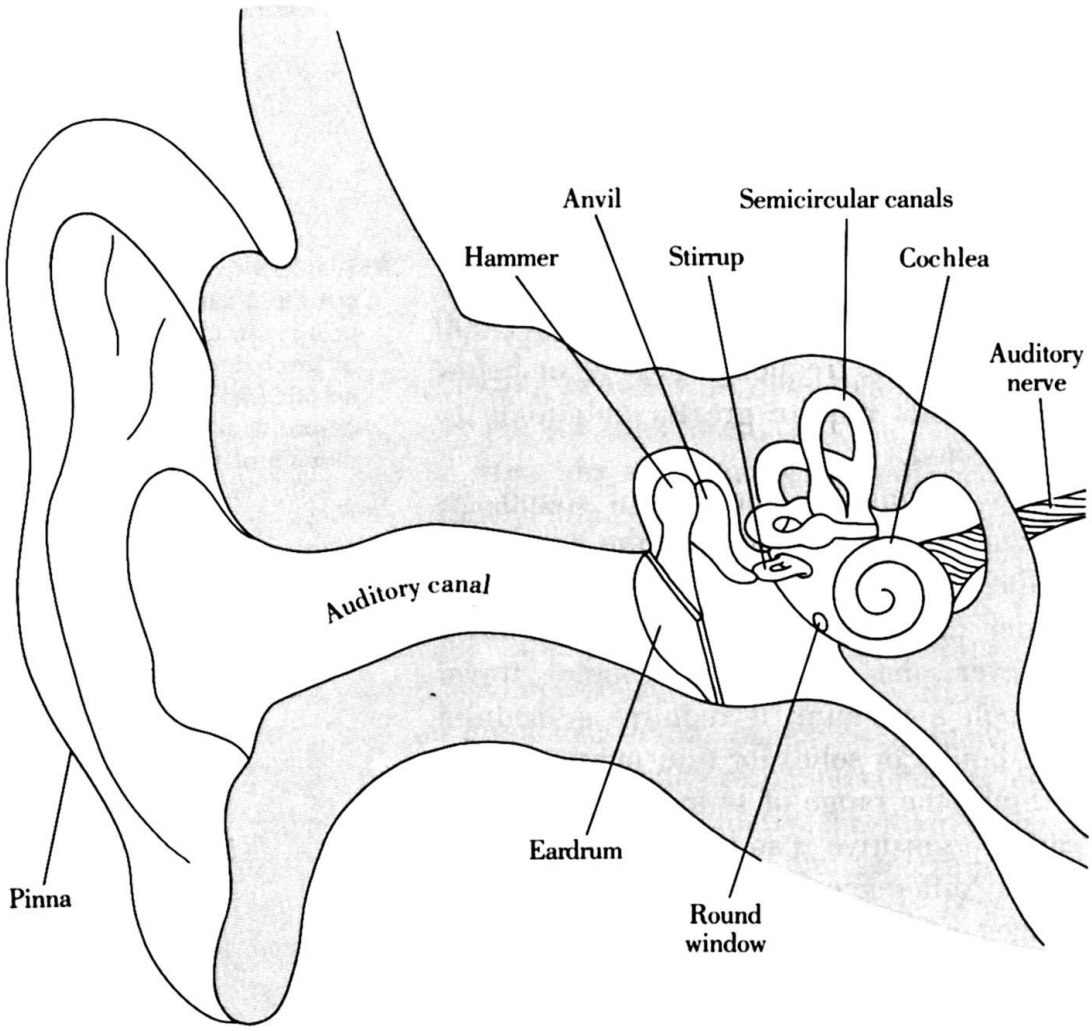
SUPPLEMENT #18

THE STRUCTURE OF THE EAR

The ear has three parts: the outer ear, the middle ear and the inner ear. The outer ear consists of the part we see, the lobe (pinna), and a canal which directs sound waves to the middle ear. At the end of the canal is the eardrum (tympanic membrane). Sound waves cause the eardrum to vibrate. Three tiny bones, called ossicles, form a chain across the middle ear from the tympanic membrane to an opening in the inner ear. These bones carry the sound waves across the middle ear. A small tube, the Eustachian tube, leads from the throat into the middle ear. Air carried through this tube helps to keep pressure equal on both sides of the eardrum. The inner ear is a complex structure having two main parts. One looks somewhat like a coiled snail shell and is called the cochlea. Within the cochlea is the auditory (hearing) nerve which carries sound to the brain to let us know that we are hearing. The second part consists of small canals (semicircular) that contain liquid and nerve endings. The fluid in the canals help us maintain our sense of balance.

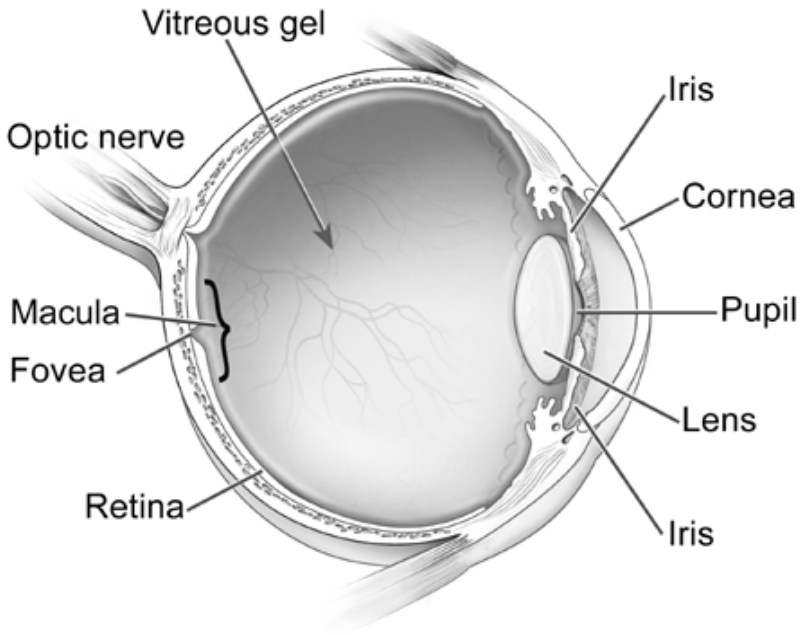
THE STRUCTURE OF THE EYE

The eye is a hollow ball filled with a semi liquid. The ball of the eye is made up of three layers. A tough, white, fibrous, outer coat (the sclera) has a transparent (see-through) portion in the front called the cornea. Beneath the sclera is a vascular layer called the choroid. Light enters the eye through the cornea. The amount of light entering the eye is controlled by the colored portion of the eye, the iris, found behind the cornea. Fluid between the cornea and iris helps to bend the light rays and bring them to focus on the retina. The opening in the iris is the pupil. The pupil appears black because there is not light behind it. Directly behind the iris is the lens. Small muscles pull on either side of the lens to change its shape. The changing shape of the lens make it possible for us to adjust the range of our vision from far to near or from near to far. The eye is held within the bony socket by muscles which can change its position. A mucous membrane (conjunctiva) lines the eyelids and covers the eye. Conjunctivitis is an inflammation of this membrane. The eyelids, eyelashes and tears protect the delicate eye. Tears are manufactured by a gland in upper lid.

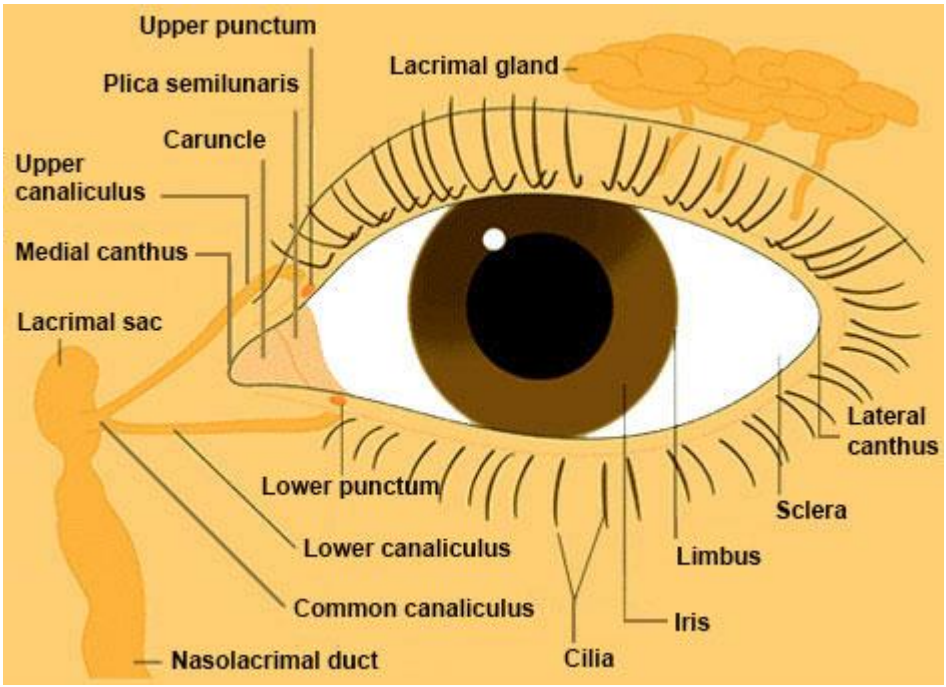

Anvil
Semicircular canals
Hammer
Stirrup
Cochlea
Auditory nerve
Auditory canal
Eardrum
Pinna
Round window

THE EYE

INTERNAL STRUCTURE



EXTERNAL STRUCTURE



SUPPLEMENT #19
INFORMATION FOR THE PHYSICIAN

Five types of information which should be provided to the physician are:

1. **The individual's complete medical records if he/she is seeing the physician for the first time**. The individual's past medical history gives the doctor "baseline data" from which to work. It is impossible to select the information needed. Therefore, it is best to take all medical information for physician to reference.

2. **History of drug allergies:** Medication allergies can be fatal. An individual's allergy to one medication may mean he or she is allergic to others. Without this information, the individual's life may be jeopardized.

3. **Current medications being administered and for what purpose (including non-prescription over-the-counter (OTC) medications.** Mixing medications can produce a variety of side effects. The more medications an individual is receiving, the greater the possibility for unwanted medication interactions.

4. **Current medical and dental conditions not being treated by medications.** Any condition that is not under medication therapy might not be known to the physician. Some pre-existing conditions may greatly influence the physician's choice of treatment.

5. **Written observations of recent changes in physical symptoms or behavioral signs.** Many staff members work with the same individual during the day. Without written information, you might not able to fully explain the circumstances which lead to the visit.

Most agencies make a practice of keeping the above information in a single place or file. However, agency policies differ. You should know the forms used and the location of the records needed to provide all the above information to the physician. However, such records cannot be left over to the physician.

SUPPLEMENT #20

SELF-MEDICATION

Teaching an individual to self-medicate must be an individualized process based on the individual's functioning level. The process used to teach an individual to self-medicate will vary between the homes that serve the developmentally disabled and the homes that serve the mentally ill.

When teaching an individual to self-medicate, the individual's learning style and abilities must be considered. The individual may be able to remember drug names and match the written name to the name on the bottle. Some individuals may need cues concerning shape or color of the drug to be able to locate the correct drug. It is important to encourage each individual, no matter what his/her functioning level, to participate in learning about his/her medication.

I. Steps to Self-Administration--the following steps are only suggestions and should be adapted to meet the needs of the individual.

A. Level 1

1. Staff nurse or designated staff member will place all of the individual's medication in a container (box). The medication box must be labeled with the name of the individual and the medications should be in bottles or in blister card labeled by the pharmacy.
2. Individual will be informed of the times to report for medication and reminded as necessary.
3. Staff member will supervise individual taking medication out of container.
4. Staff member will question the individual as to the name of the medication being taken.
5. Staff member will question the individual why the medication is being taken.
6. Staff member will observe the individual taking the medication and chart observation.

B. Level 2

1. Staff nurse or designated staff member will store the individual's medications appropriately.
2. Individual will report to staff member at assigned times, will be given medication container and medication sheet and will be expected to take medication as prescribed.
3. Individual will initial medication sheet.
4. Staff member will check medication containers and medication sheet. Late and missed medication will be noted on the sheet.

II. Steps to Learning Medication

A. Choosing the correct medication:

1. Memorization--individual will memorize the name of the drug and the dosage. This will take repeated practice and as the individual's medication changes, will have to be re-taught.
2. Color code the top or back of the prescription bottle.The individual can look at the medication sheet which will also be color coded and match the name of the medication to the correct bottle.
3. Place a picture of the medicine on the back of the bottle and on the medication sheet. The individual can look at the medication sheet and match the picture to the bottle.
4. Number the bottle and the medication sheet. The individual can match the numbers.

B. Selecting the correct amount of medication:

1. Memorization--individual will memorize the name of the drug and the dosage. This will take repeated practice and as the individual's medication changes, will have to be re-taught.
2. Use a pill counter or medication box.
3. Place the number needed on the back of the bottle and the individual can match to the medication sheet.

C. Encouraging participation:

1. Include medication information on communication books and boards so that the individual can interact with the staff at medication time.
2. Develop a calendar, daily schedule, or weekly schedule for the individuals to keep track of whether or not they took their medication. Develop a non-food reward system to encourage 100% participation.

III. Teaching Self-Administration

The following task analyses are geared toward the lower functioning individual who will need supervision while handling medication.

- Sample #1 is for the individual who is just learning how to self-medicate.
- Sample #2 is for the individual who is more advanced in the technique.
- Sample #3 is for the individual who is independent. These are just samples and should be adapted to meet the individual needs.

A. Sample #1

The individual will:

- Come to the medication area when asked.
- Locate a drinking glass.
- Fill the drinking glass with water.
- Listen to the name of the first medication to be taken.
- Repeat the name of the medication.
- Listen to the amount of medication to be taken.
- Repeat the amount of medication to be taken.
- Listen to a description of the medication.
  a. Color
  b. Shape
- State reason for taking medication.
- Take the medication.

B. Sample #2

Inform the individual it is time to take his/her medication. Ask the individual to come to the medication storage area.

The individual will:

- Locate a drinking glass.
- Fill the drinking glass with water.
- Locate personal medication storage container.
- Open the container.
- Locate medication sheet.
- Match the time on the medication sheet with the clock.
- Listen to the name of the first medication to be taken.
- Repeat the name of the first medication to be taken.
- Listen to the amount of medication to be taken.
- Repeat the amount of medication to be taken.
- Listen to a description of the medication.
  a. Color
  b. Shape
- State reason for taking the medication.
- Locate the medication according to the name and description.
- Match the name on the medication to the medication sheet.
- Open the medication.
- State the name of the medication.
- State the amount of medication to be taken.
- Remove the correct dosage.
- Place correct dosage on the tray.
- Close the medication container.
- State the name of the medication.
- State the amount of medication to be taken.

- Take the medication
- Locate the medication sheet.
- Find the correct medication.
- Find the correct time.
- Initial the medication sheet.
- Place medication into medication storage container.
- Return the medication sheet to storage area.

C. Sample #3

The individual will:

- Locate a drinking glass.
- Fill the drinking glass with water.
- Locate personal medication storage container.
- Open container.
- Locate medication sheet.
- Match the time on the medication sheet with the clock.
- Locate the name of the medication to be taken on the medication sheet.
- State the name of the medication.
- State the amount of medication to be taken.
- Locate the medication.
- Match the name on the medication to the medication sheet.
- Open the medication.
- State the name of the medication.
- State the amount of medication to be taken.
- Remove the correct dosage.
- Place correct dosage on the tray.
- Close the medication container.
- State the name of the medication.
- State the amount of medication to be taken.
- Take the medication.
- Locate the medication sheet.
- Find the correct medication.
- Find the correct time.
- Initial the medication sheet.
- Place medication into medication storage container.
- Return the medication sheet to storage area.

RELATED INFORMATION

Over the counter medications (OTC) agents, and related health care items represent a multi-million dollar industry whose main goal is to make money. It is often as confusing to you as it is to many of the individuals to pick or choose a correct product for relief from minor discomforts.

This section is included primarily to be informative as well as to help you to provide guidelines for those individuals who live and/or work in the community setting. The individuals need to know what over-the-counter medications might work and which are a complete waste of money, which are safe remedies and those which might provoke dangerous interactions or have undesirable side effects.

Because an individual has the rights of a citizens, he/she may not be legally stopped from purchasing any product of his/her choice. On the other hand, as care givers, we have an ethical responsibility to provide and promote a safe situation which helps protect the individual from unwise decisions.

People tend to think that, because OTC medications may be purchased without a prescription, they are harmless. This is not true. OTC's can and do have side effects. Some agencies have specific policies relating to the use of OTC's. Inquire as to what your agency policy is. Policy will vary from agency to agency, but in general OTC medications are handled in the same manner as prescription medications and are included in the individual's program planning. OTC medications have directions for use and these directions should always be read prior to administration.

In order to provide you with information that may be utilized in a teaching program with individuals, the following arbitrary classification system has been constructed to give the most common groups of agents.

AGENTS THAT AFFECT THE GASTROINTESTINAL TRACT

It is not unusual to have an occasional sore throat, upset stomach or other gastrointestinal disorder which is temporary and does not on occasion need a call to the physician. Short-term use of antacids, laxatives or antidiarrheal medications may be helpful to control a temporary condition. On the other hand, everyone must be aware that these preparations may also mask a more serious health problem. It becomes important to decide when it is time to see the doctor. In this section, we will discuss the more common over-the-counter and home remedies for gastrointestinal disorders.

MOUTHWASHES

A normal, healthy mouth should not have an offensive odor. Bacteria normally reside in the mouth and serve many useful functions. The use of mouthwashes is simply to cover bad breath that can be more harmful than good because the use of mouthwashes will upset the normal bacterial balance in the mouth.

Halitosis usually results from poor dental hygiene. Regular tooth brushing and flossing cure many cases of halitosis. If halitosis continues, the cause could be something more severe, such as an infection of the mouth or throat or a decayed or abscessed tooth. These conditions must be diagnosed and treated by a physician.

INDIGESTION

Indigestion is a term used to mean many things. Common symptoms of indigestion include: stomach ache, nausea, heartburn, gas pain and belching.

An occasional case of indigestion which can be related to dietary indiscretion can safely be treated with over-the-counter preparations. However, if indigestion persists or is accompanied by: Labored breathing, profuse perspiration and vomiting, medical attention should be sought as symptoms of serious heart problems sometimes appear as symptoms of indigestion.

Many OTC preparations used for indigestion have baking soda as the major ingredient. Some examples are: Alka-Seltzer ®, Bromo-Seltzer ® and Soda Mint.

Most OTC preparations, such as Alka-Seltzer®, also have other ingredients in them, like aspirin, which would be unnecessary for simple acid indigestion, and if anything, might increase gastric distress. The aspirin in these products may be dangerous for people who also have other stomach problems. It is, therefore, important to: **Read all labels carefully for contents**.

Another group of antacids contain aluminum hydroxide, a very effective antacid which has an advantage over baking soda because it is not absorbed into the blood-stream. Aluminum products can be constipating and are sometimes combined with magnesium

preparations to lessen the constipating effect. Examples are: Maalox ®, Gelusil ® and Amphojel ®

NAUSEA AND VOMITING

There are several different conditions which can cause nausea. Motion, stomach irritation and mental stress are just a few. The medication which is used to treat nausea should be chosen with the cause of nausea in mind. Some OTC preparations commonly used are: Maalox ®, Gelusil ® and Pepto-Bismol ®.

Motion sickness may be helped by Dramamine ® or Bonine ®. Home remedies include dry, dark toast and cola syrup. Most of the other nausea medications are obtainable only on physician's prescription and work by acting on the nervous system.

DIARRHEA

Diarrhea can be a symptom of many disorders. Often diarrhea is nothing more than a self-limiting natural defense reaction by which the body rids itself of a toxic or irritating substance. However, diarrhea which lasts for more than 1-2 days should be reported.

Antidiarrheal medications work directly on the bowel and are moderately successful in the treatment of diarrhea. Antidiarrheal agents consist of kaolin, charcoal or bismuth. The medications work by absorbing fluid and toxic substances and, therefore, bowel movements become more solid. Some agents are also soothing to inflamed bowels. Examples of these preparations include: Kaopectate ® and Parepectolin ®.

Many of the more effective antidiarrheal medications are available by prescription only. However, some household remedies are dry toast and warm tea.

LAXATIVES

A regular bowel movement should not be laxative dependent. In order to promote regular bowel movements, consideration should be given to a diet high in roughage and bran, fluid, and adequate exercise. Laxatives should never be given to anyone who has nausea, vomiting, abdominal pain or cramps. Some common examples of laxatives are: Castor Oil, Bran and Metamucil ®.

The regular use of laxatives can cause dependence and the later development of other gastrointestinal disorders. If continued constipation is a problem, the safest thing to do is have a physician examine the individual and determine the cause of the constipation.

HEMORRHOIDS

Hemorrhoids are inflamed, dilated blood vessels in the rectum. As the veins dilate and swell, they tend to itch or become painful. Many times hemorrhoids are associated with

being overweight, straining at stool, and prolonged standing or sitting.

Corrective measures should be aimed at the cause of the hemorrhoids. Diet should be high in roughage and prolonged straining or sitting on the toilet should be avoided.

OTC preparations claim to shrink hemorrhoids and to reduce inflammation, itching and pain. Although some sources claim that most OTC hemorrhoidal preparations do not, in fact, help very much, some people do find these OTC preparations helpful. Preparations come in both ointment and suppository form. Some agents are: Preparation H ®, Anusol ® and A&D Suppositories ®.

AGENTS THAT AFFECT THE RESPIRATORY TRACT

Other than specific diseases that affect the respiratory tract (such as tuberculosis, infections, emphysema, cancer, etc.), there are many non-specific ailments that produce uncomfortable symptoms. In general, these ailments are not life threatening and the OTC agents which are billed as "aids" or "cures" are not always that successful. These ailments include the effects of chronic smoking, chronic sinus conditions, asthma, allergic responses (hay fever, dust, etc.) or the symptoms of colds and flu.

THE "SNIFFLING, SNEEZING GROUP"

These are agents that affect the nose and nasal passages and consist of an assortment of preparations. As you may recall from your study of medications which affect the respiratory system, whenever the body is attacked by a foreign substance (such as dust, pollen or bacterial), the body's response is to engorge the tissue with fluids, thus producing swelling, raising the temperature and perhaps causing pain to make you aware of the invasion. If this attack is in the nose and nasal passage, then antihistamine medications are used to dry the tissue, stop the allergic response and reduce the sense of stuffiness. Some agents are: Contact ®, Zyrtec ®, Allegra ® and Chlor-Trimeton ®. Cautions and warnings should be given with this group of medications as they make one sleepy and less attentive. These effects can be enhanced by alcohol, so alcohol should be avoided.

THE "COUGHING GROUP"

The cough is a useful protective reflex by which the body attempts to clear the respiratory tract of excess materials. Coughing usually accompanies most respiratory diseases.

Most coughing, such as from chronic smoking, irritations, chronic sinus dripping, or from yelling too much at a sporting event, usually clears up within a few days and is not significant. However, prolonged coughing may also be a symptom of more serious disease and medical attention may be necessary. Coughing, when treated as a symptom rather than as a disease, usually responds to many over-the-counter agents. There are two common types of coughs: productive (wet cough) and non-productive (dry cough).

Both can be irritating and even prevent sleep or become forceful enough to cause vomiting. Agents that suppress the cough reflex include: Sucrets ®, Vicks 44 ® and Nyquil ®.

One should always have second thoughts about these agents. Suppressing the cough may do more damage than good. Cough drops do nothing to control or cure coughs. They only keep the throat area moist and cause you to swallow more often, thereby, soothing the condition. A piece of hard candy will have the same effect.

THE "SORE THROAT GROUP"

As with most of the cold symptoms, you must eliminate the cause, but there are some agents that help you feel better until the cause is corrected. Most aids to correct "sore throats" are in this category. These aids may make you feel better but do nothing to help you get better. They are available as gargles, sprays, lozenges and cough drops. These agents include: Sucrets ®, Halls ®.

Most mouthwashes are not effective. Probably the most effective gargle is salt in warm water. Sucking on hard candy is almost as effective as most lozenges.

THE "WHEEZING, TIGHT CHEST GROUP"

Most wheezing and tight chest symptoms come from difficulty in breathing due to bronchial constriction or physical obstruction due to mucous or disease process. Those agents used to relieve bronchial constriction are ephedrine-based, such as: Serevent Diskus ®, Proventil ® and Primatine Mist ®.

CAUTION: Some of these medications may cause an increase in the heart rate and irregular heart rhythms.

AGENTS THAT AFFECT THE EYE AND EAR

Since both the eyes and ears are very sensitive organs and are very delicate, almost all agents are prescriptive and should be administered under a physician's direction. However, there are a few that need to be mentioned.

THE EYE

The most common drops are Murine and Visine. These are used to constrict the vessels of the eyeball and reduce minor irritation due to pollen or dust. Prolonged or constant use is not recommended. The best treatment for local eye irritation is to cleanse with plain water.

THE EAR

The most common agents used in the ear soften wax build up or clean out the outer ear. These drops are usually a hydrogen peroxide mixture. Cerumenex ® is the best example. Agents used for minor ear irritation due to swimming (swimmer's ear) are Ear Dry and Swim Ear.

ACHES AND PAINS

At one time or another everyone has an ache or pain. Analgesics (pain relievers) and related agents are the most often purchased medication in the United States. Pain is a warning that something is wrong in the body and should not be overlooked. In this section, we will examine the more common aches and pains which can be temporarily or actually relieved with OTC medications.

HEADACHE AND FEVER

The number one OTC for headache is aspirin. However, aspirin can cause an upset stomach. To offset the upset stomach, give aspirin with milk or use a preparation of aspirin that is combined with Maalox ® called Ascriptin ®. Bufferin ® is a preparation which is less irritating to the stomach.

Sometimes aspirin comes combined with other agents, such as phenacetin and caffeine. Some examples are: APC Tablets ®, Excedrin ®, and Vanquish ®.

Usually, the difference between products is insignificant and it is senseless to spend the extra money for a fancy trade name.

Other popular headache remedies are Tylenol ® and Datril ®. These preparations differ from aspirin in that they are not anti-inflammatory and are not as likely to cause upset stomach. Because these agents lack anti-inflammatory properties, they are not usually indicated in the treatment of conditions such as arthritis.

Aspirin can cause allergic response in some people and overdosage is the single greatest cause of death by medication in young children in the United States.

For fever control, aspirin products are probably the best OTC preparation to use. A slightly elevated body temperature is nature's way to help us control mild infections. Recent literature advocates not treating a slightly elevated body temperature, but to instead let the fever run its course. Regardless, a very high temperature can be dangerous and should be treated by a physician.

MUSCLE, BONE AND JOINT PAIN

There are a group of medications called **counter irritants,** which when spread upon the skin, will cause an increase of blood flow to the area. This will create a feeling of warmth and the sensation of pain in the area will be diminished. These agents may be of comfort to people who have strained muscles or an occasional bone pain. Examples of counter irritants include: Deep-Heat ® and Ben Gay ®.

TOOTHACHE

Usually, a toothache is a sign of underlying dental problems and the individual should be examined by a dentist. Until you can get to the dentist, the discomfort might be relieved by aspirin or a topical application of Anbesol ®.

FOOTCARE

A callus is an overgrowth of tissue at a site of constant pressure. A corn is basically the same thing, but is located over the joints and between the toes. Prevention by elimination of undue pressure is very important. Pressure reduction methods include wearing softer and better fitting shoes, foam rubber pad or arch inserts.

Treatment to remove the tissue is sometimes necessary. Most of the over-the-counter preparations have salicylic acid as a base. When applying commercial agents, it is important to avoid the surrounding skin as it may cause a burn.

If corns and callouses are a chronic problem, it is best to seek the services of a physician. Some people, especially **diabetics** and **those with impaired circulation**, should always have this problem treated by a physician. OTC preparations include: Derma-Soft ®, Mosco ®, and Dr. Scholl's' Drop ®.

Athlete's foot is a superficial fungus infection. Good foot hygiene is an essential part of the treatment. Special care must be taken to keep the spaces between the toes clean and dry. OTC preparations which may help athlete's foot including: Tinactin ®, Desenex ®, and Cruex ®.

SKIN PRODUCTS

Many minor problems affecting the skin may be treated with OTC preparations. Many medications that you have already studied come in preparations intended for skin. What follows is a brief discussion of common problems which can effectively be treated at home.

SKIN ABRASIONS

An agent which is intended to kill germs on the skin is called an antiseptic. Many times the only treatment needed for a cut or scratch is to wash the area carefully with plenty of mild soap and water. Skin antiseptics which can be purchased include: Hydrogen Peroxide, Iodine and Unguentine ®.

If a cut or scratch shows signs of infection, it is best to seek medical attention. However, there are some non-prescription antibiotic creams available for minor infections. Some examples are: Neosporin ® and Bacitracin ®.

SUNBURN

Sunburn should be prevented. The most effective ingredient to prevent sunburn is PABA, which is contained in many sun screens. Always read the contents to determine if PABA is present. Many medications you have already studied (tranquilizers) may cause an increased sensitivity to the sun and these people should avoid the sun when possible.

In the event sunburn occurs, some OTC preparations will temporarily bring some relief. Examples are: Americaine ®, Solarcaine ®, and Unguentine Spray ®.

INSECT BITES AND ITCHING

To alleviate itching after the bites have occurred, hot water is probably the cheapest and most effective treatment. Corn starch baths (1 cup to 4 cups water mixed thoroughly, then added to bath water) are also effective for generalize itching. Another agent is a topical liquid, **Calamine Lotion ®.** It is possible to purchase a skin cream containing a small dose of cortisone. This preparation may also be helpful for other skin problems. One trade name available is **Cortaid ®.** Be sure to follow the directions on the label.

BEE STINGS

A home remedy for bee stings is to wet the area of the sting and apply an aspirin over the site. The aspirin tends to neutralize the bee venom.

ACNE

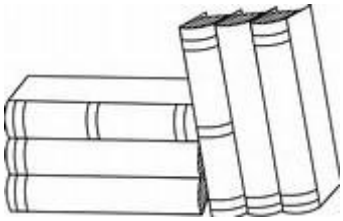
Acne sufferers have a wide range of OTC preparations from which to choose. Since pimples or acne-like conditions result from a variety of causes including foods and medications, it is best to have a physician try to determine the cause of the problem and take his/her advice as to the safe products to purchase.

In summary, the main responsibilities when administering any non-prescription medications include:

- Read label for route, dosage, side effects and contra-indications.
- Always compare this information with information of other medications the individual may be taking.
- Careful checking will help prevent medication interactions.
- Last, but not least, always treat over-the-counter medications with the same cautions that you use when administering medications.

MEDICATION ADMINISTRATION COURSE

RESOURCES



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PHARMACOLOGICAL

1. Bosco, D. The People's Guide to Vitamins and Minerals: From A to Zinc. 2016. Amazon.com ---prices vary

2. Campbell, C. Nursing Diagnosis and Intervention in Nursing Practice (Second Edition). 1989. John Wiley and Sons, New York. Approximate cost: $50.95. Amazon.com – prices vary 2016

3. Clark, Queener, Karb. Pocket Nurse Guide: Drugs. C.V. Mosby Co. Approximate cost: $19.95.

4. FDA – Drugs
   www.fda.gov/Drugs/default.htm
   Consumer watchdog in America's healthcare system. CDER's best-known job is to evaluate new **drugs** before they can be sold. The Center makes sure that safe and ... Drugs@FDA · Orange Book Search · Regulatory Information · News & Events

5. Nursing2017 Drug Handbook, Author(s): Lippincott ISBN/ISSN: 9781496322555
   http://www.lww.com/ $35.99

6. Drugs.com - Official Site
   https://www.drugs.com
   Online drug information in an A to Z format. Includes information about clinical trials, latest news, drug interactions, and a pill identifier.
   Pill Identifier · Drugs A to Z · Drug Interactions · Drug Side Effects · Drugs by Condition.

7. Drugs, Herbs and Supplements: MedlinePlus
   https://medlineplus.gov/druginformation.html
   Learn about your prescription drugs and over-the-counter medicines. Browse dietary supplements and herbal remedies.

8. Rx List - The Internet Drug Index for prescription drugs.
   rxlist.com
   Medications, prescription drug information, pill identifier and pharmacy locator (24 hr. pharmacies) for consumers and medical health professionals.

NURSING SKILLS BOOKS

1. Nursing Books - Springer Publishing
   www.springerpub.com/nursing.html
   Latest Nursing resources for health care professionals, educators & universities. View featured Nursing books and Nursing textbooks.

2. Elsevier Health Sciences - Medical books, -e-books
www.us.elsevierhealth.com
Professional medical textbooks for the medical, dental, veterinary, nursing, and other health professional fields. Free UPS Shipping on all orders.

3. LWW - Wolters Kluwer Health
www.lww.com
Lippincott Nursing Solutions. Lippincott Pass Point. Nursing Education Success. Lippincott LWW Health Library. Nursing · LWW Journals

DIABETES

1. American Diabetes Association - Official Site
Diabetes.org - American Diabetes Assoc®

2. What to Expect When You Have Diabetes
www.publishersweekly.com/978-1-56148-630-4
American Diabetes Association. What to Expect When You Have Diabetes

EPILEPSY

1. Epilepsy Foundation
www.epilepsy.com
The Epilepsy Foundation is your unwavering ally on your ... Childcare Professionals and Babysitters' Guide; Epilepsy ... Autism & Epilepsy.

TARDIVE DYSKINESIA

1. YouTube: www.youtube.com- search for videos on Tardive Dyskinesia. They can be shown in class.

2. Amazon.com: Tardive dyskinesia: Books
www.amazon.com › Search › Tardive dyskinesia
Online shopping from a great selection at Books Store.

3. Tardive Dyskinesia - books.google.com
books.google.com › Medical › Psychiatry › General
This book summarizes the progress made over the last decade in understanding the differential diagnosis and epidemiology of tardive dyskinesia, as well as risk factors.

LIBRARY/RESOURCE CENTERS

National Institutes of Health - Official Site
https://www.nih.gov CUSTOMER SERVICE 301-496-4000
Official website of the National Institutes of Health (NIH). NIH is one of the world's foremost medical research centers. An agency of the U.S. Department of Health

CDC - Official Site
www.cdc.gov
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1600 Clifton Road Atlanta, GA 30329-4027 USA
800-CDC-INFO (800-232-4636), TTY: 888-232-6348
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American Diabetes Association
South Texas Affiliate, Inc.
P. O. Box 14926
Austin, TX 78761

Association for Epilepsy Awareness
Epilepsy Clinic
IU Medical Center
P. O. Box 44186
Indianapolis, IN 46204
(317) 274-4974

Bethesda Lutheran Home
Resource and Outreach Services
700 Hoffmann Dr.
Watertown, WI 53094

Community Health Education Center
Anaheim Memorial Hospital
1111 West La Palma Ave.
Anaheim, CA 92803

Epilepsy Foundation of America
National Epilepsy Library and Resource Center
4351 Garden City Dr., Suite 406
Landover, MD 20785

International Diabetes Center
5000 West 39th St.
Minneapolis, MN 55416

Lincoln Memorial Education Foundation
Hospital Educators Resource Catalogs
P. O. Box 390090
Lincoln, NE 68503

Merck, Sharp, and Dohme
2010 Swift Drive P. O. Box 7933
Chicago, Illinois 60680
(A directory of medical informational films)

Pharmaceutical Manufacturers Association
1155 Fifteenth Street N.W.
Washington, D.C. 20005
("Health Care and the Consumer:
A Guide to Informational Materials)

AUDIOVISUAL RESOURCES

Medcom Trainex - YouTube
www.youtube.com/channel/UCmgD3flUhnNQdMuPEAJ3mHQ
For over 50 years, Medcom-Trainex has been a leading producer and distributor of healthcare education in a wide range of formats. Search Medication Administration Videos.

Prevention and Control of Infections with Hepatitis
www.cdc.gov/mmwr/preview/mmwrhtml/rr5201a1.htm
Infectious diseases --- including acquired immune deficiency syndrome ... and measures to prevent ... and control of hepatitis C virus (HCV) infection and HCV

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