



Student Manual

Certified Medication Technician

2008 Revision



Missouri Department of Elementary and Secondary Education
Division of Career Education
Missouri Center for Career Education at Central Missouri State University

Certified Medication Technician

Student Manual

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PREFACE

This Medication Technician curriculum was originally developed for implementation in 1978. Its purpose was to satisfy federal regulations requiring a “state-approved” training program in medication administration for unlicensed personnel administering medications in certified skilled nursing facilities (CFR 405.1124 [g]) and certified intermediate care facilities (CFR 442.337). In addition, this course was later mandated for like personnel in “state-licensed-only” skilled and intermediate care facilities (non-certified) beginning June 11, 1981 (Missouri Nursing Home Rule 13CSR15-14.042[46]).

The 1978 curriculum was developed in a collaborative effort between the Bureau of Nursing Home Licensure and Certification, Division of Health (now the Department of Health and Senior Services) and the Department of Elementary and Secondary Education. Primary authors were Ann Wormsley, R.N., Division of Health, and Yolanda Dolecki, R.N., Ed D., Department of Education. In 1982, the curriculum guides were revised somewhat, mostly reflecting changes in regulations.

The 1985 revision incorporated a significant reorganization of the curriculum content, updating of regulations and an all new drug information section. The updated training manual (curriculum guide) represented the collective thinking and philosophy of the ad hoc committee members, several of whom deserve special recognition for their outstanding contributions: Vada Arrowood for overall guidance and in facilitating the reorganization of the instructional analysis section; Maria Oliver for incorporating changes into the master manual; Pat Winberg for finalization of that process in addition to preparing the final document for printing; and Scott Weber for compiling the drug information section. Many individuals served on the ad hoc committee and we are most grateful for their time and assistance with the 1985 revision.

In 1993, the Missouri Division of Aging formed an ad hoc committee to review the curriculum for accuracy, relevancy, and organization. Oral metered dose inhalation medications, transdermal patches, and body substance precautions were incorporated. Several committee members deserve special recognition for their writing contributions: Donna Albrothross, Jim Bercheck, Lois Bonnot, Gwen Gevecker, Teresa Johnson, Barbara Primm, Phyllis Robichaud, Scott Weber, and Tom Whalen. The committee reviewed and commented on the revised curriculum. Also, the committee recommended that the course be taught in 60 hours. Although she did not serve on the committee, Betty Phillips, R.N., deserves special thanks for reviewing and commenting on the curriculum.

In 2004, it was determined that the text and regulations were again in need of revision. A committee consisting of representatives from a variety of public and private agencies across the state was selected by the Department of Health and Senior Services. Under the direction of Donald Scott with the Missouri Center for Career Education at Central Missouri State University, committee members utilized an on-line forum to submit recommended changes and make comments on proposed revisions. All of the committee members deserve special recognition for their time and commitment to the development of this manual. The Department of Elementary and Secondary Education has also determined that this manual will now be available online for students and instructors free of charge.

During 2008, the text and regulations were reviewed and revised to reflect best practices and the promulgation of Missouri rule 19 CSR 30-84.020 which recognized this manual as the official state manual leading to the certification of new Certified Medication Technicians. Under the direction of Donald Scott with the Missouri Center for Career Education at Central Missouri State University, the standing 2004/2005 committee members again reviewed and recommended changes to proposed manual revisions. Once committee approval was received, the document was submitted to the Department of Health and Senior Services, Division of Health Standards and Licensure for further review and comments. As in 2005, it has been determined that this manual will be available online for students and instructors free of charge.

ACKNOWLEDGMENTS

This revision of the Certified Medication Technician Manual is the result of the collaborative efforts of a dedicated group of professionals who reviewed the content and provided valuable suggestions and corrections. A book of this size represents an enormous investment of both time and talent. Special thanks to those who saw the project through to its completion and shared invaluable knowledge in their areas of expertise.

Thanks to Donald Scott, the staff at the Missouri Center for Career Education, Shelly Wehmeyer and Gavin Allan, Department of Elementary and Secondary Education, and Lois Bonnot, Betty Markway, Danette Beeson and Anna Long, Department of Health and Senior Services, who provided leadership and enthusiasm throughout the development of this manual.

Many thanks to the families, friends and colleagues of all those who worked on the project for their understanding, patience and encouragement during the process.

DEDICATION

This book is dedicated to Lois, Gail, Mary, Jean, Tory, Esther, Danette, and Anna at the Missouri Department of Health and Senior Services, Section for Long Term Care Health Education Unit and Division of Regulation and Licensure. Your knowledge, patience, and support year after year are appreciated.

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GLOSSARY

Abuse – the infliction of physical, sexual, verbal, mental, or emotional injury or harm. Example: Forcing a resident to take medications.

Addiction – emotional or physiological dependence upon a drug which has progressed beyond voluntary control.

Adverse drug affect – a harmful, unintended reaction to a drug administered at normal dosage.

Allergic reactions:

1. Hypersensitivity – unusual sensitivity to a drug such as mild skin rash, swelling, itching, and nasal congestion.
2. Anaphylaxis – severe, life threatening hypersensitivity to a drug such as extreme weakness, nausea and vomiting, cyanosis, dyspnea, hypotension, shock, and respiratory or cardiac arrest. Usually occurs within minutes of administering the drug.

Antagonism – condition in which two drugs work against each other, decreasing effectiveness of one or both (e.g., tetracycline and antacid).

Antidote – a drug given to reverse the effects of a previously given drug.

Assault – threat or attempt to injure another in an unlawful manner. Example: Telling a resident; “If you don’t be quiet, I’ll tie your hands down.”

Aural – pertaining to the ear.

Battery – unlawful application of force to the person of another. Example: Carrying out a threat.

Breach – breaking of a law, or of any obligation or contract.

Cells – the basic unit of all living things.

Certified Medication Technician – shall mean a nursing assistant who has completed a course in medication administration approved by the Department of Health & Senior Services.

Chemical restraint – shall mean any medication that is used for discipline or convenience and not required to treat medical symptoms. For the purposes of this definition, discipline means any action taken by the facility for the purpose of punishing or penalizing residents and convenience means any action taken by the facility to control a resident’s behavior or maintain a resident with a lesser amount of effort by the facility and not in the resident’s best interest.

Conduct – one’s action in general; behavior.

Consent – permission granted voluntarily by a person in his/her (sound/clear) mind.

Contraindications – existing conditions that the resident may have which are incompatible with the drug (e.g., Inderal given to asthmatic resident).

Control of medication – shall mean assuming responsibility by the facility for all facets of control of medication including, but not limited to, acquisition, storage, security and administration.

Controlled drugs/controlled substances – drugs covered by the Federal and State Controlled Substance Acts (e.g., codeine).

Cumulative effect – buildup of a drug in the body that may occur rapidly or slowly over time.

Custom – long-established practice; an accepted behavior.

Disease – pathological or abnormal condition of the body.

Dosage – amount of a medication given at one time.

Drug – a substance taken into or applied to the body to treat or prevent a disease or condition (e.g., Advil).

Duty of care – the obligation under law for a health care worker to perform services for a resident that meet the common standards of practice expected in his or her community for a comparable worker.

Enteric coated – tablets that are coated so that they dissolve in the small intestines rather than in the stomach.

Ethics – the discipline dealing with that which is good and bad and that which is moral duty and obligation.

False imprisonment – unjustified detention of a person. Example: Preventing a competent resident from leaving a facility

Generic name – the common name assigned to a drug; the generic name stays the same from one manufacturer to another; whereas, the trade or brand name changes with each manufacturer. Example: ibuprofen (generic name) for Advil or Motrin (trade/brand names).

HIPAA (Health Insurance Portability and Accountability Act of 1996) – a law that protects people who have preexisting medical conditions or might suffer discrimination in health coverage based on something that relates to an individual's health and mandates privacy of health information.

Ideal – a standard of perfection or excellence.

Idiosyncrasy – an individual's unique hypersensitivity to a particular drug.

Indications – various conditions or symptoms for which the drug may be given.

Invasion of privacy – a civil wrong that unlawfully makes public knowledge of any private or personal information without the consent of the wronged person.

Lethal dose – amount of a drug that will cause death.

Libel – a false and malicious publication in writing about an individual or group to a third party.

Malpractice – improper or negligent treatment of a resident or patient resulting in damage or injury. Example: The CMT gives medications to the wrong resident and does not report the error to the nurse.

Neglect – failure of person(s) responsible for an individual to provide necessary services to maintain the physical and mental health of the individual, when such failure presents an imminent or probable danger or death to the individual. Example: walking away from a resident's bedside without putting the side rails up when side rail use is ordered by the physician and is included in the plan of care.

Negligence – failure to perform in a reasonably prudent manner or by acceptable health care practices. Example: Not giving medications to a resident as ordered by the physician.

Ophthalmic – pertaining to the eye.

Organs – a group of tissues that perform a single function.

Overdose – a dose of a drug in an amount that causes an acute reaction such as coma or even death.

Otic – pertaining to the ear.

Parenteral – a medication route other than the digestive system such as intravenous, subcutaneous, intramuscular, or mucosal.

Physical dependence – a physical state in which the body adapts to a drug and experiences symptoms of withdrawal when the drug is abruptly stopped or the dose is rapidly lowered. Physical dependence is a normal result of the use of certain drugs and rarely leads to addiction.

Placebo – an inactive substance prescribed by a doctor as if it were an effective dose of medication and believed by the resident to be a medication.

Premises – shall mean any structure or structures that are in close proximity one to the other and which are located on a single piece of property.

Privileged communication – any personal or private information, which is relevant to a resident's care, which the resident gave to medical personnel.

Psychological dependence – a compulsion to use a drug, often for its mood altering effects, preoccupation with obtaining and using a drug. May lead to addiction.

Self administration of medication – shall mean the act of actually taking or applying medication to oneself.

Self control of medication – shall mean assuming immediate responsibility by a resident for the storage and administration of medication for oneself while the facility retains ultimate control of medication.

Side effects – any effect of a drug other than the one for which it is given.

Slander – to make any oral defamatory false remark about another; spoken words that tend to damage the reputation of another.

Spansule – small particles of a drug coated with compounds which require varying amounts of time to dissolve.

Subcutaneous – injected into the tissues just below the skin, dermis.

Sublingual – under the tongue, without liquid.

Synergism – two drugs working together to give an effect greater than their individual effect (e.g., analgesics with antianxiety drugs).

Systems – a group of organs working together with a specific function.

Therapeutic effect – the desired effect of a drug.

Tissues – groups of similar cells combine to form tissues.

Tolerance – a condition in which the body becomes increasingly resistant to a drug due to continued exposure; and requiring an increased amount of a drug to produce the same effect a lesser amount previously produced.

Toxicity – symptoms or effect of poisoning of the body by a drug due to large dose of a drug or a cumulative effect of the drug.

Trade or brand name – name by which a drug is marketed; commonly recognized name of a drug.

Unethical – not ethical; not representative of ideal behavior.

Value system – behavior related to a pattern of conduct or ideas that are accepted as worthwhile or meaningful.

LESSON PLAN: 1

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

SCOPE OF UNIT:

This unit covers course objectives and requirements, the role of the medication technician related to the health care team, and state and federal controls.

INFORMATION TOPIC: I-1 OR DEMONSTRATION:

BECOMING A MEDICATION TECHNICIAN
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. List the goals and objectives of the course.
2. List the qualifications of students in the medication technician course.
3. List the methods used to evaluate student performance.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Samples of evaluation tools (tests, procedure pages, etc.)

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 1 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

The purpose of this course is to prepare you to become a Certified Medication Technician qualified to administer selected categories of medications to residents of long-term care facilities under the supervision of licensed nursing personnel according to state-approved curriculum.

LESSON PLAN: 1

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

OUTLINE:

I. Goals and Objectives

- A. Prepare, administer, and chart medication by oral, rectal, vaginal, otic, ophthalmic, nasal, topical, and pulmonary routes.
- B. Use appropriate infection control measures when administering medications.
- C. Observe, record, evaluate, and report responses of residents to medications given.
- D. Identify responsibilities associated with control and storage of medications.
- E. Identify and utilize appropriate reference materials.
- F. Relate common side effects, interactions, and nursing implications of common medications.
- G. Identify lines of authority and areas of responsibility.
- H. Identify what constitutes a medication error.

II. Student Qualifications

- A. High school diploma or GED certificate.
- B. A minimum score of 8.9 on both Vocabulary and Comprehension tests and a minimum of 7.0 on Mathematics Concepts and Applications on the Tests on the D level of the Test of Adult Basic Education (TABE) administered by the educational training agency.
- C. Six (6) months of employment as a certified nurse assistant (CNA) who is listed as active on the Missouri CNA Registry.
- D. For an individual currently employed in a long-term care facility, a letter of recommendation submitted to the educational training agency by the administrator or director of nursing of the facility, or for an individual not currently employed in a long-term care facility, a letter of recommendation submitted to the educational training agency by a previous long-term care employer.

- E. The individual is not listed on the department's Employee Disqualification List (EDL) and does not have a Federal Indicator on the Missouri CNA Registry or any other State's CNA Registry that the educational training agency has checked based on a belief that information on the individual may be included.
- F. The individual has not been convicted of or entered a plea of guilty or nolo contendere to a crime in this state or any other state, which if committed in Missouri would be a Class A or Class B felony violation of Chapters 565, 566 or 569, RSMo, or any violation of subsection 3 of section 198.070, or section 568.020, RSMo, unless a good cause waiver has been granted by the department under the provisions of 19 CSR 30-82.060
- G. The individual meets the employment requirements listed in 19 CSR 30-85.042 (32). Students who drop the CMT course due to illness or incapacity may reenroll within six (6) months of the date the student withdrew from the course and make up the missed course material upon presenting proof of prior attendance and materials covered if allowed by the educational training agency's policy.

III. Course Evaluation

- A. Worksheets.
- B. Written tests – to be eligible for the final examination, students shall have achieved a score of at least eighty percent (80%) on each written examination in the course curriculum. The final examination shall include fifty (50) multiple choice questions based on the course objectives accessed through the department's website. A score of at least eighty percent (80%) is required for passing.
- C. Classroom discussion.
- D. Performance tests – the practicum exam shall include preparing and administering all non-parenteral routes and documenting administration of medications administered to residents. It shall be conducted under the direct supervision of the department approved instructor or examiner and the person responsible for medication administration in the ICF/SNF. Testing on medications not available in the ICF/SNF shall be done in a simulated classroom situation.
- E. Drug/medication cards – list a minimum of twenty-five (25) drugs commonly used in a facility and write out their:
 - 1. Brand name.
 - 2. Generic name.

3. Indications.
4. Usual dosage.
5. Precautions.
6. Actions.
7. Contraindications.
8. Warnings/Alerts.
9. Drug interactions.
10. Adverse reactions.
11. Symptoms of overdose.

IV. Summary and Conclusion

- A. Goals and objectives.
- B. Qualifications of students.
- C. Evaluation.

In this lesson, we have explored the purposes and objectives of this course, listed qualifications of students, and outlined how you will be evaluated in this course.

In our next lesson, we will take a look at the health care team of a long-term care facility and its relationship to the medication technician. Take a few minutes to review the organizational structure of a long-term care facility. Can you identify those individuals at your place of employment?

LESSON PLAN: 1

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

EVALUATION ITEMS:

1. List eight course objectives.
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.
2. List three qualifications of students in the medication technician course.
 - a.
 - b.
 - c.
3. List five methods used to evaluate student performance.
 - a.
 - b.
 - c.
 - d.
 - e.

4. Which of the following is a requirement for students enrolled in the CMT course?
- a. College degree.
 - b. 3 years of employment as a certified nurse assistant.
 - c. Score of 100% on the TABE test.
 - d. CNA in good standing.

LESSON PLAN: 2

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

SCOPE OF UNIT:

This unit covers course objectives and requirements, the role of the medication technician related to the health care team, and state and federal controls.

INFORMATION TOPIC: I-2 OR DEMONSTRATION:

LONG-TERM HEALTH CARE TEAM
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Trace lines of authority in a sample organizational chart of a long-term care facility.
2. Identify the responsibilities of the long-term health care team which includes the following: Administrator, physician, pharmacist, registered nurse, licensed practical nurse, and medication technician.
3. List six (6) tasks a medication technician may NOT perform.
4. Identify how the legal and ethical issues affect health care personnel.
5. Identify guidelines to follow to avoid medical/legal problems.
6. Identify situations that would constitute a breach in confidentiality of a resident's protected health information (HIPAA).

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. HO 1: Organizational Structure – Long-Term Health Care Facility
2. HO 2: Abuse and Neglect Reporting.
3. HO 3: Resident's Rights – State of Missouri.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 2 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

The term “health care team” is another way of describing the people who join together to assess, develop plans of care, provide care, and re-evaluate residents who require long-term care. The term illustrates that it takes more than one person to provide optimal health care to any resident or group of residents. In this lesson you will learn who makes up the health care team, their specific responsibilities, and the medical/legal aspects of medication therapy.

LESSON PLAN: 2

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

OUTLINE:

- I. Organizational Structure – Long-Term Health Care Facility (HO 1)
- II. Role of the Health Care Team Members Involved in Medication Therapy – governed by state and federal regulations by varying degrees.

NOTE: The organizational structure of a Long Term Care facility may vary from the example provided in this text. The size of the facility and affiliation with a larger healthcare corporation may affect the manner in which the team is set up.

- A. Administrator – responsible for all departments within the long term care facility.
 1. Responsible for all policies and procedures.
 2. Guides the quality assurance process.
 3. Responsible for adequate staffing resources.
 4. Responsible for lines of accountability.
- B. Physician/medical provider – Medical Doctor (MD), Doctor of Osteopathy (DO), Nurse Practitioner (NP), or Physician's Assistant (PA).
 1. Performs annual physical exam.
 2. Diagnoses the resident.
 3. Orders medications and treatments.
- C. Pharmacist – allied health professional.
 1. Provider role – drug delivery and administration systems. Services include:
 - a. Labeling.
 - b. Packaging.
 - c. Record and audit systems.

- d. Accountability of controlled drug supplies and emergency drugs.
- 2. Consultant role – establish policy concerning drug use, drug regimen review, and in-service education. Services include:
 - a. Monthly chart review/drug regimen review.
 - b. Identifying irregularities in drug use.
 - c. Providing drug information.
 - d. Serving on committees such as Quality Assurance and Assessment
 - e. Developing drug use policy.
 - f. Performing medication pass reviews.
- D. Registered Nurse (RN) – allied health professional.
 - 1. Leader of nursing team.
 - 2. Supervises medication technician.
 - 3. Takes and records telephone and verbal orders.
 - 4. Administers parenteral medications.
 - 5. Is an educator.
- E. Licensed Practical Nurse (LPN).
 - 1. Supervises medication technician.
 - 2. Takes and records telephone and verbal orders.
 - 3. Administers parenteral medications including IV medications IV certified.
- F. Medication technician responsibilities.
 - 1. Meets basic care needs of the residents.
 - 2. Reports and records information related to drug administration.
 - 3. Maintain aseptic conditions by using body substance precautions.
 - 4. Measure vital signs (TPR, B/P, and apical pulse); (refer to CNA manual).

5. Prepare, administer, report, and record medications by the oral, ophthalmic, otic, topical, transdermal patch, respiratory, nasal, vaginal and rectal routes.
6. Safeguard medication preparation and storage area.
7. Count controlled substances (per facility policy).
8. Transcribes orders (per facility policy).
9. Records and removes unused medications from active area.
10. Safeguards medications.
11. Gives simple precautions and directions to residents.
12. Administers oxygen by nasal cannula when the resident has a physician's order for oxygen and after assessment by licensed nurse.
13. Administers inhaled medications using a nebulizer if permitted by facility policy. Due to variances in equipment, the facility must provide the Certified Medication Technician with training on the operation of the nebulizer system(s) being used in the facility prior to their use. Documentation of this training and competency in use of the equipment must be placed in the employee's record.
14. Monitors resident's health status such as vital signs and pain scale scores and reports abnormalities to the licensed nurse.
15. Adheres to facility policies.

NOTE: The Medication Technician may be employed in a Skilled or Intermediate Care facility (SNF/ICF). A CMT cannot set up or administer medications when working in any other setting including but not limited to home care or hospitals.

III. The Medication Technician Does NOT:

- A. Inject parenteral drugs with the exception of insulin if insulin certified.
- B. Administer bladder instillations.
- C. Calculate drug dosages or conversions.
- D. Dispose of medications.
- E. Administer oxygen by a re-breathing mask or nasal catheter.
- F. Administer enteral nutrition, fluids or medications via a feeding tube including but not limited to gastrostomy, jejunostomy, nasogastric (NG) or Nasointestinal (NI) tubes.

IV. Health Care Personnel, Law and Ethics

- A. As an employee in the health care occupations, it is important for you to be aware of your legal and ethical responsibilities to prevent medical/legal problems.
- B. When you care for residents or have access to their records, you are expected to maintain their confidence and trust. Any violation of the resident's trust and confidence may be defined as an illegal or immoral act.
- C. There are certain laws which protect the rights of residents who enter long-term or other health care facilities (HO 2, HO 3). The resident voluntarily signs an admission agreement giving his or her consent for treatment and care.
- D. Missouri State Regulations require that each person who has, or may have contact with residents, wear an identification badge while on duty. The badge must give the employee's name, title and if applicable the state of their license or certification as a health care professional. This rule applies to all personnel who provide services to any resident directly or indirectly.
- E. Some possible situations for legal problems might be:
 - 1. Assault (threat or harm) – For example telling a resident "If you don't be quiet, I'll tie your hands down."
 - 2. Restraining a resident – All restraints require a physician's order. They are used only as a last resort when the resident could harm himself or others.
 - 3. Gossiping about residents may be defined as "defamation of character" or "defamation by slander."
 - 4. A written entry in a chart such as "the resident was a cross old crackpot today" could be defined as written defamation and "libel."
 - 5. Personal information about residents comes under the classification of "privileged information." Talking about a resident with or around others not directly involved in the resident's care violates the resident's right to confidentiality.
 - 6. In the long-term care facility, a surveyor may want to look at resident's skin. Without the resident's consent or proper screening, this could be an "invasion of privacy."
 - 7. Performing procedures outside the scope of practice of a medication technician or performing procedures that you have not been trained to perform.

8. Documenting procedures or medications prior to actually performing the procedure or administering the medications.

F. As a health care worker, you must become familiar with legal and ethical terms that will assist you in understanding your responsibility and help you uphold your resident's rights.

G. Legal documents or records are accepted in the courts of law as evidence of truth. A resident's chart is a legal document or record. The "signed consent" is a legal record, just as a will is a legal document. The consent must be voluntarily signed in ink by a resident of sound mind. The signing must be witnessed by at least two persons aged 21 or over.

V. Guidelines to Avoid Medical/Legal Problems

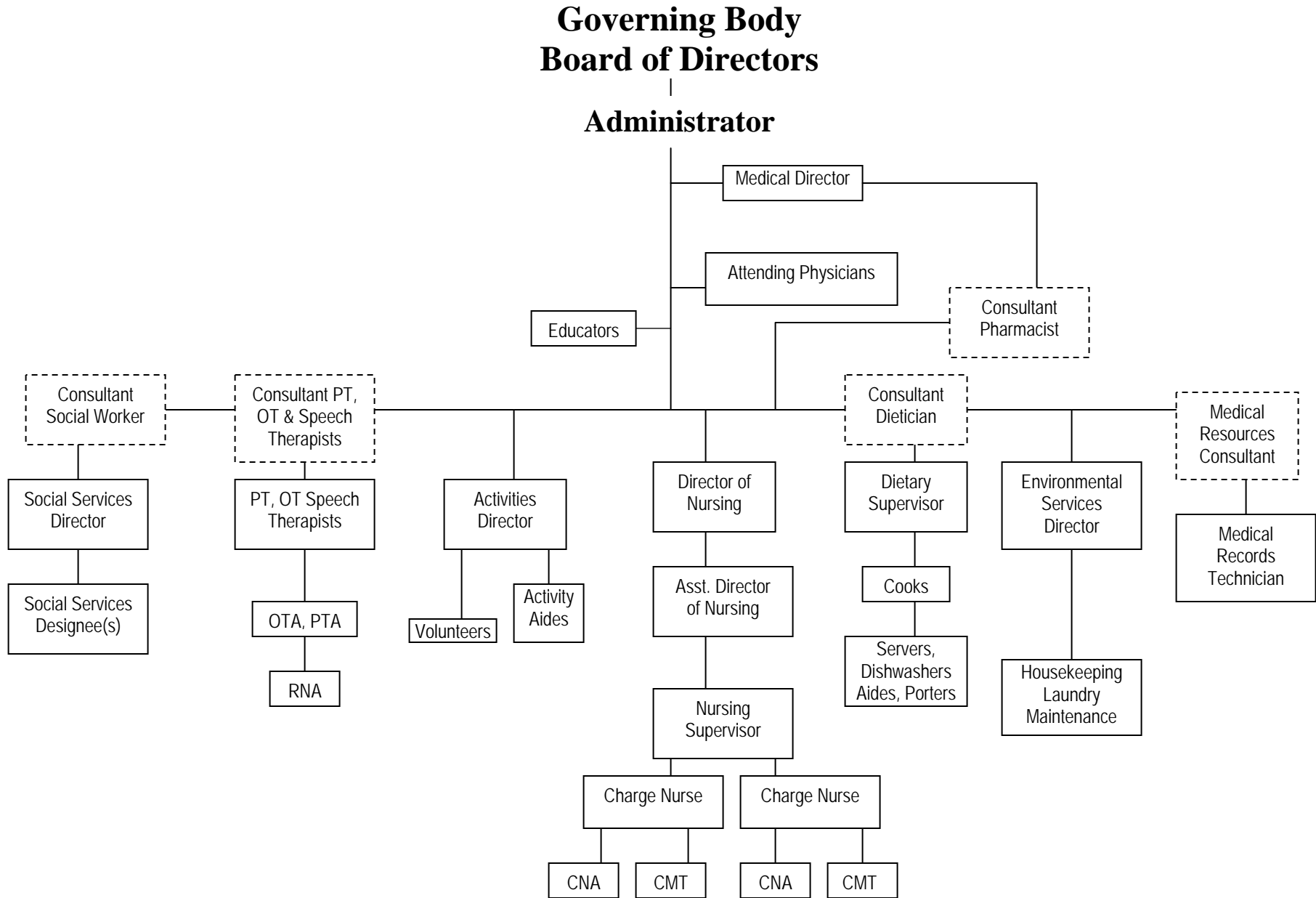
1. Maintain good relationships with residents, family members and coworkers.
2. Remember that the resident is your responsibility.
3. Observe the resident's rights and avoid violating them.
4. Prepare all paper work accurately and in a timely manner according to facility policy.
5. Know your lines of authority. Do only those things which you have been trained and supervised to do. Seek assistance from your charge nurse if you are in doubt.
6. Be familiar with and follow facility and pharmacy policies and procedures.

VI. Summary and Conclusion

- A. Organizational structure.
- B. Responsibilities of the team members involved in medication therapy.
- C. Tasks a medication technician may NOT perform.
- D. Medical/Legal terminology.
- E. Legal and ethical issues affecting health care personnel.
- F. Guidelines to avoid medical/legal problems.

The next lesson is on state and federal controls.

ORGANIZATIONAL STRUCTURE OF A LONG-TERM CARE FACILITY



ABUSE AND NEGLECT REPORTING

The following is a summary of the Omnibus Nursing Home Act in Section 198.070. It is only a summary of key points specific to the instructor and student of this manual for use in long-term care facilities. For a complete reference, refer to the Missouri Code of State Statutes at 198.070.

When any long term care facility employee has reasonable cause to believe a resident has been abused or neglected or financially exploited, the employee shall immediately report or cause a report to be made to the Department of Health and Senior Services.

The report shall contain the name and address of the facility, the name of the resident, information regarding the nature of the abuse or neglect, the name of the person making the complaint, and any other information, which might be helpful in an investigation.

Anyone who fails to make a report or cause a report to be made within a reasonable time after the act of abuse or neglect is guilty of a class (A) misdemeanor.

When the Department of Health and Senior Services receives a report, the department will begin an investigation within twenty-four hours. The department will notify the resident's next of kin or responsible party of the report and the investigation and will further notify them whether the report was substantiated or unsubstantiated. The department will report substantiated abuse to the appropriate law enforcement agency and prosecutor.

If the investigation indicates possible abuse or neglect of a resident, the investigator shall refer the report to the department director for appropriate action. If the department has reasonable cause to believe that immediate removal is necessary to protect the resident from abuse or neglect, the department will seek to protect the resident by petitioning to have the resident removed for temporary care and protection.

Reports shall be confidential.

Anyone, except any person who has abused or neglected a resident in a facility, who makes a report or who testifies in any administrative or judicial proceeding shall be immune from any civil or criminal liability for making such a report or for testifying. It is a crime for any person to purposefully file a false report of elder abuse or neglect.

Within five working days of making the report, the reporter will receive notice that the investigation was initiated.

No person who directs or exercises any authority in a facility shall evict, harass, dismiss or retaliate against a resident, family member or employee who makes an abuse or neglect report to the department. If the reporter has reasonable cause to believe retaliation is being committed against him or her, the department shall provide information about their rights, protections, and options in these cases.

Any person who abuses or neglects a resident of a facility is subject to criminal prosecution.

The department shall maintain the Employee Disqualification List (EDL) and shall place the names of any persons who are or have been employed in any facility and who have been found to have knowingly or recklessly abused or neglected a resident. A person acts “knowingly” with respect to the person’s conduct when a reasonable person should be aware of the result caused by his or her conduct. A person acts “recklessly” when the person consciously disregards a substantial or justifiable risk that the person’s conduct will result in serious physical injury and such disregard constitutes a gross deviation from standard of care that a reasonable person would exercise in the situation.

The Missouri Department of Health and Senior Services Elder Abuse and Neglect Hotline phone number is (800) 392-0210.

RESIDENTS RIGHTS - STATE OF MISSOURI

Title 13 - DEPARTMENT OF HEALTH AND SENIOR SERVICES
Division 30 - Division of Health Standards and Licensure
Chapter 88 – Resident's Rights and Handling Resident Funds and
Property in Long-Term Care Facilities

19 CSR 30-88.010 - effective August 28, 2001; amended: filed March 1, 2004 - effective Oct. 30, 2004.

NOTE: Underlined regulations are specific to the duties and responsibilities of certified medication technicians. I, II, and III refer to the class of deficiencies. Class I deficiencies are the violation of which would present either imminent danger to the health, safety, or welfare of any resident, death or serious harm. Class II deficiencies are violations which have a direct or immediate relationship to the health, safety, or welfare of any resident but does not create imminent danger. Class III is deficiencies that have an indirect or a potential impact on any resident.

Requirements for all types of Licensed Long-Term Care Facilities.

The resident has the:

1. The facility shall retain and make available for public inspection at the facility to facility personnel, residents, their families or legal representatives and the general public, a list of names, addresses and occupations of all individuals who have a property interest in the facility as well as a complete copy of each official notification from the Division of Aging of violations, deficiencies, licensure approval, disapprovals, or a combination of these, and responses. This includes, as a minimum, statements of deficiencies, copies of plan(s) of correction, acceptance, or rejection notice regarding the plan(s) of corrections and revisit inspection report. II/III
2. Any notice of noncompliance shall be posted in a conspicuous location along with a copy of the most recent inspection reports, as required by section 198.026(6), RSMo. II/III
3. A copy of the most current Division of Aging rules governing the facility shall be kept available and easily accessible in the facility for review by residents, their families, legal guardians and the public. II/III
4. Each resident admitted to the facility, or his/her guardian or legally qualified representative, shall be fully informed of his/her rights and responsibilities as a resident. These rights shall be reviewed annually with each resident, guardian or legally qualified representative, either in a group session or individually.
5. All incoming and present residents in a facility shall be provided statements of resident rights along with rules governing conduct and responsibilities in a manner

which effectively communicates, in terms the resident can reasonably be expected to understand, those rights and responsibilities. II/III

6. The facility shall document the disclosure of resident's rights information to the resident or his/her legal guardian. III
7. Information regarding resident rights and facility rules shall be posted in a conspicuous location in the facility and copies shall be provided to anyone requesting this information. Informational documents which contain, but are not limited to, updated information on selecting an Alzheimer's special care unit or program shall be given by a facility offering to provide or providing these services to any person seeking information about or placement in an Alzheimer's special care unit or program. III
8. Prior to or at the time of admission and during his/her stay in the facility, each resident shall be fully informed, in writing, of services available in the facility and of related charges, including any charges for services not covered by the facility's basic per-diem rate or federal or state programs. Information shall include procedures to be followed by the facility in cases of medical emergency, including transfer agreements and costs. All residents who receive treatment in an Alzheimer's special care program or unit and their next of kin, designee, legally qualified representative or guardian shall be given a copy of the Alzheimer's Special Care Services Disclosure Form at the time of admission. Residents also shall be informed of services outside the facility which may reasonably be made available to the resident and of any reasonable estimate of any foreseeable costs connected with those services. II/III
9. Prior to or upon admission, each prospective resident or each resident shall be informed of the home and community based services available in this state by providing such resident a copy of the most current Missouri's Guide to Home and Community Based Services, incorporated by reference, or any successor pamphlet as may be incorporated by reference in a subsequent amendment to this section. III
10. Prior to or upon admission and at least annually after that, each resident or guardian shall be informed of facility policies regarding provision of emergency and life sustaining care, of an individual's right to make treatment decisions for him/herself and of state laws related to advance directives for health-care decision making. The annual discussion may be handled either on a group or on an individual basis. Family members or other concerned individuals also shall be informed, upon request, regarding state laws related to advance directives for health-care decision making as well as the facility's policies regarding the provision of emergency or life-sustaining medical care or treatment. If a resident has a written advance health-care directive, a copy shall be placed in the resident's medical record and reviewed annually with the resident unless, in the interval, he/she has been determined incapacitated, in accordance with section 475.075 or 404.825, RSMo. Residents' guardians or health care attorneys-in-fact shall be contacted annually to assure their accessibility and understanding of the facility policies regarding emergency and life-sustaining care. II/III

11. A physician shall fully inform each resident of his/her health and medical condition unless medically contraindicated. If the physician determines the resident's medical condition contraindicates his/her being fully informed of his/her diagnosis, treatment or any known prognosis, the medical record shall contain documentation and justification of this signed by the physician. If there is a legally authorized representative to make health-care decisions, that person shall be fully informed of the resident's medical condition and shall have free access to the resident's medical records for that purpose, subject to the limitations provided by the power of attorney or any federal law. I/II
12. Each resident shall be afforded the opportunity to participate in the planning of his/her total care and medical treatment, to refuse treatment and to participate in experimental research only upon his/her informed written consent. If a resident refuses treatment, this refusal shall be documented in the resident's record and the resident, legal guardian, or both, shall be informed of possible consequences of not receiving treatment. II
13. Each resident shall have the privilege of selecting his/her own physician who will be responsible for the resident's total care. II
14. No resident shall be transferred or discharged except in the case of an emergency discharge unless the resident, the next of kin, the legal representative, the attending physician and the responsible agency, if any, are notified at least thirty (30) days in advance of the transfer or discharge, and casework services or other means are utilized to assure that adequate arrangements exist for meeting the resident's needs. II
15. A resident may be transferred or discharged only for medical reasons or for his/her welfare or that of other residents, or for nonpayment for his/her stay. II
16. No resident may be discharged without full and adequate notice of his/her right to a hearing before the Department of Social Services and an opportunity to be heard on the issue of whether his/her discharge is necessary. Such notice shall be given in writing no less than thirty (30) days in advance of the discharge except in the case of an emergency discharge and must comply with the requirements set forth in 19 CSR 30-82.050. II/III
17. In emergency discharge situations a written notice of discharge and right to a hearing shall be given as soon as practicable. II/III
18. A room transfer of a resident within a facility, except in an emergency situation, requires consultation with the resident as far ahead of time as possible and shall not be permitted where this transfer would result in any avoidable detriment to the resident's physical, mental, or emotional condition. II/III
19. Each resident shall be encouraged and assisted, throughout his/her period of stay, to exercise his/her rights as a resident and as a citizen and to this end a resident may voice grievances and recommend changes in policies and services to facility personnel or to outside representatives of his/her choice. A staff person shall be

designated to receive grievances and the residents shall be free to voice their complaints and recommendations to the staff designee, an ombudsman or to any person outside the institution. Residents shall be informed of and provided a viable format for recommending changes in policy and services. The facility shall assist residents in exercising their rights to vote. II/III

20. The exercise of resident rights shall be free from restraint, interference, coercion, discrimination or reprisal. II/III
21. Each resident shall be free from mental and physical abuse. I
22. The resident has the right to be free from any physical or chemical restraint except as follows:
 - (A) When used to treat a specified medical symptom as a part of a total program of care to assist the resident to attain or maintain the highest practicable level of physical, mental or psychosocial well-being. The use of restraints must be authorized in writing by a physician for a specified period of time; or
 - (B) When necessary in an emergency to protect the resident from injury to him/herself or to others, in which case restraints may be authorized by professional personnel so designated by the facility. The action taken shall be reported immediately to the resident's physician and an order obtained which shall include the reason for the restraint, when the restraint may be removed, the type of restraint and any other actions required. When restraints are indicated, only devices that are the least restrictive for the resident and consistent with the resident's total treatment program shall be used. I/II
23. In a residential care facility I or II, if it is ever necessary to use a restraint in case of emergency, the resident shall be reevaluated immediately for appropriateness of placement and transferred if necessary. II/III
24. All information contained in a resident's medical, personal or financial record and information concerning source of payment shall be held confidential. Facility personnel shall not discuss aspects of the resident's record or care in front of persons not involved in the resident's care or in front of other residents. Written consent of the resident or legal guardian shall be required for the release of information to persons not otherwise authorized by law to receive it. II/III
25. Each resident shall be treated with consideration, respect and full recognition of his/her dignity and individuality, including privacy in treatment and care of his/her personal needs. All persons, other than the attending physician, the facility personnel necessary for any treatment or personal care, or the Division of Aging or Department of Mental Health staff, as appropriate, shall be excluded from observing the resident during any time of examination, treatment or care unless consent has been given by the resident. II/III

26. No resident shall be required to perform services for the facility. If the resident desires and it is not contraindicated by his/her physician, the resident may perform tasks or services for him/herself or others. II/III
27. Each resident shall be permitted to communicate, associate and meet privately with persons of his/her choice whether on the resident's initiative or the other person's initiative, unless to do so would infringe upon the rights of other residents. The person(s) may visit, talk with and make personal, social or legal services available, inform residents of their rights and entitlements by means of distributing educational materials or discussions, assisting residents in asserting their legal rights regarding claims for public assistance, medical assistance and Social Security benefits and engaging in any other methods of assisting, advising and representing residents so as to extend to them the full enjoyment of their rights. The facility, however, may place reasonable limitations on solicitations. II/III
28. The facility shall permit a resident to meet alone with persons of his/her choice and provide an area which assures privacy. II/III
29. Telephones appropriate to the residents' needs shall be accessible at all times. Telephones available for residents' use shall enable all residents to make and receive calls privately. II/III
30. If the resident cannot open mail, written consent by the resident or legal guardian shall be obtained to have all mail opened and read to the resident. II/III
31. Each resident shall be permitted to participate, as well as not participate, in activities of social, religious or community groups at his/her discretion, both within the facility, as well as outside the facility, unless contraindicated for reasons documented by physician in the resident's medical record. II/III
32. Each resident shall be permitted to retain and use personal clothing and possessions as space permits. Personal possessions may include furniture and decorations in accordance with the facility's policies and shall not create a fire hazard. The facility shall maintain a record of any personal items accompanying the resident upon admission to the facility, or which are brought to the resident during his/her stay in the facility, which are to be returned to the resident or responsible party upon discharge, transfer or death. II/III
33. Each married resident shall be assured privacy for visits by his/her spouse. II/III
34. If both husband and wife are residents, they shall be allowed the choice of sharing or not sharing a room. III
35. Each resident shall be allowed the option of purchasing or renting goods or services not included in the per diem or monthly rate from a supplier of his/her own choice, provided the quality of goods or services meets the reasonable standards of the facility. Freedom of choice of pharmacy shall be permitted provided the facility's policy and procedures for packaging specifications are met. II/III

36. Residents shall not have their personal lives regulated or controlled beyond reasonable adherence to meal schedules and other written policies which may be necessary for the orderly management of the facility and the personal safety of the residents. II

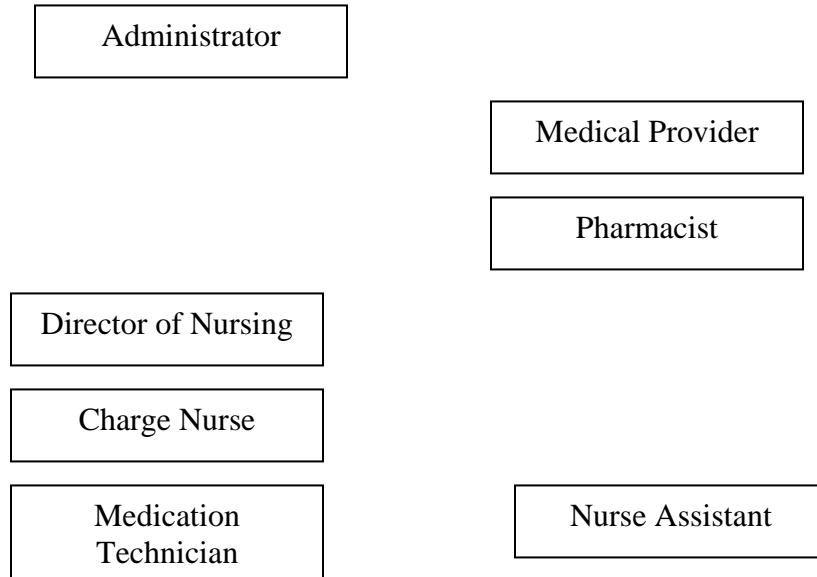
LESSON PLAN: 2

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

EVALUATION ITEMS:

1. Trace the lines of authority.



Match the following occupations and primary responsibilities.

- | | |
|--|--------------------------|
| ___ 2. Leads the nursing team. | a. Medication Technician |
| ___ 3. Gives orders to initiate drug therapy. | b. Pharmacist |
| ___ 4. Labels and packages medications. | c. Medical Provider |
| ___ 5. Prepares and administers non-parenteral medications only. | d. Registered Nurse |
| ___ 6. Is responsible for all departments in the facility. | e. Administrator |

Circle the letter of the best answer.

7. Who would you contact first if you have a question about a resident's reaction to a medication?
- a. Certified Nurse Assistant.
 - b. Pharmacist.
 - c. Physician.
 - d. Charge Nurse.

8. Select the statement that includes responsibilities the medication technician CANNOT do.
- a. Prepares and administers oral medications, transcribes orders, and inventories drugs.
 - b. Safeguards medications, maintains aseptic technique, and administers eye drops.
 - c. Administers oxygen by re-breathing mask, injects parenteral drugs, administers bladder instillations, and disposes of medications.
 - d. Applies ointments, records drugs administered, reports information related to drug administration, and reorders medication from the pharmacy.
9. Telling a resident “If you don’t be quiet, I’ll tie your hands down” is an example of_____ .
- a. assault
 - b. defamation of character
 - c. libel
 - d. invasion of privacy
10. Which of the following guidelines will help you to avoid medical/legal problems?
- a. remembering that the resident is the nurse’s responsibility
 - b. violating resident rights
 - c. performing any task the resident or family asks you to
 - d. being familiar with facility and pharmacy policies and procedures

LESSON PLAN: 3

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

SCOPE OF UNIT:

This unit covers course objectives and requirements, the role of the medication technician related to the health care team, and state and federal controls.

INFORMATION TOPIC: I-3 OR DEMONSTRATION:

STATE AND FEDERAL CONTROLS
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Match terms related to the medication technician from state regulations to their definitions.
2. Identify the state regulations related to drug administration.
3. Identify key points in the state regulations related to drug administration.
4. Identify what must be included on medication records.
5. Identify the two federal regulations related to drug administration.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. 13 CSR 15-14: Intermediate Care and Skilled Nursing Facility.
2. HO 4: Construction Standards and Physical Plant Requirements for Medication Rooms and Oxygen Storage.
3. HO 5: Excerpts from Missouri's Pharmacy Law.
4. HO 6: Excerpts from Missouri's Nurse Practice Acts.
5. HO 7: Schedules of Controlled Substances.
6. Excerpts from Federal Regulations (OBRA) for Skilled Nursing Facilities (SNFs) and Nursing Facilities (NFs).

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 3 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

The guidelines for medication administration in the long-term care facility are dictated by state and federal regulations. An overview of these regulations and specific points in state regulations will be discussed.

LESSON PLAN: 3

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

OUTLINE:

- I. Definitions Pertaining to the Medication Technician from State Regulations
 - A. Certified Medication Technician – shall mean a nursing assistant who has completed a course in medication administration approved by the Department of Health & Senior Services.
 - B. Chemical restraint – shall mean any medication that is used for discipline or convenience and not required to treat medical symptoms. For the purpose of this definition, discipline means any action taken by the facility for the purpose of penalizing a resident and convenience means any action take by the facility to control a resident’s behavior or maintain a resident with a lesser amount of effort by the facility and not in the resident’s best interest.
 - C. Control of medication – shall mean assuming responsibility by the facility for all facets of control of medication including, but not limited to, acquisition, storage, security, and administration.
 - D. Premises – shall mean any structure or structures that are in close proximity one to the other and which are located on a single piece of property.
 - E. Self administration of medication – shall mean the act of actually taking or applying medication to oneself.
 - F. Self control of medication – shall mean assuming immediate responsibility by a resident for the storage and administration of medication for oneself while the facility retains ultimate control of medication.
- II. State Regulations Related to Drug Administration
 - A. Missouri Nursing Home Licensure Law and Regulations.
 - B. Missouri Pharmacy Practice Act.
 - C. Missouri Nurse Practice Act.
 - D. Missouri Controlled Substances Act.
- III. What Medications Records Must Include
 - A. Resident’s full name

- B. Name of physician
- C. Allergies
- D. Date.
- E. Time.
- F. Dosage.
- G. Method of administration.
- H. Sites of all injections (if insulin certified).
- I. Reason for administering PRN medications.
- J. Outcome of PRN medications.
- K. Omissions of doses.
 - 1. Date.
 - 2. Time.
 - 3. Reason.
 - 4. Effect on resident if known.

IV. Federal Regulations

- A. Federal Regulations for Skilled Nursing Facilities and Nursing Facilities.
- B. Federal Controlled Substances Act.

It is essential that the medication technician be familiar with and be able to locate and refer to the regulations pertaining to medication administration. The next lesson is on medication terminology and abbreviations.

Division 15-Division of Health & Human Services
Chapter 14 - Intermediate Care and Skilled
Nursing Facility

19 CSR 30-85.042 Administration and Resident Care Requirements for New and Existing Intermediate Care and Skilled Nursing Facilities

PURPOSE: This rule establishes standards for administration and resident care in an intermediate care or skilled nursing facility.

PUBLISHER'S NOTE: The publication of the full text of the material that the adopting agency has incorporated by reference in this rule would be unduly cumbersome or expensive. Therefore, the full text of that material will be made available to any interested person at both the Office of the Secretary of State and the office of the adopting agency, pursuant to section 536.031.4, RSMo. Such material will be provided at the cost established by state law.

Editor's Note: underlined regulations are specific to the duties and responsibilities of certified medication technicians. I, II, and III refer to the class of deficiencies. Class I deficiencies are the violation in which would present either imminent danger to the health, safety, or welfare of any resident, death or serious harm. Class II deficiencies are violations which have a direct or immediate relationship to the health, safety, or welfare of any resident but does not create imminent danger. Class III is deficiencies that have an indirect or a potential impact on any resident.

- (1) The operator shall designate a person as administrator who holds a current license as a nursing home administrator in Missouri. II
- (2) The facility shall post the administrator's license. III
- (3) The operator shall be responsible to assure compliance with all applicable laws and rules. The administrator shall be fully authorized and empowered to make decisions regarding the operation of the facility and shall be held

responsible for the actions of all employees. The administrator's responsibilities shall include the oversight of residents to assure that they receive appropriate nursing and medical care. II/III

(4) The administrator shall be employed in the facility and serve in the capacity on a full-time basis. An administrator cannot be listed or function as an administrator in more than one (1) licensed facility at the same time, except that one (1) administrator may serve as the administrator of more than one (1) licensed facility if all facilities are on the same premises. II/III

(5) The licensed administrator shall not leave the premises without delegating the necessary authority in writing to a responsible individual. If the administrator is absent from the facility for more than thirty (30) consecutive days the person designated to be administrative charge shall be a currently licensed nursing home administrator. Such thirty (30) consecutive-day absences may only occur once within any consecutive twelve (12)-month period. I/II

(6) The facility shall not knowingly admit or continue to care for residents whose needs cannot be met by the facility directly or in cooperation with outside resources. Facilities which retain residents needing skilled nursing care shall provide licensed nurses for these procedures. III

(7) When outside resources are used to provide services to the resident, the facility shall enter into a written agreement with each resource. III

(8) Persons under seventeen (17) years of age shall not be admitted as residents to the facility unless the facility cares primarily for residents less than seventeen (17) years of age. III

(9) The facility shall not care for more residents than the number for which the facility is licensed. II

(10) The facility's current license shall be readily visible in a public area within the facility. Notices provided to the facility by the Division of Aging granting exceptions to regulatory requirements shall be posted with the facility's license. III

(11) Regular daily visiting hours shall be established and posted. Relatives or guardians

and clergy, if requested by the resident or family, shall be allowed to see critically ill residents at any time unless the physician orders otherwise in writing. II/III

(12) A supervising physician shall be available to assist the facility in coordinating the overall program of medical care offered in the facility. II

(13) The facility shall develop policies and procedures applicable to its operation to insure the residents' health and safety and to meet the residents' needs. At a minimum, there shall be policies covering personnel practices, admission, discharge, payment, medical emergency treatment procedures, nursing practices, pharmaceutical services, social services, activities, dietary, housekeeping, infection control, disaster and accident prevention, residents' rights and handling residents' property. II/III

(14) A pharmacist currently licensed in Missouri shall assist in the development of written policies and procedures regarding pharmaceutical services in the facility. II/III

(15) All personnel shall be fully informed of the policies of the facility and of their duties. II/III

(16) All persons who have any contact with the residents in the facility shall not knowingly act or omit any duty in a manner which would materially and adversely affect the health, safety, welfare or property of a resident. I

(17) Effective August 28, 1997, each facility shall, not later than two (2) working days of the date an applicant for a position to have contact with residents is hired, request a criminal background check, as provided in sections 43.530, 43.540 and 610.120, RSMo. Each facility must maintain in its record documents verifying that the background checks were requested and the nature of the response received for each such request. The facility must ensure that any applicant who discloses prior to the check of his/her criminal records that he/she has been convicted of, plead guilty or nolo contendere to, or has been found guilty of any A or B felony violation of Chapter 565, 566 or 569, RSMo, or any violation of subsection 3 of section 198.070, RSMo, or of section 568.020, RSMo, will not be allowed to work in contact

with patients or residents until and unless a check of the applicant's criminal record shows that no such conviction occurred. II/III

(18) The facility must develop and implement written policies and procedures which require that persons hired for any position which is to have contact with any patient or resident have been informed of their responsibility to disclose their prior criminal history to the facility as required by section 660.317.5, RSMo. The facility—

(A) Shall also develop and implement policies and procedures which ensure that the facility does not knowingly hire, after August 28, 1997, any person who has or may have contact with a patient or resident, who has been convicted of, plead guilty or *nolo contendere*

(B) May consider for employment, in positions which have contact with resident or patients, any person who has been granted a good cause waiver by the division in accordance with the provisions of section 660.317, RSMoSupp. 1999 and 13 CSR 30-82.060; and;

(C) Shall contact the division to confirm the validity of an applicant's good cause waiver prior to hiring the applicant. II/III

(19) No person who is listed on the employee disqualification list maintained by the division as required by section 198.070, RSMo shall work or volunteer in the facility in any capacity whether or not employed by the operator. II

(20) The facility shall develop and offer an in-service orientation and continuing educational program for the development and improvement of skills of all the facility's personnel, appropriate for their job function. Facilities shall begin providing orientation on the first day of employment for all personnel including licensed nurses and other professionals. At a minimum, this shall cover prevention and control of infection, facility policies and procedures including emergency protocol, job responsibilities and lines of authority, confidentiality of resident information and preservation of resident dignity including protection of the resident's privacy and instruction regarding the property rights of residents. Nursing assistants who have not successfully completed the classroom portion of the state-approved training program prior to employment shall not provide direct resident care until they have completed at least sixteen

(16)-hour, orientation module and at least twelve (12) hours of supervised practical orientation. This shall include, in addition to the topics covered in the general orientation for all personnel, special focus on facility protocols as well as practical instruction on the care of the elderly and disabled. This orientation shall be supervised by a licensed nurse who is on duty in the facility at the time orientation is provided. II/III

(21) Nursing assistants who have not successfully completed the state-approved training program shall complete a comprehensive orientation program within sixty (60) days of employment. This may be part of a nursing assistant training program taught by an approved instructor in the facility. It shall include, at a minimum, information on communicable disease, hand washing and infection control procedures, resident rights, emergency protocols, job responsibilities and lines of authority. II/III

(22) The facility must ensure there is a system of in-service training for nursing personnel which identifies training needs related to problems, needs, care of residents and infection control and is sufficient to ensure staff's continuing competency. II/III

(23) Facilities shall conduct at least annual in-service education for nursing personnel including training in restorative nursing. This training by a registered nurse or qualified therapist shall include: turning and positioning for the bedridden resident, range of motion (ROM) exercises, ambulation assistance, transfer procedures, bowel and bladder retraining and self-care activities of daily living. II/III

(24) A registered nurse shall be responsible for the planning and then assuring the implementation of the in-service education program for nursing personnel. II

(25) Facilities shall maintain records which indicate the subject of, and attendance at, all in-service sessions. III

(26) All authorized personnel shall have access to the legal name of each resident, name and telephone number of physician and next of kin or responsible party of each resident to contact in the event of emergency. II/III

(27) The facility must develop and implement policies and procedures which ensure employees are screened to identify communicable diseases and ensure that employees diagnosed with communicable diseases do not expose residents to such diseases. The facility's policies and procedures must comply with the Missouri Department of Health's regulations pertaining to communicable diseases, specifically 19 CSR 20-20.010 through 19 CSR20-20.100, as amended. II

(28) The administrator shall maintain on the premises an individual personnel record on each employee of the facility which shall include: the employee's name and address; Social Security number; date of birth; date of employment; experience and education; references, if available; the result of background checks required by section 660.317, RSMo; position in the facility; record that the employee was instructed on resident's rights; basic orientation received; and reason for termination, if applicable. Documentation shall be on file of all training received within the facility in addition to current copies of licenses, transcripts, certificates, or statements evidencing competency for the position held. Facilities shall retain personnel records for at least one (1) year following termination of employment. III

(29) Facilities shall maintain written documentation on the premises showing actual hours worked by each employee. III

(30) All persons who have or may have contact with residents shall at all times when on duty or delivering services wear an identification badge. The badge shall give their name, title and, if applicable the status of their license or certification as any kind of health care professional. This rule shall apply to all personnel who provide services to any resident directly or indirectly. III

(31) Employees other than nursing personnel shall be at least sixteen (16) years of age. II/III

(32) Nursing personnel shall be at least eighteen (18) years of age except that a person between the ages of seventeen (17) years of age and eighteen (18) years of age may provide direct resident care if he/she has successfully completed the state-approved nursing assistant course and has been certified with his/her name on the state nursing assistant register. He/she

must work under the direct supervision of a licensed nurse and will never be left responsible for a nursing unit. II/III

(33) All nurses employed by the facility shall be currently licensed in Missouri. II

(34) All facilities shall employ a director of nursing on a full-time basis who shall be responsible for the quality of patient care and supervision of personnel rendering patient care. II

(35) Licensed Nursing Requirements; Skilled Nursing Facility.

(A) The director of nursing shall be a registered nurse. II

(B) A registered nurse shall be on duty in the facility on the day shift. Either a licensed practical nurse (LPN) or a registered professional nurse (RN) shall be on duty in the facility on both the evening and night shifts. II

(C) A registered nurse shall be on call during the time when only an LPN is on duty. II

(36) Licensed Nursing Requirements; Intermediate Care Facilities.

(A) The director of nursing shall be either an RN or an LPN. II

(B) When the director of nursing is an LPN, an RN shall be employed as consultant a minimum of four (4) hours per week to provide consultation to the administrator and the director of nursing in matters relating to nursing care in the facility. II

(C) An LPN or RN shall be on duty and in the facility on the day shift. II

(D) An LPN or RN shall be on call twenty-four (24) hours a day, seven (7) days a week. I/II

(37) All facilities shall employ nursing personnel in sufficient numbers and with sufficient qualifications to provide nursing and related services which enable each resident to attain or maintain the highest practicable level of physical, mental and psychosocial well-being. Each facility shall have a licensed nurse in charge who is responsible for evaluating the needs of the residents on a daily and continuous basis to ensure there are sufficient, trained staff present to meet those needs. I/II

(38) Nursing personnel shall be on duty at all times on each resident-occupied floor. II

(39) Nursing assistants employed after January 1, 1980, shall have completed mandatory training as required by section 198.082, RSMo, or be enrolled in the course and functioning under the supervision of a state approved instructor of clinical supervisor as part of the one hundred (100) hours of on-the-job training. The person enrolled shall have successfully completed the course and become certified within one (1) year of employment with a licensed-only facility or within four (4) months of employment with a facility certified under Title XVIII or Title XIX if he or she is to remain employed in the facility as a nursing assistant. II

(40) Nursing personnel in any facility with more than twenty (20) residents shall not routinely perform non-nursing duties. II/III

(41) Nursing personnel in facilities with twenty (20) residents or less shall perform non-nursing duties only if acceptable infection control measures are maintained. II/III

(42) Each facility resident shall be under the medical supervision of a Missouri-licensed physician who has been informed of the facility's emergency medical procedures and is kept informed of treatments or medications prescribed by any other professional lawfully authorized to prescribe medications. I/II

(43) Facilities shall ensure that at the time the resident is admitted, the facility obtains from a physician the resident's primary diagnosis along with current medical findings and the written orders for the immediate care of the resident. II/III

(44) The facility shall ensure that the resident's private physician, the physician's designee, the facility's supervising physician or an alternate physician shall examine the resident at least annually, and shall examine the resident as often as necessary to ensure proper medical care. I/II

(45) For each medical examination, the physician must review the resident's care, including medications and treatments; write, sign and date progress notes; and sign and date all orders. The facility shall establish a policy requiring the physician to sign orders and to complete all other

documentation required if the physician does not visit the resident routinely. II/III

(46) No medication, treatment or diet shall be given without a written order from a person lawfully authorized to prescribe such and the order shall be followed. No restraint shall be applied except as provided in 13 CSR 30-88.010, Resident Rights. I/II

(47) There shall be a safe and effective system of medication distribution, administration, control and use. I/II

(48) Verbal and telephone orders for medication or treatment shall be given only to those individuals licensed or certified to accept orders. Orders shall be immediately reduced to writing and signed by that individual. If a telephone order is given to a certified medication technician, an initial dose of medication or treatment shall not be given until the order has been reviewed by telephone or in person by a licensed nurse or pharmacist. The review shall be documented by the reviewer cosigning the telephone order. II

(49) Medications shall be administered only by a licensed physician, a licensed nurse or a medication technician who has successfully completed the state-approved course for medication administration. II

(50) Injectable medication, other than insulin, shall be administered only by a licensed physician or a licensed nurse. Insulin injections may be administered by a certified medication technician who has successfully completed the state-approved course for insulin administration. II

(51) Self-administration of medication is permitted only if approved in writing by the resident's physician and it is in accordance with the facility's policy and procedures. II

(52) All medication errors and adverse reactions shall be reported immediately to the nursing supervisor and the resident's physician and, if there was a dispensing error, to the issuing pharmacist. II/III

(53) At least monthly a pharmacist or a registered nurse shall review the drug regimen of each resident. Irregularities shall be reported in

writing to the resident's physician, the administrator, and the director of nurses. There must be written documentation which indicates how the reports were acted upon. II/III

(54) All prescription medications shall be supplied as individual prescriptions. All medications, including over-the-counter medications, shall be packaged and labeled in accordance with applicable professional pharmacy standards and state and federal drug laws and regulations. The *United States Pharmacopoeia* (USP) labeling shall include accessory and cautionary instructions as well as the expiration date, when applicable, and the name of the medication as specified in the physician's order. Over-the-counter medications for individual residents shall be labeled with at least the resident's name. II/III

(55) If the resident brings medications to the facility, they shall not be used unless the contents have been examined, identified and documented by a pharmacist or a physician. II/III

(56) Facilities shall store all external and internal medications at appropriate temperatures in a safe, clean place and in an orderly manner apart from foodstuffs and dangerous chemicals. A facility shall secure all medications, including those refrigerated, behind at least one (1) locked door or cabinet. Facilities shall store containers of discontinued medication separately from current medications. II/III

(57) Facilities shall store Schedule II medications, including those in the emergency drug supply, under double lock separately from non-controlled medication. Schedule II medications may be stored and handled with other non-controlled medication if the facility has a single unit dose drug distribution system in which the quantity stored is minimal and a missing dose can be readily detected. II

(58) Upon discharge or transfer, a resident may be given medications with a written order from the physician. Instructions for the use of those medications will be provided to the resident or the resident's designee. III

(59) All non-unit doses and all controlled

substances which have been discontinued must be destroyed on the premises within thirty (30) days. Outdated, contaminated, or deteriorated medications and non-unit dose medications of deceased residents shall be destroyed within thirty (30) days. Unit dose medications returnable to the pharmacy shall be returned within thirty (30) days. II/III

(60) Medications shall be destroyed in the facility by a pharmacist and a licensed nurse or by two (2) licensed nurses. III

(61) Facilities shall maintain records of medication destroyed in the facility. Records shall include: the resident's name; the date; the name, strength, and quantity of the medication; the prescription number; and the signatures of the participating parties. III

(62) The facility shall maintain records of medication released to the family or resident upon discharge or to the pharmacy. Records shall include: the resident's name; the date; the name, strength and quantity of the medication; the prescription number; and the signature of the persons releasing and receiving the medication. III

(63) The facility must establish a system of records of receipt and disposition of all controlled drugs in sufficient detail to enable an accurate reconciliation. The system must enable the facility to determine that drug records are in order and that an account of all controlled drugs is maintained and reconciled. II/III

(64) Facilities shall make available to all nursing staff up-to-date reference material on all medications in use in the facility. III

(65) The facility shall develop policies to identify any emergency stock supply of prescription medications to be kept in the facility for resident use only. This emergency drug supply must be checked at least monthly by a pharmacist to ensure its safety for use and compliance with facility policy. A facility shall have the emergency drug supply readily available to medical personnel and use of medications in the emergency drug supply shall assure accountability. III

(66) Each resident shall receive twenty-four (24)-hour protective oversight and supervision.

For residents departing the premises on voluntary leave, the facility shall have, at a minimum, a procedure to inquire of the resident or resident's guardian of the resident's departure, of the resident's estimated length of absence from the facility, and of the resident's whereabouts while on voluntary leave. I/II

(67) Each resident shall receive personal attention and nursing care in accordance with his/her condition and consistent with current acceptable nursing practice. I/II

(68) Each resident shall be clean, dry and free of body and mouth odor that is offensive to others. I/II

(69) Taking into consideration the resident's preferences, residents shall be well-groomed and dressed appropriately for the time of day, the environment and any identified medical conditions. II/III

(70) Residents who are physically or mentally incapable, or both, of changing their own positions shall have their positions changed at least every two (2) hours and shall be provided supportive devices to maintain good body alignment. I/II

(71) The facility must provide each resident the opportunity to access sufficient fluids to maintain proper hydration in accordance with the resident's medical condition and goals of treatment as documented in the medical record. I/II

(72) All residents who require assistance at mealtimes, whether it is preparation of the food items or actual feeding, shall be provided the assistance upon delivery of the tray. Facilities shall provide dining room supervision during meals. II/III

(73) Facilities shall provide each resident, according to his/her needs, with restorative nursing to encourage independence, activity and self-help to maintain strength and mobility. Each resident shall be out of bed as desired unless medically contraindicated. II

(74) Each resident shall have skin care including the application of oil, lotion and cream as needed to prevent dryness and scaling of skin. II/III

(75) Facilities shall keep residents free from avoidable pressure sores, taking measures toward prevention. If sores exist, staff shall give adequate treatment. I/II

(76) Facility staff shall check residents requiring restraints every thirty (30) minutes and exercise the residents every two (2) hours. II/III

(77) Facilities shall not use locked restraints. I

(78) Residents shall be cared for by using acceptable infection control procedures to prevent the spread of infection. The facility shall make a report to the division within seven (7) days if a resident is diagnosed as having a communicable disease, as determined by the Missouri Department of Health and listed in the Code of State Regulations pertaining to communicable diseases, specifically 19 CSR 20-20.020, as amended. I/II

(79) In the event of accident, injury, or significant change in the resident's condition, facility staff shall notify the resident's physician in accordance with the facility's emergency treatment policies which have been approved by the supervising physician. I/II

(80) In the event of accident, injury or significant change in the resident's conditions, facility staff shall immediately notify the person designated in the resident's record as the designee or responsible party. III

(81) Staff shall inform the administrator of accidents, injuries and unusual occurrences which adversely affect, or could adversely affect the resident. The facility shall develop and implement responsive plans of action. III

(82) Facilities shall ensure that each resident is provided individual personal care items necessary for good grooming. Items shall be stored and maintained in a clean manner within the resident's room. III

(83) Facilities shall provide equipment and nursing supplies in sufficient number to meet the needs of the residents. II/III

(84) Facilities shall keep all utensils and equipment in good condition, effectively sanitized, sterilized, or both, and stored to prevent contamination. II/III

(85) Staff shall ensure that bedpans, commodes, and urinals are covered after use, emptied promptly and thoroughly cleaned after use. II/III

(86) Facilities shall provide and use a sufficient supply of clean bed linen, including sheets, pillow cases, blankets, and mattress pads to assure that resident beds are kept clean, neat, dry and odor free. II/III

(87) Staff shall use moisture proof covers as necessary to keep mattresses and pillows clean, dry and odor free. II/III

(88) Facilities shall provide each resident with fresh bath towels, hand towels and washcloths as needed for individual usage. II/III

(89) In addition to rehabilitative or restorative nursing, all facilities shall provide or make arrangements for providing rehabilitation services to all residents according to their needs. If a resident needs rehabilitation services, a qualified therapist shall perform an evaluation on written order of the resident's physician.

(90) Facilities shall ensure that rehabilitation services are provided by or under the on-site supervision of a qualified therapist or a qualified therapy assistant who works under the general supervision of a qualified therapist. I/II

(91) Staff shall include the following in documentation of rehabilitation services: physician's written approval for proposed plan of care; progress notes at least every thirty (30) days by the therapist; daily record of the procedure(s) performed; summary of therapy when rehabilitation has been reached and, if applicable, recommendations for maintenance procedures by restorative nursing. III

(92) The facility shall designate a staff member to be responsible for the facility's social services program. The designated staff person shall be capable of identifying social and emotional needs, knowledgeable of methods or resources, or a combination of these, to use to meet them and services shall be provided to residents as needed. II/III

(93) The facility shall designate an employee to be responsible for the activity program. The designated person shall be capable of identifying

activity needs of residents, designing and implementing programs to maintain or increase, or both, the resident's capability in activities of daily living. Facilities shall provide activity programs on a regular basis. Each resident shall have a planned activity program which includes individualized activities, group activities and activities outside the facility as appropriate to his/her needs and interests. II/III

(94) The facility shall provide and use adequate space and equipment within the facility for the identified activity needs of residents. II/III

(95) The facility shall establish and maintain a program for informing all residents in advance of available activities, activity location and time. III

(96) Facility staff shall include the following general information in admission records: resident's name; prior address; age (birth date); sex; marital status; Social Security number, Medicare and Medicaid numbers; date of admission; name, address and telephone number of responsible party; name, address and telephone number of attending physician; height and weight on admission; inventory of resident's personal possessions upon admission; and names of preferred dentist, pharmacist and funeral director. II/III

(97) Facility staff shall include physician entries in the medical record with the following information: admission diagnosis, admission physical and findings of subsequent examinations; progress notes; orders for all medications and treatment; orders for extent of activity; orders for restraints including type and reason for restraint; orders for diet; and discharge diagnosis or cause of death. II/III

(98) Residents admitted to a facility on referral by the Department of Mental Health shall have an individualized treatment plan or individualized habilitation plan on file which is updated annually. III

(99) Facilities shall ensure that the clinical record contains sufficient information to

- (A) Identify the resident;
- (B) Reflect the initial and ongoing assessments and interventions by each discipline involved in the care and treatment of the resident; and
- (C) Identify the discharge or transfer

destination. II/III

(100) Facilities shall ensure that the resident's clinical record must contain progress notes that include, but are not limited to:

- (A) Response to care and treatment;
- (B) Change(s) in physical, mental and psychosocial condition;
- (C) Reasons for changes in treatment; and
- (D) Reasons for transfer or discharge. II/III

(101) The facility must safeguard clinical record information against loss, destruction, or unauthorized use. III

(102) The facility must keep all information confidential that is contained in the resident's records regardless of the form or storage method of the records, including video-, audio- or computer-stored information. III

(103) The facility must maintain clinical records on each resident in accordance with accepted professional standards and practices. These records shall be complete, accurately documented, readily accessible on each nursing unit and systematically organized. II/III

(104) Facilities must retain clinical records for the period of time required by state law or five (5) years from the date of discharge when there is no requirement in state law. III

(105) Facilities shall retain all financial records related to the facility operation for seven (7) years from the end of the facility's fiscal year. III

(106) In the event the resident is transferred from the facility, the resident shall be accompanied by a copy of the medical history, transfer forms which include the physical exam report, nursing summary and report of orders physicians prescribed. II/III

AUTHORITY: sections 198.006, RSMo Supp.2003 and 198.079, RSMo 2000..

**Original authority 1979.*

**CONSTRUCTION STANDARDS AND PHYSICAL PLANT REQUIREMENTS
FOR MEDICATION ROOMS AND OXYGEN STORAGE.**

19 CSR 30-85.012 Construction Standards for New Intermediate Care and Skilled Nursing Facilities and Additions to and Major Remodeling of Intermediate Care and Skilled Nursing Facilities (partial)

(48) Facilities shall provide a medicine preparation room next to each nurses' station that has at least sixty (60) square feet of useable floor space. Facilities shall provide a special locked medication cabinet for storage of the Class II medications inside the locked medication cabinet. If the outer cabinets are not locked, the facility must provide a closer and hardware that cannot be left unlocked on the door to the medicine room. A facility is also required to have the following in the medicine room: a work counter, handwashing sink, under cabinet storage, a medicine refrigerator, adequate lighting, and provisions for proper temperature control. II/III

19 CSR 30-85.032 Physical Plant Requirements for New and Existing Intermediate Care and Skilled Nursing Facilities (partial)

(14) Oxygen cylinders for medical use shall be labeled Oxygen - United States Pharmacopoeia (USP). Existing facilities with plans approved on or before December 31, 1998, shall have oxygen systems, oxygen piping, outlets, manifold rooms and storage rooms installed in accordance with the requirements of the NFPA 99, *Health Care Facilities*, as referenced in the 1985 *Life Safety Code*. Facilities with plans approved on or after January 1, 1999, shall install oxygen systems in compliance with the 1996 NFPA 99 and the 1997 *Life Safety Code*. I/II

(26) The facility shall provide either a nursing station or a nurses' work area on each floor of a multi-story facility. This area shall have chart storage space on current residents. Facilities licensed or with plans approved on or after July 1, 1965, shall have a nurses' station for every sixty (60) beds. Handwashing facilities at or near the nurses' station shall be available for physicians, nurses and other personnel, attending residents. II/III

EXCERPTS FROM MISSOURI PHARMACY LAW

Missouri pharmacy law is found in Chapter 338 of the Revised Statutes of Missouri. The practice of pharmacy includes participating in drug selection and drug use review, dispensing drugs pursuant to prescription orders, and consulting with patients and health care practitioners about safe and effective use of drugs. Only pharmacists and pharmacy technicians under the supervision of a pharmacist may package, label, and dispense prescriptions to Long Term Care Facility (LTCF) residents from a pharmacy.

Prescribers, such as physicians and dentists, are allowed under pharmacy law to dispense to their patients. Although not specifically provided for in pharmacy law, nurses and physician assistants may dispense medications under the authority of a physician in certain settings as allowed by state law.

Pharmacies that provide services to LTCFs must have specific LTCF policies and procedures that are in compliance with regulations for receiving new prescriptions; packaging, labeling, and dispensing prescriptions; and accepting returned prescriptions.

Pharmacies may receive orders from LTCFs as prescriptions if the order is initiated by a prescriber and entered into the resident's medical record by the prescriber or qualified personnel. Only a pharmacist can change the package or label of a dispensed prescription.

Prescriptions that are returned to the pharmacy cannot be reused unless there is assurance that they have been properly stored, were originally dispensed by that pharmacy to the LTCF, and remain in the original tamper-evident or unit of use packaging.

Pharmacies may operate automated dispensing systems located physically in LTCFs. A pharmacist must review and approve a new medication order before the medication is released from the system storage cabinet. The pharmacy is responsible for stocking, security, record keeping, and procedures for use of the system by facility staff.

EXCERPTS FROM THE MISSOURI NURSE PRACTICE ACT

NURSING 335.016: (7) "Practical nursing" is the performance for compensation of selected acts for the promotion of health and the care of persons who are ill, injured, or experiencing alterations in normal health processes. Such performance requires substantial specialized skill, judgment, and knowledge. All such nursing care shall be given under the direction of a person licensed in this state to prescribe medications and treatments or under the direction of a registered professional nurse.

(8) "Professional nursing" is the performance for compensation of any act which requires substantial specialized education, judgment, and skill based on knowledge and application of principles derived from the biological, physical, social and nursing sciences, including, but not limited to:

(c) The administration of medications and treatments as prescribed by a person licensed in this state to prescribe such medications and treatments;

335.081. Exempted practices and practitioners - So long as the person involved does not represent or hold himself out as a nurse licensed to practice in this state, no provision of sections 335.011 to 335.096 shall be construed as prohibiting:

(2) The services rendered by technicians, nurses' aides or their equivalent trained and employed in public or private hospitals and licensed long-term care facilities except the services rendered in licensed long-term care facilities shall be limited to administering medication, excluding injectables other than insulin.

Interpretation - Under 335.016 only a nurse may administer medications. However, 335.081 (2) makes an exception and allows trained aides (CMT's) to administer medications in licensed long- term care facilities excluding injectables other than insulin. However, in order to give insulin, special training is required.

SCHEDULES OF CONTROLLED SUBSTANCES

Controlled substances are listed in one of five schedules. Schedule I substances have no accepted medical use in the U.S. and have high abuse potential. Schedule II drugs have high abuse potential with severe psychic or physical dependence, liability, and in general are substances that have therapeutic utility. Schedules III-V includes drugs with decreasing levels of abuse potential. Some substances are in more than one Schedule based on product content. There are some differences between federal and state schedules of controlled substances. Representative examples are listed below but the list is not all-inclusive.

SCHEDULE I

DMA	marijuana
gamma hydroxybutyric acid (GHB)	MDMA (Ecstasy)
heroin	mescaline
LSD	peyote

SCHEDULE II

amobarbital (Amytal)	meperidine (Demerol)
butyl nitrite (Rush)	methadone (Dolophine)
cocaine	methamphetamine (Desoxyn)
codeine	methylphenidate (Ritalin)
dextroamphetamine (Dexedrine, Adderal)	morphine (Roxanol, MS Contin, MSIR)
diprenorphine (M 50-50)	opium
dronabinol (Marinol)	oxycodone (Percocet, Tylox, OxyContin)
etorphine (M 99)	pentobarbital (Nembutal)
fentanyl (Sublimaze, Duragesic, Actiq)	phencyclidine (PCP)
hydromorphone (Dilaudid)	secobarbital (Seconal)
levomethadyl (Orlaam)	sufentanil (Sufenta)

SCHEDULE III

benzphetamine (Didrex)	methyltestosterone (Android, Oreton)
buprenorphine (Buprenex)	nandrolone (Deca-Durabolin)
butalbital (Fiorinal)	opium (paregoric)
codeine (Tylenol or Fiorinal w/codeine)	pentobarbital (Beuthanasia-D Special)
dihydrocodeine (Synalgos DC)	phendimetrazine (Prelu-2)
fluoxymesterone (Halotestin)	stanazolol (Winstrol)
gamma hydroxybutyric acid dose form	testosterone (Android-T, Delatestryl)
hydrocodone (Tussionex, Vicodin, Lortab)	thiopental (Pentothal)
ketamine (Ketalar, Vetalar, Ketaset)	tiletamine/zolazepam (Telazol)

SCHEDULE IV

alprazolam (Xanax)	mephobarbital (Mebaral)
butorphanol (Stadol, Torbugesic)	meprobamate (Equanil)
chloral hydrate (Noctec, Somnos)	methohexital (Brevital)
chlor diazepoxide (Librium)	midazolam (Versed)
clonazepam (Klonopin)	modafinil (Provigil)
clorazepate (Tranxene)	oxazepam (Serax)
codeine (Robitussin AC, Phenergan w/ Codeine)	paraldehyde
dextropropoxyphene (Darvon, Darvocet)	pemoline (Cylert)
diazepam (Valium)	pentazocine (Talwin)
dichloralphenazone (Midrin)	phenobarbital
difenoxin (Motofen)	phentermine (Ionamin, Fastin)
diethylpropion (Tenuate)	sibutramine (Meridia)
ephedrine	temazepam (Restoril)
ethchlorvynol (Placidyl)	triazolam (Halcion)
flurazepam (Dalmane)	zaleplon (Sonata)
lorazepam (Ativan)	zolpidem (Ambien)
mazindol (Sanorex)	

SCHEDULE V

diphenoxylate (Lomotil)

EXEMPTED or EXCLUDED SUBSTANCES

butalbital (Fioricet)	chlordiazepoxide (Librax)
l-deoxyephedrine (Vicks inhaler)	propylhexedrine (Benzedrex inhaler)

LESSON PLAN: 3

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: I INTRODUCTION

EVALUATION ITEMS:

Match definitions on the left with terms on the right.

- | | | |
|--------|--|--------------------------------------|
| ___ 1. | Any medication that is used for discipline or convenience and is not required to treat medical symptoms. | a. Certified Medication Technician |
| ___ 2. | Immediate responsibility by a resident for the storage and administration of medication for oneself while the facility retains ultimate control of the medication. | b. Chemical restraint |
| ___ 3. | Any structure or structures that are in close proximity one to the other and which are located on a single piece of property | c. Control of medication |
| ___ 4. | Responsibility by the facility for all facets of control of medication, including but not limited to acquisition, storage, security, and administration of medication. | d. Premises |
| ___ 5. | The act of actually taking or applying medication to oneself | e. Self administration of medication |
| ___ 6. | A nursing assistant who has completed a course in medication administration approved by the Division of Health & Senior Services. | f. Self control of medication |
| 7. | What are two state regulations related to drug administration? | |
| | a. | |
| | b. | |

Circle the letter of the best answer.

8. How soon should verbal orders be put in writing?
- a. Within 24 hours.
 - b. The next day.
 - c. Immediately.
 - d. By the next shift.

9. The medication technician does not give the initial dose or treatment on a phone order until the order is reviewed by ____ .
- a. no one
 - b. another CMT
 - c. the administrator
 - d. licensed nurse or pharmacist
10. Medications brought to the facility by the resident ____ .
- a. can be used right away
 - b. cannot be used at all
 - c. can be used after 7 days
 - d. cannot be used unless identified by a pharmacist or physician
11. What information must be included on medication records?
- a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.
12. What are two federal regulations related to drug administration?
- a.
 - b.

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, and accountability.

INFORMATION TOPIC: II-4 OR DEMONSTRATION:

MEDICATION TERMINOLOGY AND ABBREVIATIONS

(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Match terms to their definitions related to the administration of medications.
2. Record abbreviations related to the administration of medications.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Word games.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 4 prior to class and be prepared to discuss the information presented.

INTRODUCTION

The words used in the health care field may be strange to non-medical persons. It is important that you learn the meaning of the words and symbols used to assure accuracy and to avoid errors in the preparation, administration, and recording of medications. This lesson deals with such words and symbols.

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

- I. Terminology Related to Medication Administration
 - A. Addiction – emotional or physiological dependence upon a drug which has progressed beyond voluntary control.
 - B. Adverse drug affect – a harmful, unintended reaction to a drug administered at normal dosage.
 - C. Allergic reaction.
 1. Hypersensitivity – unusual sensitivity to a drug such as mild skin rash, swelling, itching, and nasal congestion.
 2. Anaphylaxis – severe, life threatening hypersensitivity to a drug such as extreme weakness, nausea and vomiting, cyanosis, dyspnea, hypotension, shock and respiratory or cardiac arrest. Usually occurs within minutes of administering the drug.
 - D. Antagonism – condition in which two drugs work against each other, decreasing effectiveness of one or both (e.g., tetracycline and antacid).
 - E. Antidote – a drug given to reverse the effects of a previously given drug.
 - F. Aural – pertaining to the ear.
 - G. Contraindications – existing conditions that the resident may have which are incompatible with the drug (e.g., Inderal given to asthmatic resident).
 - H. Controlled drugs/controlled substances – drugs covered by the Federal and State Controlled Substance Acts.
 - I. Cumulative effect – buildup of a drug in the body that may occur rapidly or slowly over time.
 - J. Disease – pathological or abnormal condition of the body.
 - K. Dosage – amount of a medication given at one time.
 - L. Drug – a substance taken into or applied to the body to treat or prevent a disease or condition (e.g., Advil).

- M. Enteric coated – tablets that are coated so that they dissolve in the small intestines rather than in the stomach.
- N. Generic name – the common name assigned to a drug; the generic name stays the same from one manufacturer to another; whereas, the trade or brand name changes with each manufacturer.
- O. Idiosyncrasy – an individual's unique hypersensitivity to a particular drug.
- P. Indications – various conditions or symptoms for which the drug may be given.
- Q. Lethal dose – amount of a drug that will cause death.
- R. Ophthalmic – pertaining to the eye.
- S. Overdose – a dose of a drug in an amount that causes an acute reaction such as coma or even death.
- T. Otic – pertaining to the ear.
- U. Parenteral – a medication route other than the digestive system such as intravenous (IV), subcutaneous (Subcut), intramuscular (IM), mucosal.
- V. Physical dependence – a physical state in which the body adapts to a drug and experiences symptoms of withdrawal when the drug is abruptly stopped or the dose is rapidly lowered. Physical dependence is a normal result of the use of certain drugs and rarely leads to addiction.
- W. Placebo – an inactive substance prescribed by a doctor as if it were an effective dose of medication and believed by the resident to be a medication.
- X. Psychological dependence – a compulsion to use a drug, often for its mood altering effects, preoccupation with obtaining and using a drug. Psychological dependence may lead to addiction.
- Y. Side effects – any effect of a drug other than the one for which it is given.
- Z. Spansule – small particles of a drug coated with compounds which require varying amounts of time to dissolve.
- AA. Subcutaneous – injected into the tissues just below the skin, dermis.
- BB. Sublingual – under the tongue, without liquid.
- CC. Synergism – two drugs working together to give an effect greater than their individual effect (e.g., analgesics with antianxiety drugs).

- DD. Therapeutic effect – the desired effect of a drug.
- EE. Tolerance – a condition in which the body becomes increasingly resistant to a drug due to continued exposure; and requiring an increased amount of a drug to produce the same effect a lesser amount previously produced.
- FF. Toxicity – symptoms or effect of poisoning of the body by a drug due to large dose of a drug or a cumulative effect of the drug.
- GG. Trade or brand name – name by which a drug is marketed; commonly recognized name of a drug.

NOTE: In 2004 the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) compiled a list of dangerous abbreviations. These abbreviations should be avoided and the terms written out. Please refer to your facility's Policy and Procedure Manual regarding approved abbreviations for your place of employment.

II. Abbreviations

NOTE: These abbreviations have been listed so that you will be familiar with them; however, some are no longer considered safe to use. Refer to HO 8 for recommended alternatives.

- A. Abbreviations related to medication administration.
 1. \bar{a} – before.
 2. $\bar{a}\bar{a}$ – of each.
 3. $\bar{a}\bar{c}$ – before meals.
 4. ad lib – freely as desired.
 5. ASAP/asap – as soon as possible.
 6. BID or bid – twice a day.
 7. \bar{c} – with.
 8. C – Centigrade.
 9. c/o – complaints of.
 10. cap(s) – capsule(s).
 11. cc – cubic centimeter.
 12. elix. – elixir.

13. F – Fahrenheit.
14. gr – grain.
15. Gm, gm or g – gram.
16. gtt – drop.
17. h – hour.
18. IM – intramuscular.
19. Inh. – inhalant.
20. IV – intravenous.
21. Kg – kilogram
22. liq. – liquid.
23. mcg – microgram.
24. mEq. – milliequivalent.
25. mg. – milligram.
26. mL – milliliter
27. NPO – nothing by mouth.
28. p. – after.
29. \overline{pc} – after meals.
30. PO/po – by mouth.
31. PRN/prn – as needed.
32. qh – every hour.
33. q4h – every four hours.
34. QID/qid – four times a day.
35. sl – sublingual.
36. sol. – solution.
37. STAT/Stat/stat – immediately.

38. subcut – subcutaneously.
39. Supp. – suppository.
40. Tab(s) – tablet(s).
41. TID/tid – three times a day.
42. tr. – tincture.

B. Common diagnoses abbreviations.

1. AIDS – autoimmune deficiency syndrome.
2. ARD – acute respiratory distress.
3. ASCVD – arteriosclerotic cardiovascular disease.
4. ASHD – arteriosclerotic heart disease.
5. BPH – benign prostatic hypertrophy.
6. CAD – coronary artery disease.
7. CHD – coronary heart disease or congenital hip dislocation.
8. CHI – closed head injury.
9. CHF – congestive heart failure.
10. COBS – chronic organic brain syndrome.
11. COLD – chronic obstructive lung disease.
12. CVA – cerebrovascular accident.
13. CVD – cardiovascular disease.
14. COPD – chronic obstructive pulmonary disease.
15. DJD – degenerative joint disease.
16. DM – diabetes mellitus.
17. HTN – hypertension.
18. IDDM – insulin dependent diabetes mellitus.
19. LLLI – left lower lobe infiltrate.

20. RLLI – right lower lobe infiltrate.
21. MI – myocardial infarction.
22. NIDDM – non insulin dependent diabetes mellitus.
23. OBS – organic brain syndrome.
24. PVD – peripheral vascular disease.
25. TIA – transient ischemic attack.
26. URI – upper respiratory infection.
27. UTI – urinary tract infection.

C. Laboratory test terminology.

1. BUN – blood urea nitrogen.
2. CBC – complete blood count.
3. C & S – culture and sensitivity.
4. ECG (EKG) – electrocardiogram.
5. FBS – fasting blood sugar.
6. MRSA – methicillin-resistant staphylococcus aureus.
7. RBC – red blood count.
8. VRE – vancomycin resistant enterococci.
9. VRSA – vancomycin resistant staphylococcus aureus.
10. WBC – white blood count.

D. Miscellaneous.

1. ADL – activities of daily living.
2. AKA – above the knee amputation.
3. ASAP – as soon as possible.
4. CC – chief complaint.

5. C.D.C. – Center for Disease Control.
6. CMS – Centers for Medicare and Medicaid Services.
7. DHSS – Department of Health and Senior Services.
8. Dx – diagnosis.
9. H₂O – water.
10. H & P – history and physical.
11. ICF – intermediate care facility.
12. I & O – intake and output.
13. LTC – long term care.
14. MAR – medication administration record.
15. MDS – minimum data set.
16. MSDS – material safety data sheet.
17. NKA – no known allergy.
18. OBRA – Omnibus Budget Reconciliation Act.
19. OSHA – Occupation Safety and Health Administration.
20. OTC – over the counter medications (non-prescription).
21. PDR – physician's desk reference.
22. RCF – residential care facility.
23. SNF – skilled nursing facility.

III. Summary and Conclusion

- A. Terminology related to medication administration.
- B. Abbreviations related to medication administration.

This lesson has introduced you to terms, and abbreviations commonly used by those responsible for accurately and safely preparing, administering, and recording medications. The next lesson deals with dosage, measurement, and drug forms.

ERROR-PRONE ABBREVIATIONS, SYMBOLS, AND DOSE DESIGNATIONS

This list presents abbreviations, symbols, and dose designations that are considered prone to causing medication errors. These items should be considered "dangerous" for handwritten, preprinted, or electronic forms of communication.

Abbreviations	Intended Meaning	Misinterpretation	Correction
µg	Microgram	Mistaken as "mg"	Use "mcg"
AD, AS, AU	Right ear, left ear, each ear	Mistaken as OD, OS, OU (right eye, left eye, each eye)	Use "right ear," "left ear," or "each ear"
OD, OS, OU	Right eye, left eye, each eye	Mistaken as AD, AS, AU (right ear, left ear, each ear)	Use "right eye," "left eye," or "each eye"
BT	Bedtime	Mistaken as "BID" (twice daily)	Use "bedtime"
cc	Cubic centimeters	Mistaken as "u" (units)	Use "mL"
D/C	Discharge or discontinue	Premature discontinuation of medications if D/C (intended to mean "discharge") has been misinterpreted as "discontinued" when followed by a list of discharge medications	Use "discharge" and "discontinue"
IJ	Injection	Mistaken as "IV" or "intrajugular"	Use "injection"
IN	Intranasal	Mistaken as "IM" or "IV"	Use "intranasal" or "NAS"
HS hs	Half-strength At bedtime, hours of sleep	Mistaken as bedtime Mistaken as half-strength	Use "half-strength" or "bedtime"
IU**	International unit	Mistaken as IV (intravenous) or 10 (ten)	Use "units"
o.d. or OD	Once daily	Mistaken as "right eye" (ODS-oculus dexter), leading to oral liquid medications administered in the eye	Use "daily"
OJ	Orange juice	Mistaken as OD or OS (right or left eye); drugs meant to be diluted in orange juice may be given in the eye	Use "orange juice"
Per os	By mouth, orally	The "os" can be mistaken as "left eye" (OS-oculus sinister)	Use "PO," "by mouth," or "orally"
q.d. or QD**	Every day	Mistaken as q.i.d., especially if the period after the "q" or the tail of the "q" is misunderstood as an "l"	Use "daily"
qhs	At bedtime	Mistaken as "qhr" or every hour	Use "at bedtime"
qn	Nightly	Mistaken as "qh" (every hour)	Use "nightly"
q.o.d. or QOD**	Every other day	Mistaken as "q.d." (daily) or "q.i.d. (four times daily) if the "o" is poorly written	Use "every other day"
q1d	Daily	Mistaken as q.i.d. (four times daily)	Use "daily"
q6PM, etc.	Every evening at 6 PM	Mistaken as every 6 hours	Use "6 PM nightly" or "6 PM daily"
SC, SQ, sub q	Subcutaneous	SC mistaken as SL (sublingual); SQ mistaken as "5 every;" the "q" in "sub q" has been mistaken as "every" (e.g., a heparin dose ordered "sub q 2 hours before surgery" misunderstood as every 2 hours before surgery)	Use "subcut" or "subcutaneously"
ss	Sliding scale (insulin) or ½ (apothecary)	Mistaken as "55"	Spell out "sliding scale;" use "one-half" or "1/2"
SSRI	Sliding scale regular insulin	Mistaken as selective-serotonin reuptake inhibitor	Spell out "sliding scale (insulin)"
SSI	Sliding scale insulin	Mistaken as Strong Solution of Iodine (Lugol's)	
1/d	One daily	Mistaken as "tid"	Use "1 daily"
TIW or tiw	3 times a week	Mistaken as "3 times a day" or "twice in a week"	Use "3 times weekly"
U or u**	Unit	Mistaken as the number 0 or 4, causing a 10-fold overdose or greater (e.g., rU seen as "40" or 4u seen as "44"); mistaken as "cc" so dose given in volume instead of units (eg., 4u seen as 4cc)	Use "unit"

Dose Designations And Other Information	Intended Meaning	Misinterpretation	Correction
Trailing zero after decimal point (e.g., 1.0 mg)**	1 mg	Mistaken as 10 mg if the decimal point is not seen	Do not use trailing zeros for doses expressed in whole numbers
No leading zero before a decimal dose (e.g., .5 mg)**	0.5 mg	Mistaken as 5 mg if the decimal point is not seen	Use zero before a decimal point when the dose is less than a whole unit
Drug name and dose run together (especially problematic for drug names that end in "L" such as Inderal40 mg; Tegretol300 mg)	Inderal 40 mg Tegretol 300 mg	Mistaken as Inderal 140 mg Mistaken as Tegretol 1300 mg	Place adequate space between the drug name, dose, and unit of measure
Numerical dose and unit of measure run together (e.g., 10mg, 100mL)	10 mg 100 mL	The "m" is sometimes mistaken as a zero or two zeros, risking a 10- to 100-fold overdose	Place adequate space between the dose and unit of measure
Abbreviations such as mg. or mL. with a period following the abbreviation	mg mL	The period is unnecessary and could be mistaken as the number 1 if written poorly	Use mg, mL, etc. without a terminal period
Large doses without properly placed commas (e.g., 100000 units; 1000000 units)	100,000 units 1,000,000 units	100000 has been mistaken as 10,000 or 1,000,000; 1000000 has been mistaken as 100,000	Use commas for dosing units at or above 1,000, or use words such as 100 "thousand" or 1 "million" to improve readability
Drug Name Abbreviations	Intended Meaning	Misinterpretation	Correction
ARA A	Vidarabine	Mistaken as cytarabine (ARA C)	Use complete drug name
AZT	Zidovudine (Retrovir)	Mistaken as azathioprine or aztreonam	Use complete drug name
CPZ	Compazine (prochlorperazine)	Mistaken as chlorpromazine	Use complete drug name
DPT	Demerol-Phenergan-Thorazine	Mistaken as diphtheria-pertussis-tetanus (vaccine)	Use complete drug name
DTO	Diluted tincture of opium, or deodorized tincture of opium (Paregoric)	Mistaken as tincture of opium	Use complete drug name
HCl	Hydrochloric acid or hydrochloride	Mistaken as potassium chloride (The "H" is misinterpreted as "K")	Use complete drug name unless expressed as a salt of a drug
HCT	hydrocortisone	Mistaken as hydrochlorothiazide	Use complete drug name
HCTZ	hydrochlorothiazide	Mistaken as hydrocortisone (seen as HCT250 mg)	Use complete drug name
MgSO4**	magnesium	Mistaken as morphine sulfate	Use complete drug name
MS, MS04**	morphine sulfate	Mistaken as magnesium sulfate	Use complete drug name
MTX	methotrexate	Mistaken as mitoxantrone	Use complete drug name
PCA	procaïnamide	Mistaken as Patient Controlled Analgesia	Use complete drug name
PTU	propylthiouracil	Mistaken as mercaptopurine	Use complete drug name
T3	Tylenol with codeine No. 3	Mistaken as liothyronine	Use complete drug name
TAC	triamcinolone	Mistaken as tetracaine, Adrenalin, cocaine	Use complete drug name
TNK	TNKase	Mistaken as "TPA"	Use complete drug name
ZnSO4	Zinc sulfate	Mistaken as morphine sulfate	Use complete drug name

Stemmed Drug Names	Intended Meaning	Misinterpretation	Correction
"Nitro" drip	Nitroglycerin infusion	Mistaken as sodium nitroprusside infusion	Use complete drug name
"Norflo"	Norfloxacin	Mistaken as Norflex	Use complete drug name
"IV Vanc"	Intravenous vancomycin	Mistaken as Invanz	Use complete drug name
Symbols	Intended Meaning	Misinterpretation	Correction
[Dram Nubun	Symbol for dram mistaken as "3" Symbol for minim mistaken as "mL"	Use the metric system
x3d	For three days	Mistaken as "3 doses"	Use "for three days"
> and <	Greater than and less than	Mistaken as opposite of intended; mistakenly use incorrect symbol; "< 10" mistaken as "40"	Use "greater than" or "less than"
/ (slash mark)	Separates two doses or indicates "per"	Mistaken as the number 1 (e.g., "25 units/10 units" misread as "25 units and 110" units)	Use "per" rather than a slash mark to separate doses
@	At	Mistaken as "2"	Use "at"
&	And	Mistaken as "2"	Use "and"
+	Plus or and	Mistaken as "4"	Use "and"
°	Hour	Mistaken as a zero (e.g., q2° seen as q 20)	Use "hr," "h," or "hour"

** Identified abbreviations above are also included on the JCAHO's "minimum list" of dangerous abbreviations, acronyms, and symbols that must be included on an organization's "Do Not Use" list, effective May 1, 2005. Reprinted with permission © ISMP 2006.

LESSON PLAN: 4

COURSE TITLE: MEDICATION TECHNICIAN

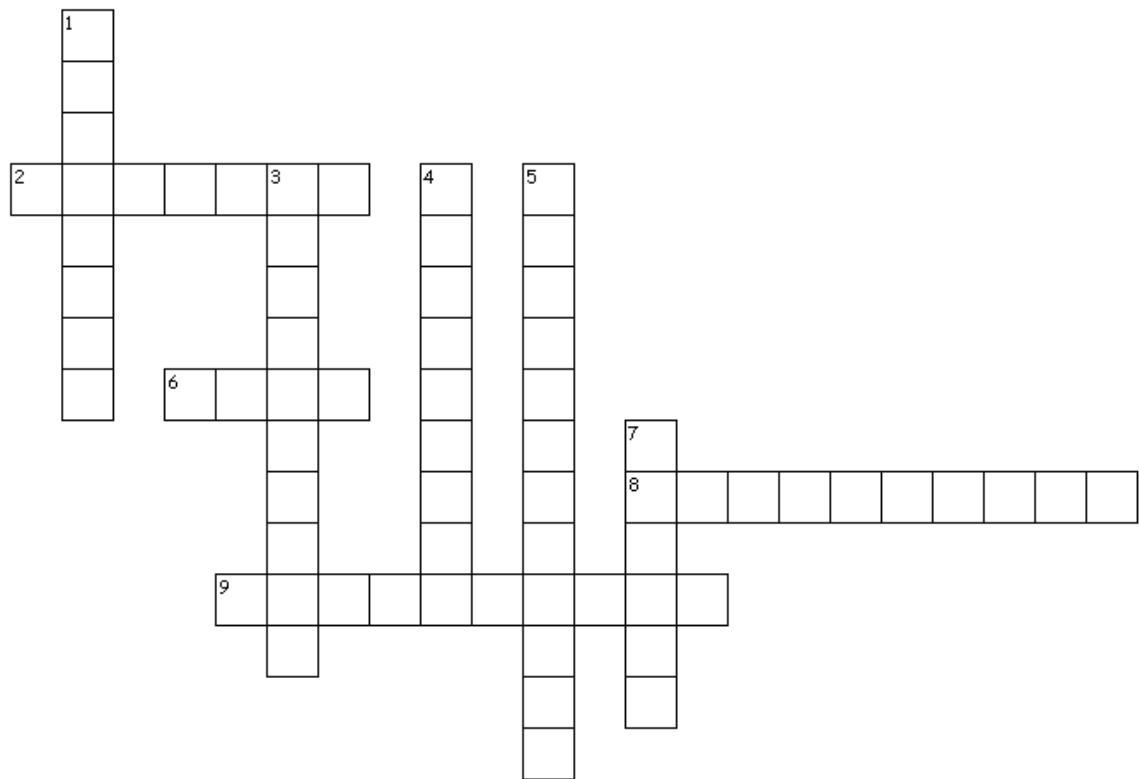
UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

Write the correct abbreviation in the blank.

- | | |
|--|------------------------------------|
| ___ 1. By mouth | ___ 21. Hour |
| ___ 2. Intramuscular | ___ 22. Complains of |
| ___ 3. Intravenous | ___ 23. Activities of daily living |
| ___ 4. Nothing by mouth | ___ 24. Before meals |
| ___ 5. Capsule | ___ 25. As needed |
| ___ 6. Centigrade | ___ 26. Four times daily |
| ___ 7. Drop | ___ 27. Immediately |
| ___ 8. Fahrenheit | ___ 28. Three times daily |
| ___ 9. Grain | ___ 29. With |
| ___ 10. Gram | ___ 30. Intake and output |
| ___ 11. Liquid | ___ 31. History and physical |
| ___ 12. Milligram | ___ 32. No known allergy |
| ___ 13. Milliliter | ___ 33. Water |
| ___ 14. Suppository | ___ 34. Long-term care |
| ___ 15. Solution | ___ 35. Intermediate care facility |
| ___ 16. Medication administration record | |
| ___ 17. Tablet | |
| ___ 18. After meals | |
| ___ 19. Freely as desired | |
| ___ 20. Twice daily | |

Complete the Crossword Puzzle



Across

2. pathological or abnormal condition of the body
6. pertaining to the ear
8. pertaining to the eye
9. not in or through the digestive system

Down

1. symptoms or effect of poisoning of the body by a drug due to a large dose of a drug or a cumulative effect of the drug
3. under the tongue without liquid
4. emotional or physiological dependence upon a drug which has progressed beyond voluntary control
5. injected into the tissues just below the skin, dermis
7. amount of medication given at one time

LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage and accountability.

INFORMATION TOPIC: II-5 OR DEMONSTRATION: II-5

DOSAGE, MEASUREMENTS, AND DRUG FORMS
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

Information:

1. List the measuring systems.
2. Demonstrate an understanding of equivalents used in different measurement systems.
3. Identify ten (10) drug forms from a drug display.

Demonstration:

4. Measure liquid medication accurately.

NOTE: This procedure is addressed under classroom activities and the written evaluation.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Measuring equipment: oral dose syringes, medication spoons, medicine cups, and oral droppers.
2. Drug sample display.
3. HO 9: Roman Numerals.
4. HO 10: Calibrated Liquid Dose Measuring Devices.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 5 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

The metric system is the international standard of measurement for weight, volume, length, and temperature. It has replaced the apothecary system which is no longer used in formal drug literature or health care applications. The use of roman numerals (HO 9) has also been discontinued in healthcare settings. Household measurements are primarily used in the home. Familiarity with all systems provides another communication system for the health care team. The medication technician must also be able to identify drug forms.

LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Measuring Systems

A. Metric system.

1. Basic units of measure include:
 - a. Meter – the basic unit for length or distance.
 - b. Gram – the basic unit for weight.
 - c. Liter – the basic unit for volume (liquids)
2. Prefixes.
 - a. Kilo – 1,000 (thousands).
 - b. Deci – 0.1 (tenths).
 - c. Centi – 0.01 (hundredths).
 - d. Milli – 0.001 (thousandths).
 - e. Micro – 0.000001 (millionths).
3. Basic units – length.
 - a. m – meter (about 39 inches).
 - b. cm – centimeter (1/100 of a meter). Note: 2.5cm equals 1 inch.
 - c. mm – millimeter (1/1,000 of a meter).
4. Basic units – weight.
 - a. kg – kilogram (equals 2.2 pounds).
 - b. g – gram (1/1,000 of a kilogram).
 - c. mg – milligram (1/1,000 of a gram).
 - d. mcg – microgram (1/1,000,000 of a gram).
 - e. mEq – milliequivalent (1/1,000 equivalent combined weight of atom); used for some drugs, (e.g., potassium)
5. Basic units – volume (liquid).
 - a. L – liter (slightly more than 1 quart).
 - b. mL – milliliter (1/1,000 of a liter)

- c. cc – cubic centimeter; equivalent in use to mL.
- B. Household system.
- 1. Uses.
 - a. Home-bound patient taking liquid prescription medication.
 - b. Intake and output measurement.
 - c. Compresses.
 - d. Therapeutic baths.
 - 2. Common measures and abbreviations.

CAUTION: VOLUME MAY VARY.

- a. Drop – gtt.
 - b. Gallon – gal.
 - c. Measuring cup – c.
 - d. Ounce – oz.
 - e. Pint – pt.
 - f. Pound – lb.
 - g. Quart – qt.
 - h. Tablespoon – Tbsp.
 - i. Teaspoonful – tsp.
- C. Apothecary system - replaced by metric system and listed here for reference only.
- 1. Basic units – weight.
 - a. gr – grain.
 - b. oz – ounce.
 - c. lb – pound.

2. Basic units – volume (liquid).

a. gtt – drop.

b. oz – ounce.

II. Measurement System Approximate Equivalents

METRIC

HOUSEHOLD

Weight:

1 kg

2.2 lbs

30 g

1 oz

Volume:

1,000 mL (1 L)

1 qt (2 pt)

500 mL

1 pt (16 oz)

30 mL

1 oz/2 Tbsp

15 mL

1 Tbsp

5 mL

1 tsp

1 mL

15 drops

CAUTION: use only the dropper provided with the medication for an accurate dose.

III. Drug Dosage Forms

A. Oral solids.

1. Tablets.

a. Enteric coated – dissolves in the small intestine rather than in the stomach.

b. Film coated – coated to protect the drug or mask its taste.

c. Scored – a tablet marked with a groove to assist in breaking it into smaller equal pieces.

- d. Sublingual – formulated to dissolve under the tongue for rapid systemic absorption through the mucous membranes.
 - e. Lozenges or troches – to be dissolved in the mouth for local effect on the mouth or throat.
 - f. Buccal – medication placed between the cheek and gum and allowed to dissolve.
2. Capsules.
- a. Powder or granule filled.
 - b. Liquid filled.
 - c. Gel filled.
3. Oral extended release forms.
- a. Multi-layer tablets – layers dissolve at different rate.
 - b. Diffusion, dissolution or osmotic systems – may have a drug core surrounded by a membrane, may have a wax matrix or may have coatings of various thicknesses (e.g., Plateau Caps, Sequels, Extentabs, Repetabs).
 - c. Spansules – contains beads with various coating thickness.
 - d. Abbreviations (often appear after drug name).
 - (1) TR – Timed release.
 - (2) ER – Extended release.
 - (3) CR – Controlled release.
 - (4) CD – Controlled dose.
 - (5) SR – Sustained release.

B. Oral liquids (HO 10).

- 1. Solution – one or more drugs in a solvent.
- 2. Syrup – drugs dissolved in water, sugar, and flavoring.
- 3. Elixir – drugs dissolved in alcohol and water with sweetening.
- 4. Tincture – drug dissolved in alcohol or alcohol and water.

5. Suspension – liquid preparation containing insoluble substance; must be shaken well prior to administration.
- C. Topical – for skin surface use.
1. Paste – stiff, ointment-like preparation with an oil or water base.
 2. Ointment – soft, water-insoluble with an oil base.
 3. Cream – soft, water soluble.
 4. Gel – very soft, very water soluble.
 5. Lotion – water suspension for external use.
 6. Patch – extended-release formula for system absorption.
 7. Solution – one or more drugs in a solvent.
 8. Aerosol – foam, powder, or solution in a pressurized container or manual pump. Foam may also be used rectally.
- D. Ophthalmic – sterile preparations for use in the eye.
1. Ointment.
 2. Solution.
 3. Suspension
- E. Otic – sterile preparation for use in the ear.
1. Solution.
 2. Suspension
- F. Nasal – preparation for use in the nose or on the nares.
1. Ointment.
 2. Solution – nose drops.
 3. Aerosol – nasal spray, pressurized container, or manual pump. For local use in the nose or system absorption through the nasal membrane; not to be inhaled into the lungs.
- G. Respiratory-administered into the respiratory tract.
1. Metered Dose Inhaler (MDI) pressurized container.

2. Powder inhaler – mechanical system for inhaling very fine powders for local effect in the lungs.
3. Nebulizer- changes liquid medicine into fine droplets (in aerosol or mist form) that are inhaled through a mouthpiece or mask

H. Vaginal

1. Suppository – drug in solid that melts or dissolves in the body.
2. Medicated douche – contains a drug for local effect.
3. Vaginal Ring/Cervical ring – non-biodegradable ring containing drug to be placed in the vagina.

I. Rectal.

1. Suppository – drug in solid that melts or dissolves in the body.
2. Medicated enema – contains a drug for local or systemic effect.

J. Powder/granule – drug in a powdered form for topical use or to be dissolved before oral use.

K. Injectable – drug in a water or oil solution for injection through the skin into the muscle (IM), vein (IV), or subcutaneous tissue.

L. Implant – non-biodegradable drug reservoir implanted beneath the skin for systemic absorption.

IV. Summary and Conclusion.

- A. Measuring systems.
- B. Measurement systems approximate equivalents.
- C. Drug dosage forms.

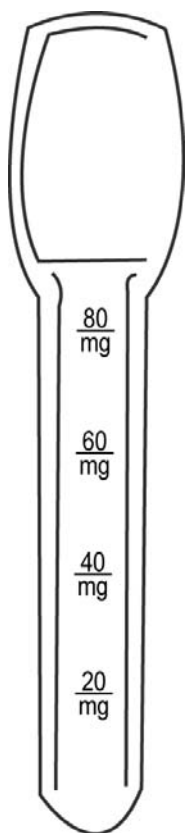
The next lesson is on transcribing physician's orders.

ROMAN NUMERALS

Roman numerals are used for reference only and are not to be used in medication orders.

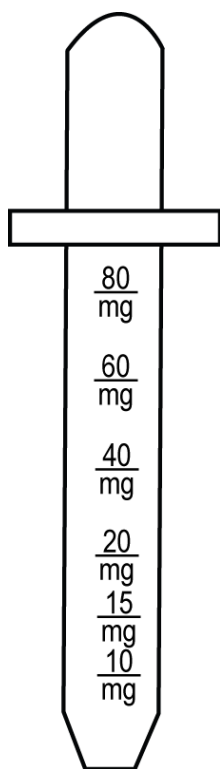
Arabic	Roman Numeral
1	I or i
2	II or ii
3	III or iii
4	IV or iv
5	V or v
6	VI or vi
7	VII or vii
8	VIII or viii
9	IX or ix
10	X or x

CALIBRATED LIQUID DOSE MEASURING DEVICES

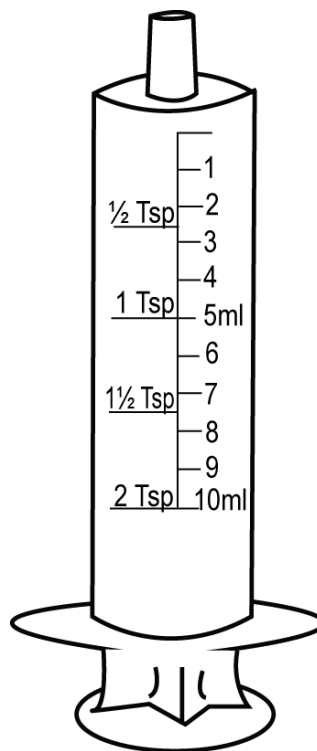


SPOON

Units are in milligrams. These must only be used for the specific product with which they are supplied or a dose error would occur.

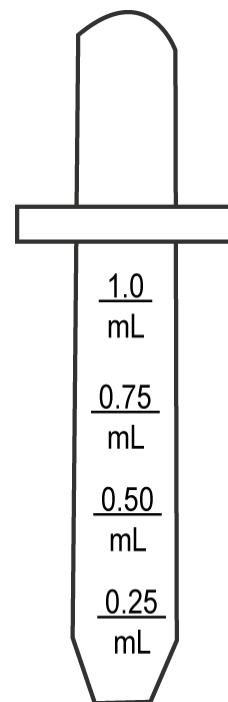


DROPPER



ORAL SYRINGE

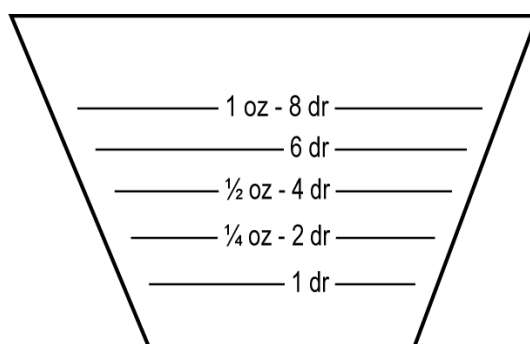
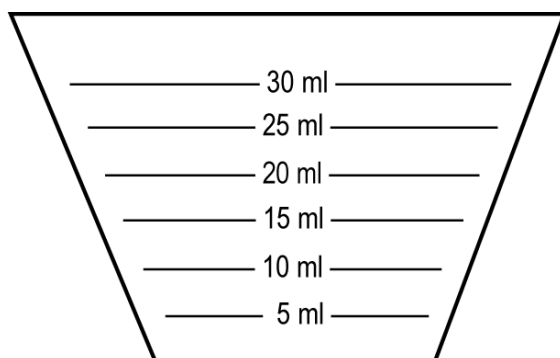
Units are milliliters. This type may be used with any medication provided that you know the volume of the dose to be given.



DROPPER

MEDICINE CUPS

Medicine cups are often graduated in metric, apothecary, and household units.



LESSON PLAN: 5

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

1. What are the three (3) measuring systems?
 - a.
 - b.
 - c.
2. Write the household equivalent of the following metric measurements.

Metric	Household
30 mL	
500 mL	
15 mL	
5 mL	

Write the metric equivalents to the following drug doses.

3. Milk of Magnesia 2 Tbsp = _____ mL
4. Dilantin suspension (125 mg/5 mL) 1 tsp = _____ mg
5. From a drug display, identify (10) forms of drugs.

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____

I. _____

J. _____

Match the correct dose from the pictures to the following drug orders:

6. Potassium chloride 20 mEq/15 mL, 40 mEq dose = _____

7. Lanoxin elixir 0.05 mg/mL, 5 mL dose = _____

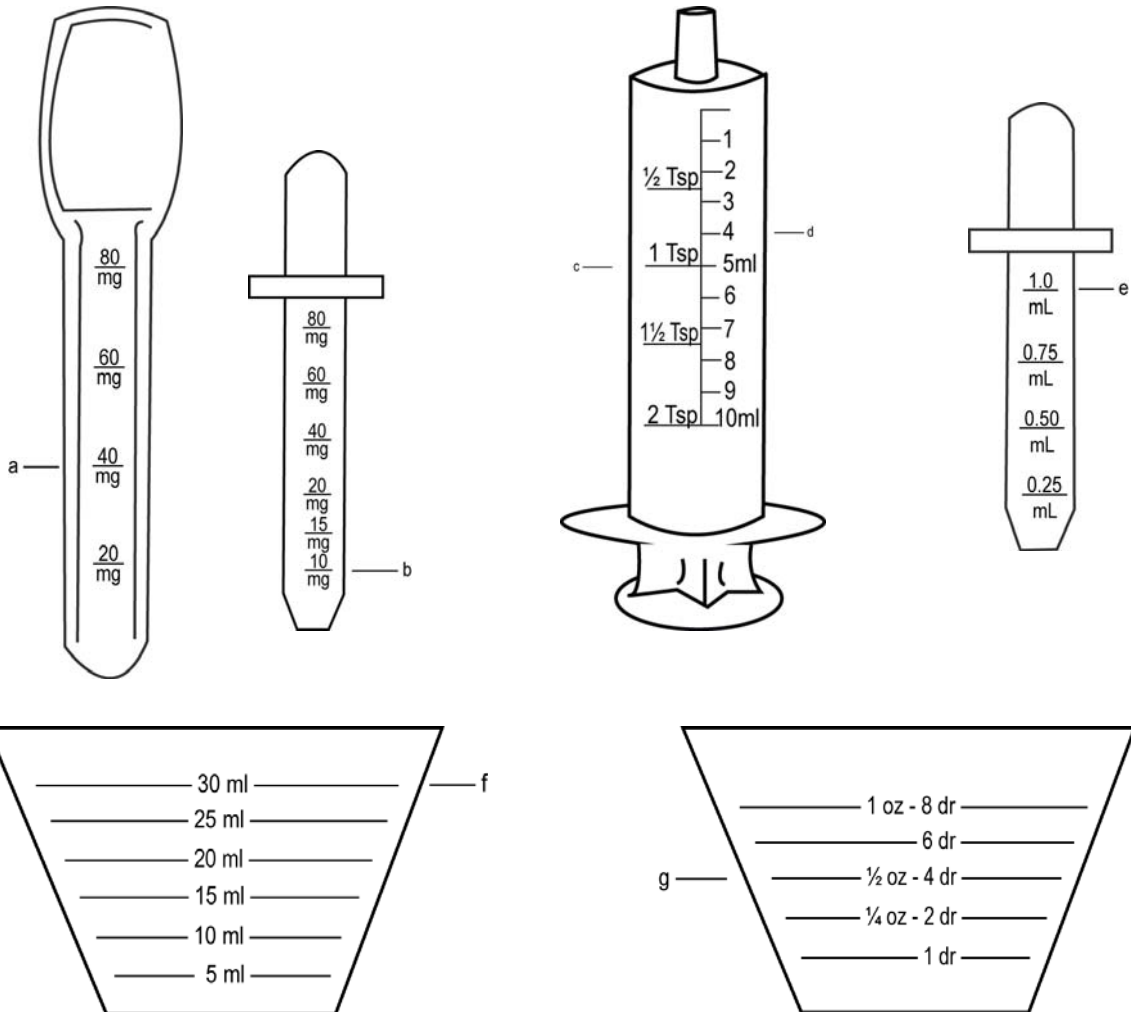
8. Furosemide 10 mg/mL, 40 mg dose = _____

9. Dilantin 125mg/5mL, 125 mg dose = _____

10. Haloperidol 2 mg/mL, 1 mL dose = _____

11. Milk of Magnesia, 1 tbsp dose = _____

12. Lorazepam 2 mg/mL, 2 mg dose = _____



LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, infection control, and accountability.

INFORMATION TOPIC: II-6 OR DEMONSTRATION:

TRANSCRIBING PHYSICIAN'S ORDERS

(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Identify the two types of physician's orders.
2. Match the terms which determine what kind of a verbal or written order the physician has given with their definitions.
3. Identify the general principles used when transcribing orders.
4. List the items to be transcribed on the Medication Administration Record (MAR).
5. List the items to be transcribed on the medication card.
6. List the items found on the prescription label.
7. Record essential information on records.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Sample physician's order sheets, medication records, medication cards, and prescription labels.
2. Abbreviation list for the facility.
3. HO 11: Sample Completed Physician's Order Sheet.
4. HO 12: Sample Completed Physician's Telephone Order Sheet.
5. HO 13: Sample Completed PRN Medication Form.
6. HO 14: Sample Completed Medication Administration Record (MAR).

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 6 prior to class and be prepared to discuss the information presented.

INTRODUCTION:

No medication can be given to a resident without a physician's order, so the administration of medications actually begins with that physician's order. Once the order has been obtained, the task of transcribing the order onto the facility's Medication Administration Record (MAR) may be completed. This lesson will identify the terms and general principles related to transcribing all medication orders and describes the records used in the transcription process.

LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

I. Types of Physician's Orders

A. Written.

1. Directly on the order sheet by the physician or prescriber (HO 11).
2. Indirectly by a prescription (permitted in an RCF when a direct written order is not required by the facility).

B. Verbal.

1. Physician gives the order verbally, either directly or by telephone to another person who is responsible for writing it on the order sheet (HO 12).
2. State regulations determine whether a medication technician may accept verbal orders in a RCF, ICF, or SNF. The verbal order must be reviewed by a nurse or pharmacist prior to administration of the medication.

II. Terms Describing Physician's Orders

A. Automatic stop orders – policy that puts a limit on the length of time a medication can be given before the physician must be consulted for a continuation of the order.

B. Discontinue orders – medications are stopped and no longer administered to the resident.

C. One-time orders – single dose is administered only one time.

D. PRN orders – meds are administered only as needed according to a designated time frame identified in the order. All prn orders must contain a specific reason for giving the medication such as pain, fever, etc. The licensed nurse assesses the resident and makes the decision when to administer a prn medication.

E. Renewal orders – continues the medications which were previously prescribed for the resident; usually done once a month.

F. Routine orders – orders for medications the resident takes on an on-going basis.

G. Short-Term Orders/Limited Orders – physician determines the number of doses or days the medication is to be administered. The medication is given only for

this prescribed time. For example: Antibiotics that are ordered to be given twice a day for 7 days.

- H. STAT orders – these meds are administered immediately, one-time only such as Nitroglycerine STAT.
- I. Change in order.
 - 1. Original order discontinued.
 - 2. New order written.
 - 3. If a label is to be changed on the medication container to reflect new directions, this must be done by the pharmacist. It is unacceptable for a CMT or nurse to write on the medication label.
 - 4. If no new label is to be used, the medication container should be flagged with a "change in order" sticker to indicate new directions.

III. General Principles in Transcription

- A. All transcription must be error-free. To reduce the chance of errors:
 - 1. Writing should be clear, neat, and legible. Print if necessary.
 - 2. Blue or black ink is preferred by most facilities. Do not use a felt tip pen as the ink can run or bleed through the MAR.
 - 3. Use only abbreviations on the the list of accepted abbreviations established by the facility.
 - 4. Keep distractions to a minimum.
 - 5. Orders should be completely transcribed all at one time. Leaving and coming back to orders may mean something is overlooked or forgotten.
 - 6. Recopy from the original order. The more an order is recopied, the greater the chance an error can occur. The medication technician should take responsibility to find the original order and copy only from it.
 - 7. Review unclear orders with the charge nurse or physician before attempting to transcribe them whenever necessary. The physician's handwriting may not be very legible. Review directly with the physician if he/she is in the facility, or review by phone if the physician is not on the premises.
 - 8. Verify verbal orders by writing them down and reading them back to the physician exactly as given. Say in words the meaning of any abbreviations used.

9. Spell drug names back to physician when pronunciation is unclear. If the physician uses an unapproved abbreviation or term, repeat the order back to the physician using the correct abbreviation or term for clarification.
10. Transcribe all orders onto each document exactly as they appear on the original written order. If an unapproved abbreviation or symbol was used in the original order, clarify the order with the physician.
11. Verify all completed transcriptions with licensed nurse.
12. If an error is made, cross it out and write “mistaken entry” and your name and date above it.
13. When transcribing medication orders onto the MAR, following your facility’s guidelines regarding the timing of medications ordered daily, BID, TID, QID, etc. Pay special attention to medications that must be given before or after meals and assign them the correct time for administration.

CAUTION: Accuracy is essential in transcribing all physicians' orders.

IV. Medication Administration Record (MAR) (HO 13, HO 14)

- A. A Permanent record that is part of a resident's chart. Maybe a paper or an electronic document.
- B. Items found on medication record include:
 1. Name of resident – first name, middle initial and last name.
 2. Allergies to foods and/or medications.
 3. Date medication administered.
 4. Time medication administered.
 5. Name of the drug.
 - a. Written just as given by physician.
 - b. May be provided in generic form.
 - c. Verify that medications sent in generic form are indeed the same medication as the physician ordered.
 6. Strength of the drug.
 - a. Not all medications will have a strength designated. If strength is not specified, confirm there is ONLY one strength available.

- b. Most medication comes in more than one strength.
 - 7. Dosage – amount of medication given.
 - 8. Route of administrations (e.g., oral, rectal, topical, etc.).
 - 9. Signature of person administering drug.
 - a. Small square for initials.
 - b. Official signature (first initial, last name, and title) recorded beside the initials the person is using must appear on the MAR.
- C. Access to an electronic MAR (sometimes referred to as an e-MAR) may require the CMT to use a password to access the computer software program. It is important to be trained on the use of the software prior to administering and documenting medications using this system.

V. Medication Card

- A. Medication cards are used in some facilities to identify medications when it is necessary to remove them from their original container prior to administration. If a medication leaves the original packaging and is not administered at once, it must have a medication card(s) with it at all times.
- B. Items found on the medication card.
 - 1. Full name of the resident.
 - 2. Room number of the resident.
 - 3. Name of the medication.
 - 4. Dosage and strength of the medication.
 - 5. Times of administering the medication.
 - 6. Route of administration.
 - 7. Date the medication was ordered.
 - 8. Physician's name.

VI. Prescription Label

- A. Found on the medication container (bottle, unit dose card or pack).
- B. Check for accuracy.

VIII. Summary and Conclusion

- A. Types of physician's orders.
- B. Terms describing physician's orders.
- C. General principles in transcription.
- D. Medication administration record (MAR).
- E. Medication card.
- F. Prescription label.
- G. Facility records.

Care must be taken when transcribing physician's orders. An error could be deadly for your resident. The next lesson is on packaging, storage, infection control, and accountability.

SAMPLE COMPLETED PHYSICIAN'S ORDER SHEET

HO11

Generic equivalent may be used unless the order is specifically followed by the notation: "Use no substitutes." May send medication while on pass from facility. May leave premises with responsible party. May send medications _____ days. I recertify for _____ level of care. Medications previewed and approved as printed. I approve the overall plan of care. _____ Pharmacist's Signature		PHYSICIANS ORDERS			
		FUNCTIONAL LEVEL: UP AD LIB ACTIVITIES: PRN SOCIAL SERVICES: PRN ROUTINE LABS: SERUM K FEB & JUL RESTRAINTS: NONE CODE STATUS: NO CODE			
MEDICATIONS		Schedule			
Multivitamin tab 1 tab po every morning 12/5/00		800A		D/C Furosemide 20mg Furosemide 40mg 1 tab po every AM 1/11/05 Dr. Watson	
Digoxin 0.125Mg 1 tab po every morning hold if AP less than 60 or over 110 12/5/00		800A			
Furosemide 20mg 1 tab po every morning DC 1/11/00		800A			
Carbamazepine 200mg 1 tab po every 12 hours 12/5/00		800A			
Captopril 12.5mg 1 tab po 3 times daily 12/5/00		800A 1200N 400P			
Carafate 1mg 1 tab po before meals and at bedtime 12/5/00		700A 1100A 400P 800P			
Acetaminophen 325mg 2 tabs po every 4 hrs prn for pain 12/5/00		PRN			
Lorazepam 0.5mg 1 tab po at bedtime prn for sleep 12/5/00		PRN			
Furosemide 40mg 1 tab po q morning 1/11/00		800A		Attending Physician's Signature _____ Date	
Charting for 01/1/00			Through 01/31/00		
Physician	WATSON		Patient Code	Revised by Supervising Nurse	
Phone No.	123-4567				
Diet	REGULAR, NO ADDED SALT			Weight	Date of Birth
Allergies	NKA			120 lb	1/10/00
Diagnosis	CHF/SEIZURE DISORDER / GASTRIC ULCER			Sex	F
Patient	Edna Long			Med Record No.	Admission Date
				678	12/5/00
				Habilitative/Rehabilitative Potential	
				FAIR	
				Medicaid No.	Room No.
				Medicare No.	Bed

SAMPLE COMPLETED PHYSICIAN'S TELEPHONE ORDER FORM

Facility Name: <u>WeCare Nursing</u>			PHYSICIAN		
TELEPHONE ORDERS					
Facility Address: <u>123 Oak Street, Anytown, USA</u>					
Patient Name: <u>Edna Long</u>		Room No. <u>1</u>		Physician <u>Watson</u>	
Order Date	Prob	Code	Physician Orders	Sig.	Init.
<i>1/20/00</i>			<i>D/C Furosemide 20mg</i>		
			<i>Furosemide 40mg 1 po every AM</i>		
Nurse Signature Date 1/20/00			Physician's Signature Date 1/23/00		
<i>B. Wilson, CMT</i>			<i>Mark Watson, MD</i>		
Physician please sign and return within 7 days					

SAMPLE COMPLETED PRN MEDICATION FORM

PRN Medication								
Name		Initials	Name		Initials	Name		Initials
<i>B. Wilson, CMT</i>		<i>BW</i>						
<i>D. More, CMT</i>		<i>DM</i>						
Date	Time	Medication	Route	Reason Given	Initials	Time	Result	Initials
<i>1/10/00</i>	<i>10AM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>1030P</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/10/00</i>	<i>2PM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>230P</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/10/00</i>	<i>10PM</i>	<i>lorazepam 0.5mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>11P</i>	<i>sleeping</i>	<i>DM</i>
<i>1/11/00</i>	<i>9AM</i>	<i>acetaminophen 325 mg 2 tab</i>	<i>po</i>	<i>headache pain</i>	<i>BW</i>	<i>930A</i>	<i>Denies headache</i>	<i>BW</i>
<i>1/11/00</i>	<i>9AM</i>	<i>lorazepam 0.5 mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>10P</i>	<i>sleeping</i>	<i>DM</i>
<i>1/12/00</i>	<i>4PM</i>	<i>acetaminophen 325 mg2 tab</i>	<i>po</i>	<i>c/o headache</i>	<i>DM</i>	<i>430P</i>	<i>Denies headache</i>	<i>DM</i>
<i>1/12/00</i>	<i>9PM</i>	<i>lorazepam 0.5mg tab</i>	<i>po</i>	<i>c/o insomnia</i>	<i>DM</i>	<i>930P</i>	<i>sleeping</i>	<i>DM</i>

LESSON PLAN: 6

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

1. What are the two types of medication orders?
 - a.
 - b.

Match the terms in Column A with the correct definitions in Column B.

Column A

Column B

- | | |
|--------------------------|--|
| ___ 2. Limited order | a. Medications are cancelled so they are no longer administered. |
| ___ 3. Verbal order | b. Medication the resident takes on an on-going basis. |
| ___ 4. stat order | c. Physician voices order directly or by telephone. |
| ___ 5. Routine order | d. Continues medications previously prescribed. |
| ___ 6. Written order | e. Physician determines number of doses or day the medication is to be administered. |
| ___ 7. PRN order | f. Administered immediately, one-time only. |
| ___ 8. Discontinue order | g. Single dose administered only one time. |
| ___ 9. One-time order | h. Administered only as needed according to a designated time frame. |
| ___ 10. Renewal order | i. Physician puts in writing the medication order. |

Circle the letter of the best answer.

11. Which statement is NOT true regarding the principles of transcription?
 - a. Transcription of medication orders must be error-free.
 - b. Black ink is preferred for transcribing physician's orders.
 - c. Only approved abbreviations may be used when transcribing orders.
 - d. When an order is being transcribed the first consideration is speed.

12. Which statement is NOT true regarding the principles of transcription?
- a. Recopying of medication orders should be done from original order.
 - b. When a medication technician has completed transcription of orders, it should be verified by another medication technician.
 - c. If the physician's pronunciation of a drug name is unclear in giving the order, the medication technician should spell the drug name back to him/her for clarification.
 - d. If a medication technician has any doubt about a medication order, he/she should question the licensed nurse about any point of concern.
13. List the items to be transcribed on the medication record.
14. List the items to be transcribed on the medication card.
15. List the items found on a prescription label.

Circle the correct word(s) to complete the following statements.

16. Transcription of medication orders must be (error free) (nearly correct).
17. (Red) (Black) ink is preferred for transcribing physician's orders.
18. (Any) (Only Approved) abbreviations may be used when transcribing orders.
19. When an order is being transcribed the first consideration is (speed) (accuracy).
20. Recopying of medication orders should be done from (original order) (a clear copy).
21. When a CMT has completed transcription of orders, it should be verified by (the licensed nurse) (another CMT).
22. If the physician's pronunciation of a drug name is unclear in giving the order, the CMT should (spell the drug name back to the doctor for clarification) (try to look it up).
23. If a CMT has any doubt about a medication order he/she should (hurry up and give the dose at the prescribed time so there will be time to look up information) (question the charge nurse about any point of concern).
24. There should be (no variances) (only minor discrepancies) in the information on the MAR, physician's order, and prescription label.
25. What is found on the prescription label when there is a change in directions for administering?

26. What is the purpose of the pharmacy's name, address, prescription number, and phone number being on the prescription label?

Demonstrate your understanding of documentation of medication orders in the following scenario.

27. You are on duty at WeCare Nursing Facility and receive a telephone call from Dr. Watson. Today, he orders the following for your resident Edna Long: Zantac 150 mg, 1 tab po at 8 a.m. & 8 p.m., Aspirin EC 325 mg, 1 tab po at 8 a.m., and Milk of Magnesia, 30 mL po daily prn constipation. Fill out the PHYSICIAN'S TELEPHONE ORDERS form, the PHYSICIAN'S ORDERS sheet, and the MEDICATION ADMINISTRATION RECORD. Also document on the forms the administration of all three drugs for today.

Facility Name: _____			PHYSICIAN TELEPHONE ORDERS		
Facility Address: _____					
Patient Name: _____		Room No. _____	Physician _____		
Order Date	Prob	Code	Physician Orders	Sig.	Init.
Nurse Signature Date			Physician's Signature Date		
Physician please sign and return within 7 days					

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

SCOPE OF UNIT:

This unit includes medication terminology, dosage, measurements, drug forms, transcribing physician's orders, packaging, storage, infection control, and accountability.

INFORMATION TOPIC: II-7 OR DEMONSTRATION:

PACKAGING, STORAGE, INFECTION CONTROL AND ACCOUNTABILITY
(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

1. Identify and compare the three basic types of medication packaging.
2. Identify types of storage and security systems.
3. Identify how different types of drugs should be stored.
4. Select appropriate techniques in maintaining infection control utilized in medication administration.
5. Examine accountability procedures for individual, stock, controlled substances, and emergency drugs.

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

1. Handwashing facilities: hot and cold running water, soap, paper towels, waste basket, hand lotion.
2. Samples of bubble cards, unit dose cards from other systems.
3. Sample emergency drug tray.
4. HO 15: Infection Control.
5. HO 16: Sample Completed Controlled Substance Record.
6. HO 17: Sample Controlled Substance Shift Change Count Check Sheet.
7. HO 18: Medication Disposition Form.

INFORMATIONAL ASSIGNMENT:

Read Lesson Plan 7 prior to class and be prepared to discuss the information presented. Read facility's policies regarding storage, handling, and security of medications.

INTRODUCTION:

Regulations are established for the packaging, storage, and handling of drugs in long-term care facilities. These specify locked areas for all medications, double locked areas for controlled substances, refrigeration of biologicals, and separation of external from internal drugs. Only nonprescription drugs are allowed as stock medications. Good methods of infection control must be established in handling and distributing drugs.

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

OUTLINE:

- I. Medication Packaging
 - A. Traditional – doses dispensed in a bottle.
 - B. Modified unit dose – doses dispensed on “bubble” or “blister” card.
 - C. Unit dose – doses dispensed individually wrapped.
 - D. Unit dose and modified unit dose organization.
 1. “Time pass” system – doses are organized by time of administration. At least one dose of all meds administered at a particular time is grouped together. For example, in a bubble card system, a medication given at 8AM and 8PM would have one card of doses stored in the “8AM” group and one card in the “8PM” group.
 2. “Sectional pass” system – doses are organized by resident name. At least one dose of all meds administered to a particular resident is grouped together. For example, in a bubble card system, a medication given at 8AM and 8 PM would have one card of doses stored in the “section” for that resident and would be used twice a day.
- II. Types of Storage and Security Systems
 - A. A locked room used for storing medication only. Doors should be self-closing and locking for security purposes.
 - B. Medication cabinets with locks.
 1. Individual compartments or bins.
 2. Shelves without compartments or bins.
 - C. Medication carts with locks that have individual bins or trays and a lockable drawer.
 - D. Automated dispensing systems.
 1. Specially designed cabinets that provide single doses for individual residents.

2. When the cabinet is used only for controlled substances and emergency supplies, it may be controlled by the facility or pharmacy.
 3. When the cabinet is used for all medication it is electronically controlled by the pharmacy. The pharmacy requires a prescription order before releasing doses to facility staff. This procedure eliminates individual prescription containers except for special needs.
 4. The user enters resident information, drug information and a personal access code to obtain a dose.
 5. Two basic cabinet types.
 - a. Unit doses stored in drawers with separate compartments for each drug. The user selects the correct compartment.
 - b. The dose is supplied to the user in a “vending machine” manner and the user does not have access to the storage area.
- E. Refrigerator – the refrigerator should be in a locked medication room. If the refrigerator is not in a secured area, the refrigerator door should be locked or the drugs should be in a locked container permanently attached to the inside of the refrigerator. Drugs should be stored in a separate, sealed container if food is also stored in the same refrigerator. The refrigerator temperature should be maintained between 36° and 46° Fahrenheit.
- F. Controlled substances.
1. Schedule II controlled substances must be stored under double lock and the keys should be different. They may be stored in:
 - a. A locked cabinet or drawer within a locked room. Keys to the cabinet or drawer must be different than the door key.
 - b. A locked compartment in a locked cabinet or drawer with 2 different keys.
 2. On a medication cart, Schedule II controlled substances must be stored in the locked drawer and the cart kept locked or secured behind a locked door. Two different keys for the locks are required.
 3. If Schedule II controlled substances are in single use packaging with minimum quantities, they may be stored with other drugs under a single lock.
 4. Other controlled substances may be double locked as necessary for security.

- G. Access control – access should be limited to persons authorized to administer medications.
 - 1. Keys should be controlled to limit access to drugs and limited to the minimum number necessary.
 - 2. All keys should be accounted for at each controlled substance inventory counting.
 - 3. Keys should be carried and never left unattended.
 - 4. When using access codes, they should be protected and never shared with others.

III. Storage for Different Types of Drugs

A. Internal.

- 1. Tablets and capsules – kept in original container.
- 2. Liquids are kept in the original container; some may require refrigeration.
- 3. Eye, ear, or nose – may be stored with rest of the resident’s internal medications, but it’s important to keep the container clean. Keep in original container. It is safest to separate medications by route to avoid confusion.
- 4. Inhalers, suppositories are kept in original containers (suppositories may need to be refrigerated).

B. External – store separately from internals to reduce chance of error and contamination.

- 1. Liquids – keep on different shelf; a different cabinet is even better.
- 2. Ointments – keep in individual cardboard box or other container.

IV. Infection Control (HO 15)

A. Infection control in equipment and drug storage area.

- 1. Frequency of cleaning
 - a. Shelves, bins, and refrigerated containers should be cleaned weekly or more often if needed with soap and warm water.



- d. Always wash hands with soap and water before eating, clocking out and before and after using the bathroom.
2. Wear gloves when administering:
 - a. Vaginal medications.
 - b. Rectal medications.
 - c. Ophthalmic Medications-do not use alcohol based handrub prior to administering ophthalmic medications
 - d. Other medications that specify the use of gloves such as topical medications and transdermal patches
 - e. Medications that put the medication technician at risk of having contact with body substances, mucous membranes or non-intact skin.

V. Accountability System

- A. Individual prescription non-controlled substance medications.
 1. Administration records.
 2. Acquisition procedure.
 - a. New orders.
 - b. Refills.
 3. Disposal procedure.
 - a. A single dropped or refused dose is disposed of according to facility policy. Make the nurse aware of the situation so that the medication can be replaced if necessary.
 - b. Medication technicians may not dispose of medications except for a single contaminated or refused dose. Destruction of "bulk" unwanted non-controlled drugs must be done by a nurse and a pharmacist or by two nurses.
- B. Nonprescription – OTC (over-the-counter) medications can be purchased by the facility and do not need state approval.
 1. Administration records or MAR.
 2. Acquisition procedure – follow facility policy.

3. Disposal procedure – follow facility policy.
- C. Controlled substances.
1. Individual prescription or Emergency Medication Supply.
 2. Administration recorded on Medication Administration Record (MAR) and Individual Controlled Substance Record.
 3. Acquisition procedure.
 - a. New orders.
 - b. Refills.
 4. Receiving records (HO 16).
 - a. May be on a separate receiving record.
 - b. Record on Individual Controlled Substance Record.
 - c. Delivery record for pharmacy.
 5. Reconciling drug count/inventory.
 - a. Frequency – each shift or per facility policy.
 - b. Compare count to individual controlled substances record (HO 16).
 - c. Document completion on Controlled Substance Count Check Sheet (HO 17).
 6. Discrepancies in the count must be reported to the Director of Nursing and others as required.
 7. Waste must be witnessed and documented according to state regulations and facility policy.
 8. Destruction of unused drugs when discontinued is according to state regulations and facility policy.
 9. Theft of controlled substances
 - a. Common methods of theft include:
 - i. Theft of medications left unlocked and unattended.
 - ii. Break-in of locked storage area.

- iii. Falsification of records.
 - iv. Replacement of a controlled substance with another medication.
- D. Emergency drug supply and STAT kit – may consist of life saving type drugs as well as starter doses and OTC Meds.
 - 1. Administration records (MAR).
 - 2. Acquisition procedure.
- E. Disposal – according to regulations and facility policies.
 - 1. Single doses of contaminated or refused medications.
 - a. Non-controlled substances may be destroyed by the medication technician.
 - b. Controlled substances may be destroyed by the medication technician and a nurse.
 - 2. Medications may be released to the resident or responsible individual upon discharge.
 - 3. Medications may be returned to the pharmacy according to the Board of Pharmacy Regulations.
 - a. Controlled substances and medications that have been in the resident’s possession cannot be returned.
 - b. Any medication that is still in the manufacturers original packaging and has not been opened or full cards of medication that have not been altered in anyway (for example, no pills have been popped and the card has not been written on) may be returned to the pharmacy for a refund.
 - c. Regulations allow reuse of only certain unit-dose packages. The pharmacy may refuse to accept other medications.
 - 4. Other medications not in current use must be destroyed by a pharmacist and licensed nurse or two licensed nurses within 30 days.
 - 5. Records of medication(s) released, returned, or destroyed must include resident’s name, date, medication name and strength, quantity, prescription number and signature of persons involved.

- F. Physical considerations for medications.
 - 1. Expiration dates – medications are assigned an expiration date by the manufacturer and when they are repackaged by the pharmacy.
 - 2. Storage temperatures – storage temperatures affect the shelf life of medications. Consult the pharmacist if a medication has not been stored properly.
 - a. Refrigerator 36°-46°F.
 - 3. Contamination – some medications, such as eye drops, are sterile. Most liquid medications contain preservative to resist bacterial growth. All medications should be handled carefully to prevent contamination.
 - 4. Deterioration – examine all medications and packages for physical signs of deterioration such as discoloration, crumbling, sediment, crystal formation, and cracked or leaking containers.
 - 5. Tampering – many sealed packages can be opened, the medication removed and a substitute put in its place. Examine packages, especially controlled substances packages for signs of tampering.

VI. Summary and Conclusion

- A. Medication packaging.
- B. Types of storage and security systems.
- C. Storage for different types of drugs.
- D. Infection control.
- E. Accountability system.
- F. Physical considerations for medications.

The next lesson is on body systems, related diseases and conditions, drugs and observations.

INFECTION CONTROL

A system of infection prevention and control currently in use is called Standard Precautions or Body Substance Precautions (BSP). This system focuses on keeping all moist body substances (blood, feces, urine, wound drainage, tissues, oral secretions, and other body fluids) from the hands of personnel. This is done primarily by increased glove usage and hand hygiene. Hand hygiene is performed using soap and water or an alcohol based handrub to decontaminate the hands. The Standard Precautions system is consistent with recommendations from the Centers for Disease Control (CDC), the American Hospital Association, and Occupational Safety and Health Administration (OSHA) that point out the need to consider ALL blood and ALL body fluids as potentially contagious regardless of the resident's diagnosis. In order to comply with the CDC policies, the following recommendations should be used. The need to use barriers must focus on the caregivers' routine contact with the residents.

Because a medical history and examination cannot reliably identify all persons with infectious diseases, we treat ALL blood and body substances as potentially infectious rather than to focus precautions only on the residents that are diagnosed with infectious diseases.

Implementing the Standard Precautions System includes the following elements and should be followed by ALL personnel at all times, regardless of the resident's diagnosis.

Standard Precautions

1. Wear gloves when it is likely that hands will be in contact with mucous membranes, non-intact skin and/or ANY moist body substance, (blood, urine, feces, wound drainage, oral secretions, sputum, vomitus, or items/surfaces soiled with these substances). Gloves should be changed and hand hygiene performed between residents. If a glove is torn or a needle stick or other injury occurs, the glove should be removed, discarded in appropriate container, hands washed with soap and water, and a new glove used promptly as patient safety permits (report needle sticks or other injuries per facility policy).

REMEMBER: Gloves are not a cure-all. They reduce the likelihood of contaminating the hands, but hand hygiene should be performed before donning and after removal of the gloves.

- a. Use examination gloves for procedures involving contact with mucous membranes, unless otherwise indicated, and for other resident care procedures.
- b. Change gloves and perform hand hygiene between residents.
- c. Do NOT wash or disinfect examination gloves for reuse.
- d. Use general purpose utility gloves (e.g., rubber household gloves) for housekeeping or instrument cleaning involving blood contact. These utility

gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, or discolored; or if they have punctures, tears, or other evidence of deterioration.

2. Wash hands often, always between residents' care and after any contact with body substances or contaminated material. Pay particular attention to around and under fingernails and between fingers. Always keep your hands away from your face or you may give yourself the infectious organisms.
3. Wear masks and/or eye protection when it is likely that eyes or mucous membranes will be splashed with body substances (your charge nurse will give you further direction).
4. Protect your clothing with a plastic apron or gown when it is likely that clothing will be soiled with body substances.
5. Health care workers with draining lesions or weeping dermatitis must refrain from all direct resident care and from handling resident care equipment until cleared by a physician. These conditions put the employee and the resident at risk of infections.
6. Discard trash in plastic bags according to facility policy.
7. If the resident has a disease which is transmitted in whole or part by the airborne route, use the "Stop Sign Alert" on the resident's door. This will allow the nurse to give the individuals wishing to enter the room specific instructions regarding the resident (e.g., tuberculosis). The nurse instructs non-immune persons to not enter the room of persons with specific diseases (e.g., chicken pox, measles, and mumps). Precautions for residents with airborne diseases include: private room, "Stop Sign Alert" on door, and door closed.
8. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.

Some Examples of Situations Using Standard Precautions

1. Follow Standard Precautions when caring for residents with bowel and/or bladder incontinence.

It is not possible to clean an incontinent resident without having contact with stool and or urine. Gloves should be worn routinely and for helping residents with toileting activities. A plastic gown or apron may also be needed for cleaning incontinent residents and for changing their clothes and bed linens. Obtain the plastic gown or apron before the tasks are begun.

2. When a care provider is emptying a urinary catheter bag, this should be viewed as a single interaction for a single resident and the tasks for one resident should be completed, including performing hand hygiene before going to the next resident.

Wearing gloves for emptying catheter bags is required due to the risk of contact with urine. It is unacceptable to consider it a single task to empty the catheter bags for several residents in sequence without changing gloves and washing hands between residents.

3. When a resident has a rash or skin lesions on his/her body, it could be due to any number of causes. The lesions may be due to varicella (chicken pox or zoster), herpes simplex, scabies, syphilis, impetigo, a drug reaction, or other causes. Prompt recognition of the rash, identification of the cause, prompt appropriate intervention, and proper usage of gloves and handwashing can prevent transmission of organisms to other residents and care providers.

SAMPLE CONTROLLED SUBSTANCES SHIFT CHANGE COUNT - CHECK - SHEET

**Controlled Substances
SHIFT CHANGE
COUNT – CHECK – SHEET**

MONTH _____ Year _____

FACILITY: _____ STATION: _____

		Nurse (Initials)					Nurse (Initials)					Nurse (Initials)			
Date	Time	# of PKGS	ON	OFF	Date	Time	# of PKGS	ON	OFF	Date	Time	# of PKGS	ON	OFF	
1	7				11	7				21	7				
	3					3					3				
	11					11					11				
2	7				12	7				22	7				
	3					3					3				
	11					11					11				
3	7				13	7				23	7				
	3					3					3				
	11					11					11				
4	7				14	7				24	7				
	3					3					3				
	11					11					11				
5	7				15	7				25	7				
	3					3					3				
	11					11					11				
6	7				16	7				26	7				
	3					3					3				
	11					11					11				
7	7				17	7				27	7				
	3					3					3				
	11					11					11				
8	7				18	7				28	7				
	3					3					3				
	11					11					11				
9	7				19	7				29	7				
	3					3					3				
	11					11					11				
10	7				20	7				30	7				
	3					3					3				
	11					11					11				
Note: Time indicates the hour when the shift starts.										31	7				
											3				
											11				

IRREGULARITIES MUST BE REPORTED IMMEDIATELY TO THE DIRECTOR OF NURSES

NAME	SIGNATURE	INITIALS	NAME	SIGNATURE	INITIALS	NAME	SIGNATURE	INITIALS
1			5			9		
2			6			10		
3			7			11		
4			8			12		

Please return completed form to nursing office at end of month

MEDICATION DISPOSITION FORM

Driver _____ Date _____

Please Fill In: Facility _____ Division _____ Date: _____

Rx #	Name	Drug	Label	Quantity	Return To Rx	Destroyed	Discharged W/Resident	Comments or Signatures

Signature _____ Date _____

Signature _____ Date _____

LESSON PLAN: 7

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: II GENERAL PRINCIPLES

EVALUATION ITEMS:

Circle the correct word(s) to complete the following statements.

1. Medicine cupboards should be washed (daily) (weekly) (when you see dirt).
2. Food used in the administration of medications may be stored in the same (refrigerator as drugs) (area as ear drops) if both food and medications are covered.
3. Topical ointments may not be stored in the same box as (oral medications) (instructions for administering).
4. Medicine cups (may be) (may not be) saved and reused.
5. Medication trays should be washed after (each use) (each shift).

Circle the letter of the best answer.

6. How are medications packaged in a true unit dose system?
 - a. In bottles and in medication carts.
 - b. In bottles.
 - c. In individually wrapped doses.
 - d. With all medications for resident in one individual package.
7. How should Schedule II controlled substances be stored?
 - a. Behind two different locks.
 - b. Behind two doors.
 - c. In the medication cart.
 - d. In the refrigerator.
8. When are controlled substances counted?
 - a. At change of shift.
 - b. At the beginning of the day.
 - c. At change of pay period.
 - d. At the beginning of the month.

LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

SCOPE OF UNIT:

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

INFORMATION TOPIC: III-8 OR DEMONSTRATION:

BODY SYSTEMS, DISEASE PROCESS, AND TREATMENTS

(Lesson Title)

OBJECTIVES – THE STUDENT WILL BE ABLE TO:

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

SUPPLEMENTARY TEACHING/LEARNING ITEMS:

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

INFORMATIONAL ASSIGNMENT:

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

INTRODUCTION:

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

LESSON PLAN: 8

COURSE TITLE: MEDICATION TECHNICIAN

UNIT: III BODY SYSTEMS, DRUGS, AND OBSERVATIONS

OUTLINE:

I. Body Plan

- A. Cells – cells are the basic unit of all living things. The human body is made up of trillions of cells. There are many different types of cells; each has a special function.
- B. Tissues – groups of similar cells combine to form tissues.
- C. Organs – a group of tissues that perform a single function make up organs.
- D. Systems – a group of organs working together with a specific function make up a body system.

Cells Tissues Organs Body Systems.

II. Changes in “Normal” Older Adults That Affect Drug Effectiveness

- A. Changes affecting absorption of drugs – drugs are not absorbed from the GI tract as easily.
 - 1. Poor musculature results in decreased peristalsis.
 - 2. Blood supply to GI tract decreases.
 - 3. Number of absorbing cells in the stomach decreases.
 - 4. Slower emptying of the stomach.
- B. Changes affecting the distribution of drugs.
 - 1. Decrease in total body water.
 - 2. Decrease in lean body mass; increased fat.
 - 3. Lowered cardiac output.
- C. Changes affecting metabolism of drugs – usually slower or impaired metabolism of drugs.
 - 1. Decrease in liver function which normally detoxifies the body.

2. Decrease in effectiveness of kidney function.
 3. Increased risk of drug toxicity.
- D. Changes affecting the elimination of drugs – causes drugs to be eliminated more slowly.
1. Reduced filtration by kidneys – 30% reduction by age 65.
 2. Increased renal dehydration.
 3. Decreased number of kidney cells – 40% less by age 75.

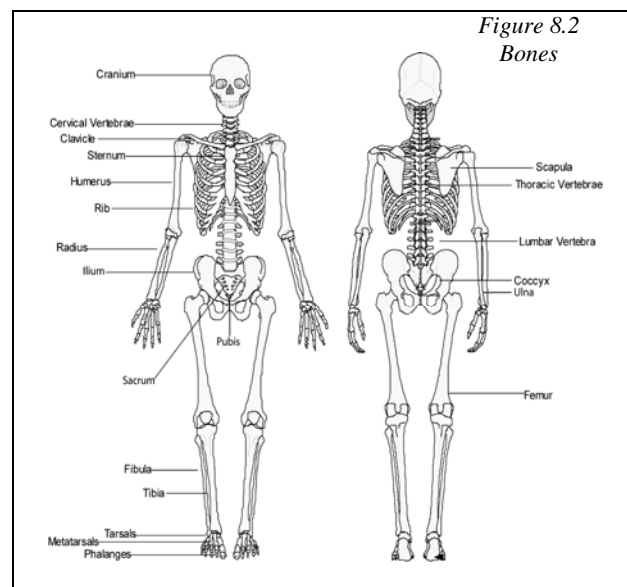
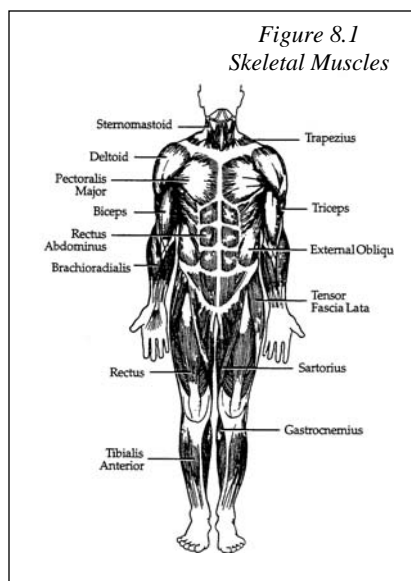
III. Special Risks of Ill Older Adults

- A. Existence of one or more chronic medical conditions.
- B. Greater likelihood of serious drug side effects.
- C. Drug interactions.

IV. Musculoskeletal System

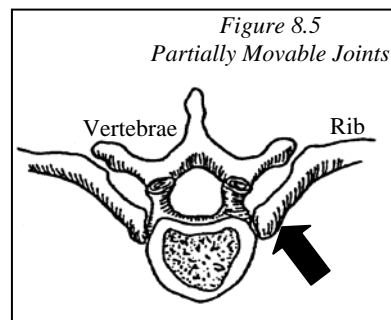
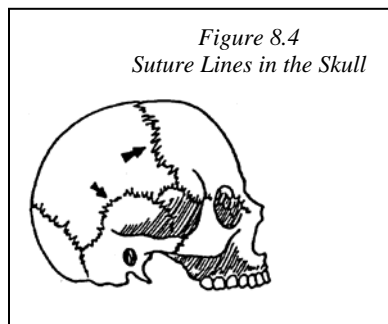
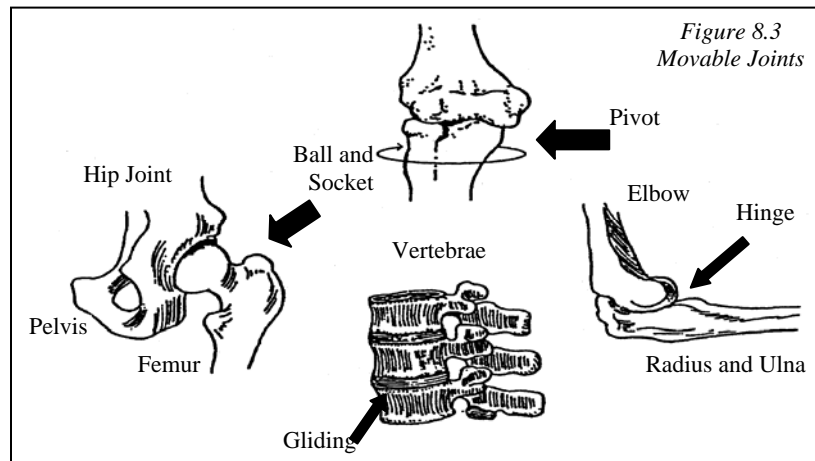
A. Structures.

1. Skeletal muscles – muscle connected to bone (see Figure 8.1).
2. Bones – dense solid connective tissue (see Figure 8.2).



3. Joints – point of juncture between two bones.
 - a. Movable (see next page Figure 8.3).

- 1) Pivot (e.g., wrist).
- 2). Ball and socket (e.g., shoulder or hip).
- 3) Gliding (e.g., vertebrae).
- 4) Hinge (e.g., elbow or knee).
 - i. Immovable – suture lines in the skull (see Figure 8.4).
 - ii. Partially movable – ribs at the spine (see Figure 8.5).



4. Additional structures include:
 - a. Tendons – bands of fibrous connective tissue that attach a muscle to a bone.
 - b. Ligaments – connect bone to bone.
 - c. Cartilage – connective tissue found in the joints.

B. Functions.

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

- b. Protection.
 - c. Leverage.
 - d. Production of blood cells.
 - e. Calcium storage.
2. Muscles.
- a. Movement.
 - b. Heat production.
 - c. Posture.
 - d. Protection.
- C. Age related changes affecting the musculoskeletal system.
- 1. Muscular weakness and atrophy.
 - 2. Loss of height due to thinning of vertebrae and intervertebral disks.
 - 3. Stiffening and degeneration of the joints.
 - 4. Decrease in bone density due to reabsorption of calcium.
 - 5. Slumped posture due to spine deterioration.
 - 6. Loss of cartilage.
- D. Diseases and conditions affecting the Musculoskeletal System.
- 1. Fractures are a break in the bone due to trauma/injury or spontaneously from diseases like osteoporosis (pathological fractures). Hip fractures, which are common in the elderly, normally require surgical treatment. Compression fractures, fractures of vertebra from pressure, require stabilization of the spinal column and rest to allow healing.
 - a. Medications used to treat fractures include narcotic analgesics such as Vicodin, OxyContin.
 - 2. Arthritis.
 - a. Osteoarthritis – the most common form of arthritis is also called degenerative joint disease (DJD). Osteoarthritis is a chronic and progressive condition causing deterioration of the joint cartilage and formation of reactive new bone. Heberden’s nodes, abnormal cartilaginous enlargement of the knuckles is commonly seen when

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

- 1) Medications used to treat osteoarthritis include non-steroidal anti-inflammatory drugs (NSAIDS) such as Motrin, non narcotic analgesics such as aspirin or Tylenol, and COX-2 inhibitors such as Celebrex. Corticosteroids such as Hydrocortisone and hyaluronic acid derivatives such as Hyalgan may be injected directly into the affected joints.
- b. Rheumatoid arthritis – a chronic destructive inflammation of the joints and related structures that may result in deformities. Rheumatoid arthritis usually first appears in middle age and is more common in women. It is considered to have an autoimmune component. Rheumatoid arthritis can be treated with many of the same drugs used to treat osteoarthritis as well as gold compounds and drugs such as Remicade and Enbrel which reduce joint and tissue inflammation, pain and swelling, but whose mechanism of action is not known.
- c. Gout – a metabolic disease that results in an increased production or decreased excretion of uric acid. The excess uric acid is converted into crystals that become deposited in joints and other tissues. It is more commonly seen in men than in women. The big toe and foot are most commonly affected. Anti-gout drugs include Benemid and Zyploprim which decrease uric acid levels.
3. Osteoporosis – a disorder characterized by loss of bone mass in which bone becomes “spongy” or “honeycomb” in appearance. It is more common in sedentary or immobilized individuals, patients on long term steroid therapy and post-menopausal females due to decreased estrogen production. Osteoporosis increases the risk of fractures and can cause compression of the chest cavity, low back pain, loss of stature and other deformities.
 - a. Medications include calcium supplements such as Oscal or Tums, Vitamin D, drugs that inhibit bone resorption such as Miacalcin and Fosamax and estrogen replacements/receptor modulators such as Premarin and Evista.
4. Sprains, strains and "pulled muscles" are acute conditions treated with rest and physical therapy. Medications used include analgesics, anti-inflammatory drugs, and skeletal muscle relaxants such as Paraflex or Robaxin.

V. Nervous System

A. Structures (see next page Figure 8.6).

1. Brain – large mass of nerve tissue that regulates and coordinates all body activity. The brain is divided into lobes which control special functions such as speech, hearing, sight, movement, memory, etc.
2. Spinal cord – cord of nerve tissue; extends from lower brain to lower back.
3. Nerves – carry electrical messages to and from different parts of the body.

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

B. Functions.

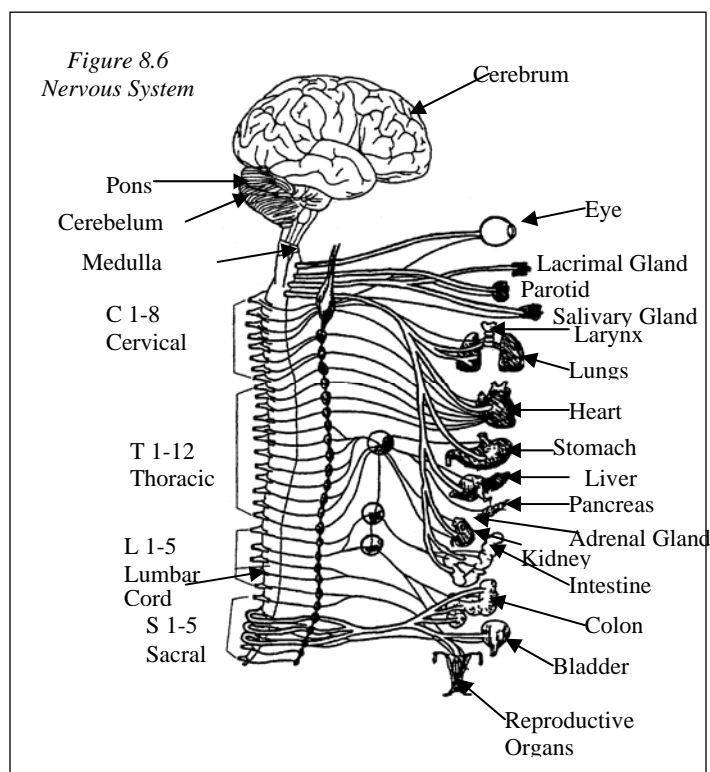
1. Controls and coordinates body activities.

C. Age related changes affecting the nervous system.

1. Nerve transmission time slows resulting in a slower reaction time.
2. Minimal shrinking of the brain that does not affect ADLs.
3. Temperature control center of the brain (hypothalamus) becomes less effective at regulating body temperature.
4. Pain threshold increases.
5. Change in sleep patterns that result in frequent awakening.

D. Diseases and conditions affecting the nervous system.

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



- a. Treatment is aimed at slowing the progression of the disease. Current treatments do not “cure” the disease. Medications include Memantine, Aricept, Exelon, and Reminyl.
2. A cerebral vascular accident (CVA) – also known as “stroke,” is caused by hemorrhage, thrombus (clot), or other occlusion (blockages) in the blood vessels of the brain. Symptoms include headache, vomiting, disorientation, slurred speech, mouth drooping, unequal pupils. A CVA may result in unconsciousness, loss of cognitive functioning, and/or paralysis. Medications include anti-coagulants such as Coumadin or aspirin, and anti-hypertensives such as hydrochlorothiazide.
3. Amyotrophic lateral sclerosis (ALS) – also known as “Lou Gehrig’s disease.” ALS is a muscular weakness and atrophy due to degeneration of motor neurons of spinal cord, medulla, and cortex. No current medications reverse the disease.
4. Spinal cord injuries – usually result in paralysis below the level of injury. No current medication reverses the condition. Medications are used to treat spinal cord injury problems related to immobility, such as pressure ulcers, pneumonia, bowel and bladder problems and depression.
5. Parkinson’s Disease – a chronic disease of the brain cells that control movement characterized by, fine, slowly spreading tremors, muscular weakness and rigidity. Symptoms include a shuffling gait, frequent falls, and a stooped posture with the head bent forward or down. Medications include anti-Parkinson’s drugs such as Sinemet, Lodosyn, and Cogentin. Tremors may be treated with a drug such as Corgard or Inderal.
6. Multiple sclerosis (MS) – an inflammatory disease, possibly related to a virus that causes degeneration of the brain, spinal cord and nerves resulting in weakness/numbness of limbs, visual disturbances, and dizziness. MS is characterized by exacerbations and remissions. Medications include steroidal anti-inflammatory drugs such as prednisone.
7. Epilepsy and other seizure disorders – alterations of cerebral function characterized by sudden, brief episodes of altered consciousness, motor activity, or sensory phenomena. Symptoms range from a barely noticeable staring or lack of attention to a full tonic/clonic seizure with loss of consciousness, incontinence, muscle jerking, and tongue biting. Drugs called anticonvulsants such as Dilantin, Tegretol, phenobarbital, Mysoline, Zarontin, and Klonopin are commonly prescribed. No one drug is effective for all types of seizures.
8. Shingles (herpes zoster) – caused by the same virus as chickenpox; lays dormant and emerges as painful vesicular eruptions along peripheral nerves. Lesions may last for several weeks in the elderly with pain

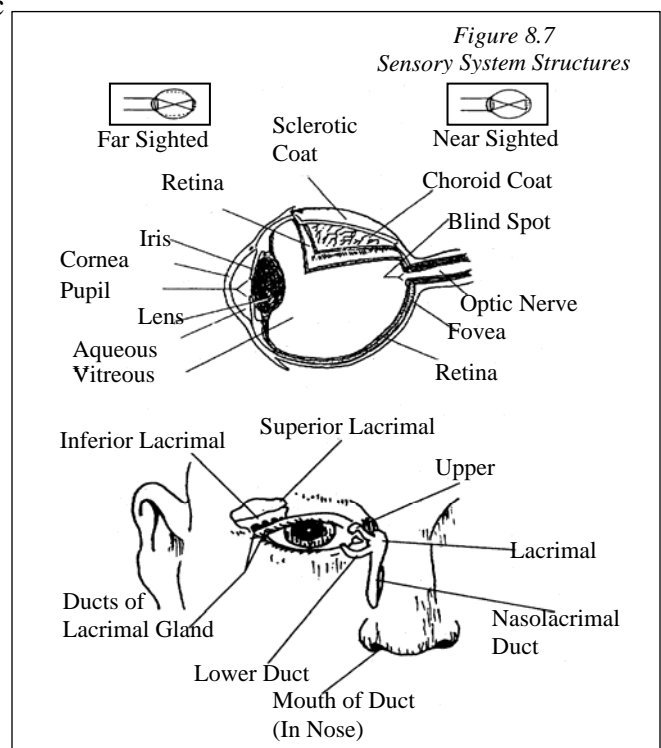
lasting for months after the lesions disappear. Medications include analgesics and topical or systemic antiviral medications such as Zovirax and tricyclic antidepressants such as Elavil to treat neuralgia.

9. Transient ischemic attack (TIA) – results from a temporary lack of blood flow to the brain due to a partial occlusion. Symptoms of a TIA vary with the site and degree of blockage. Visual disturbances, dizziness, weakness, numbness, and unconsciousness may occur. The attack is usually brief, lasting only a few minutes. A TIA may be referred to as a “mini-stroke.” Medications include anti-coagulants such as Coumadin or aspirin; anti-hypertensives such as hydrochlorothiazide; and antiplatelet agents such as Plavix and Aggrenox.
10. Anxiety and Neurosis – symptoms include intense anxiousness, tension and a feeling of apprehension or fear that is at a level not normally seen in that situation. Antianxiety drugs/tranquilizers such as Xanax, Ativan and BuSpar are commonly used.
11. Depression – caused by a decreased level of chemicals in the brain. Symptoms include appetite changes, lack of ability to concentrate, feelings of guilt or hopelessness, insomnia, crying, and lack of pleasure in any activity. Antidepressants called mood elevators are used to treat depressions. Medications commonly prescribed for depression include: Celexa, Effexor, Lexapro, Paxil, Prozac, Zoloft and Wellbutrin.
12. Psychosis – a serious disorder characterized by agitation, hallucinations, severe depression, and impaired thinking so severe that the person loses touch with reality. Schizophrenia is the most common form of psychosis. Antipsychotic drugs are commonly used to treat this condition. Examples of antipsychotic medications include: Risperdal, Zyprexa, Seroquel, and Thorazine.

VI. Sensory System

A. Structures (see Figure 8.7)

1. Eyes.
2. Ears.
3. Nose.
4. Mouth and throat.
5. Skin

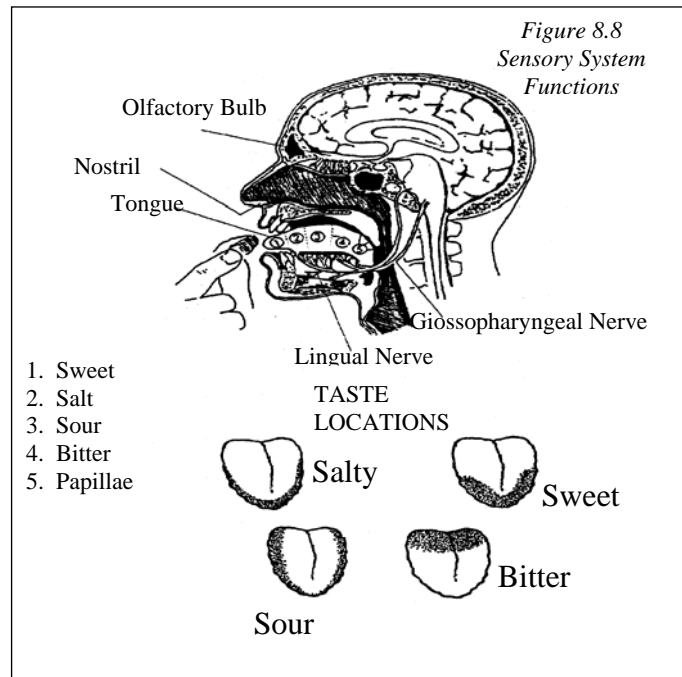


B. Functions (see Figure 8.8).

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

C. Age-related changes affecting the sensory system.

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



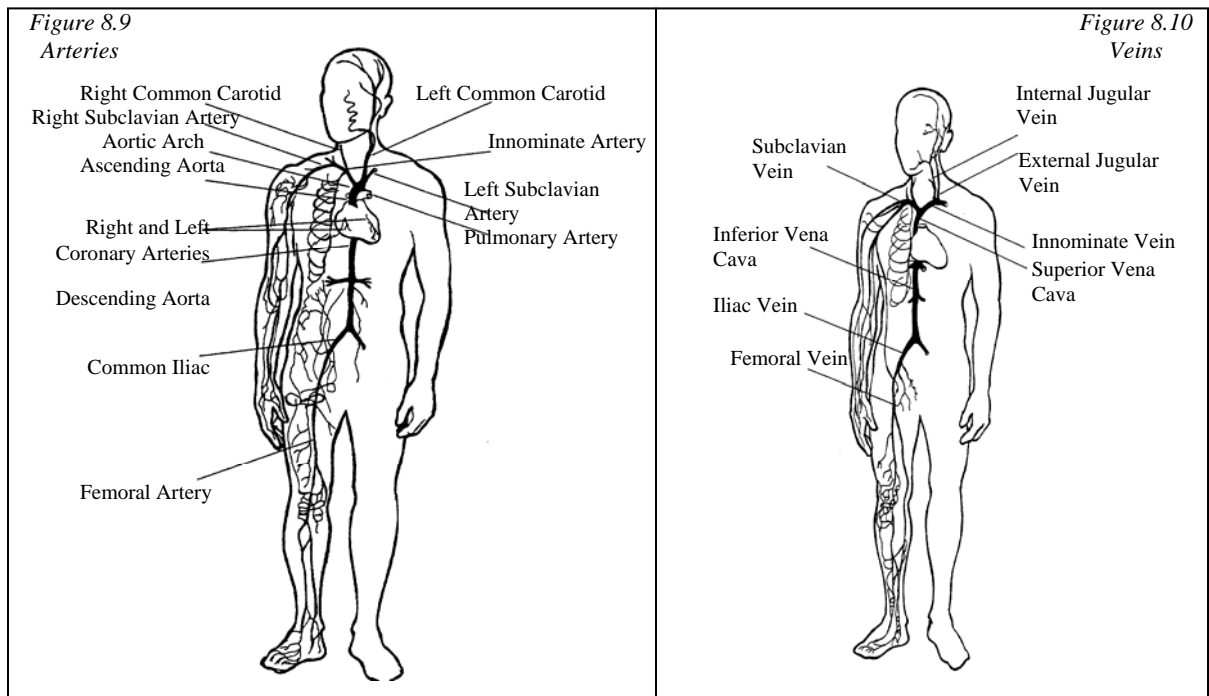
15. Diminished sense of balance. Difficulty maintaining balance while standing on one foot; leading to problems when stepping into a bathtub and walking up/down stairs.
- D. Diseases and conditions affecting the sensory system.
1. Eye.
 - a. Cataracts – clouding of the lens of the eye.
 - b. Glaucoma – increased intraocular pressure that may lead to blindness. Treated with ophthalmic drops such as Betoptic or Timoptic.
 - c. Blindness.
 - d. Conjunctivitis – inflammation of the mucous membranes lining the eye. Treated with antibiotic drops such as Sodium Sulamyd or ointments such as ophthalmic Neosporin Ophthalmic.
 - e. Macular degeneration – a progressive deterioration of the retina resulting in loss of central vision.
 - f. Retinopathy – a non-inflammatory eye disorder resulting in changes to the blood vessels of the eye; frequently associated with diabetes.
 - g. "Dry eyes" – diminished secretion of tears. Frequently treated with an over the counter (OTC) drop such as Artificial Tears and/or antihistamine drops such as Visine.
 2. Ear.
 - a. Hearing loss.
 - b. Cerumen impactions – “wax” accumulation in ear canal; frequently treated with products designed to loosen cerumen such as Cerumenex or Debrox.
 - c. Otitis media – inflammation of the middle ear; usually treated with an antibiotic/anti-inflammatory drop such as Cortisporin.
 - d. Deafness.

3. Nose.
 - a. Rhinitis – inflammation of the mucous membranes in the nose due to irritants or allergies. Medications used to treat allergic rhinitis include antihistamines such as Zyrtec or Claritin; decongestants such as Sudafed that act as vasoconstrictors and decrease blood flow to the swollen mucous membranes. Intranasal corticosteroids that may be prescribed to treat rhinitis include Rhinocort and Flonase.
 - b. Sinusitis – inflammation of sinuses.
4. Mouth, tongue and throat.
 - a. Tumors.
 - b. Excessive dryness of mouth.
 - c. Tooth and gum disorders.
5. Skin (HO 19).
 - a. Paresthesia – sensation of numbness or tingling.

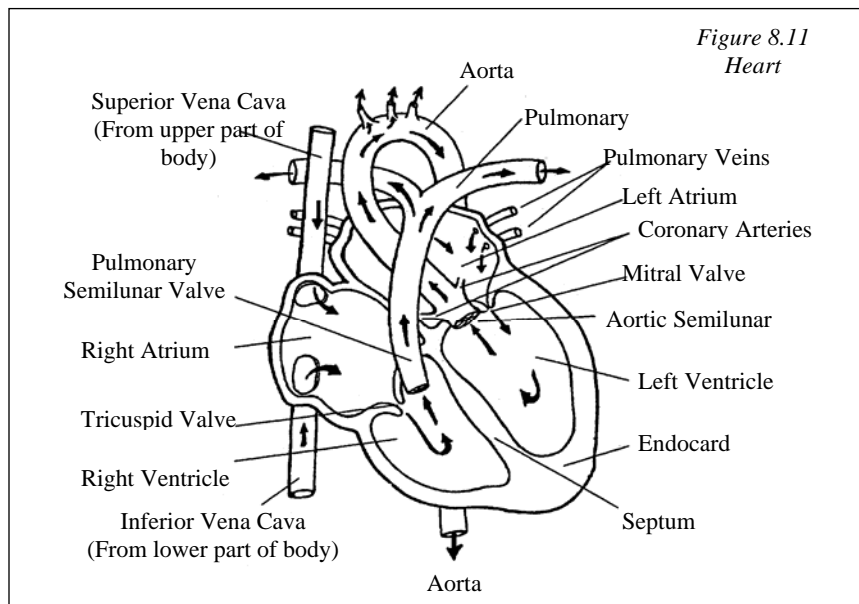
VII. Cardiovascular System

A. Structures.

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



2. Heart (see Figure 8.11).



3. Blood.

B. Functions.

1. Carries nutrients and oxygen to all cells of the body by way of blood vessels.
2. Removes waste products and carbon dioxide from cells.

C. Age related changes affecting the cardiovascular system.

1. Decreased ability of the heart to pump the blood throughout the body decreased cardiac output.
2. Narrowing of the blood vessels and loss of elasticity of vessel walls resulting in poor circulation and increased blood pressure.
3. Slowing of the pulse rate.
4. Decreased ability of the cardiovascular system to respond to position changes resulting in orthostatic hypotension.
5. Decreased ability of the cardiovascular system to respond to an increased demand for blood supply such as with exercise or exertion.
6. Thickening of the heart valves resulting in heart murmurs.
7. Heart rate takes longer to return to normal range after exercise.

D. Diseases and conditions affecting the cardiovascular system.

1. Angina pectoris – chest pain, usually radiating to the left shoulder and down the arm. It is usually caused by atherosclerosis of the coronary arteries and lack of oxygen to the heart muscle. Angina is frequently related to exertion, emotional stress, or exposure to extreme cold.
 - a. Medications include nitrates to dilate the blood vessels such as Nitro-Bid, drugs to decrease the heart rate such as Tenormin and drugs such as Cardizem to relax the smooth muscles of the blood vessels.
2. Arrhythmia – an abnormal rhythm or pattern of the heart beat. Atrial fibrillation, atrial flutter, heart block, and premature beats are examples of arrhythmias. Arrhythmias may be treated with a pacemaker; a device implanted in the chest to stimulate and regulate the heart rate. Antiarrhythmics medications include Catapres, Norpace, Tambocor, Tenormin, and Cardizem.
3. Congestive heart failure (CHF) – a condition resulting from failure of the heart to maintain adequate circulation of the blood. Right sided heart failure results in a backup of blood from the right ventricle into the venous circulation. This results in liver enlargement and edema in the extremities. Left sided heart failure results in a backup of blood from the left ventricle into pulmonary circulation resulting in pulmonary edema and difficulty breathing.
 - a. Medications used to treat CHF include diuretics such as Lasix to decrease fluid buildup and cardiac glycosides such as Lanoxin which make the heart beat more slowly and more efficiently.
4. Myocardial infarction (MI) – also called a “heart attack”. MI is caused by occlusion of one or more of the coronary arteries. Symptoms include nausea, sweating, fatigue, weakness, dizziness, irregular heart rate, hypotension, tachypnea, shortness of breath, and squeezing pain in the center of the chest that may spread to the shoulder, neck, arm, jaw, and fingers.
 - a. Medications include platelet aggregation inhibitors such as Plavix and injectable thrombolytic drugs such as Streptase and Activase.
5. Hypertension – a condition in which BP is higher than normal, generally readings above 150/90 are considered hypertension. Medications used to treat hypertension include diuretics such as Lasix and anti-hypertensives such as Inderal, Calan, and Lopressor
6. Ischemic heart disease – occurs when there is a lack of oxygen (O₂) supply to the heart. It is usually caused by atherosclerosis. It may be called coronary heart disease or arteriosclerotic heart disease. Treatment

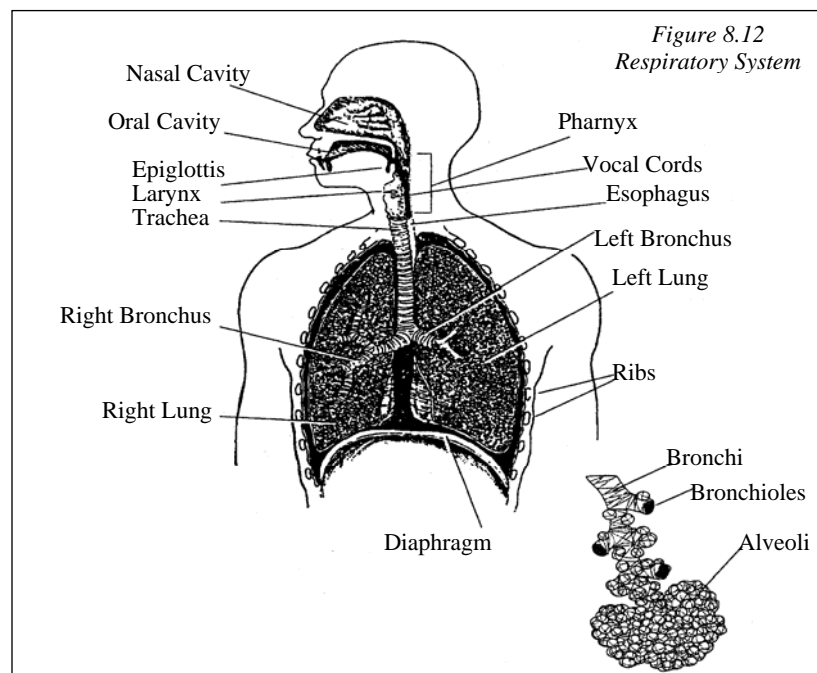
is aimed at improving oxygen supply to the heart, or decreasing the need for O₂.

- a. Medications include calcium channel blockers such as Procardia or Cardizem.
7. Anemia is a disorder characterized by a decrease in hemoglobin in the blood to a level below normal range. Medications include iron replacement drugs such as Feosol.

VIII. Respiratory System (see Figure 8.12).

A. Structures.

1. Nose.
2. Mouth.
3. Pharynx – passageway from nasal cavity to larynx and from mouth to esophagus.
4. Larynx – upper end of trachea; organ of voice.
5. Trachea – tube from larynx to bronchi.
6. Lungs – organs of respiration.
7. Bronchi – two main branches from trachea to lungs.
8. Bronchioles – smaller branches from bronchi.
9. Alveoli – the many terminal sacs where gases are exchanged in respiration.



B. Functions.

1. Provides oxygen to cells.
2. Removes wastes in form of CO₂.

C. Age-related changes affecting the respiratory system.

1. Loss of elasticity of lungs, lungs do not expand or contract as well.
2. Chest muscle weakness results in shallow breathing and less effective cough.

D. Diseases and conditions affecting the respiratory system.

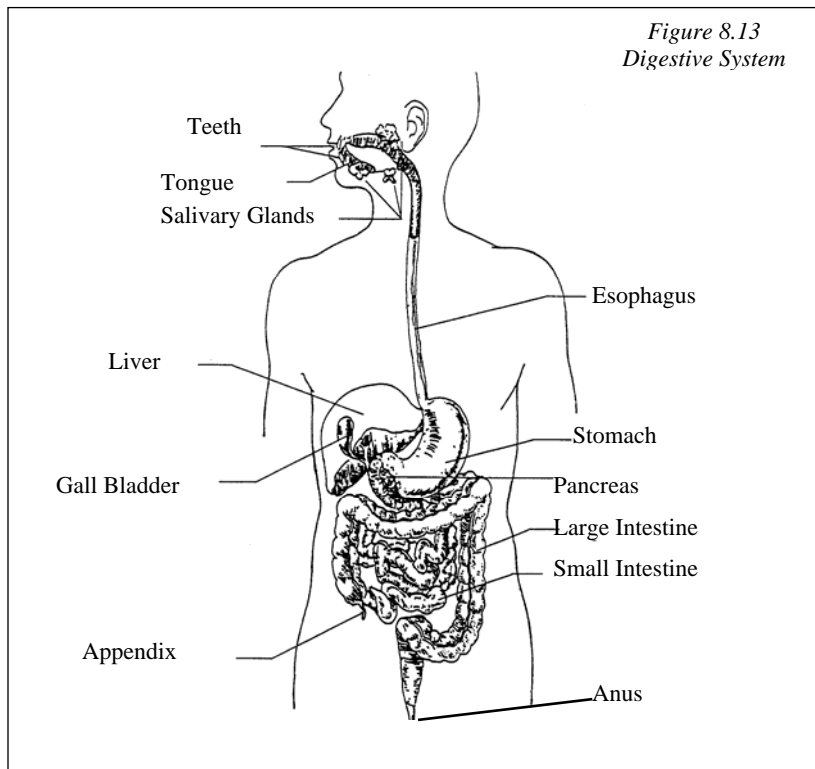
1. Chronic Obstructive Pulmonary Disease (COPD), also known as Chronic Obstructive Lung Disease (COLD), or Emphysema. This disease results in a decreased ability of the lungs to perform the function of ventilation. COPD may be related to exposures to chemicals inhaled in the workplace. COPD is treated with bronchodilators such as Theodur and mucolytics that help to liquefy and loosen thick mucous secretions such as Mucomyst.
2. Pneumonia – an inflammation/infection of the lungs caused by bacteria, viruses, aspiration, and chemical irritants. Treatment is based on the cause, usually with antibiotics such as amoxicillin and corticosteroids such as Pulmicort to decrease inflammation.
3. Lung Cancer – a malignancy in the respiratory system usually caused by cigarette smoking. Symptoms of lung cancer include persistent cough, dyspnea, and chest pain. Surgery is the most effective treatment.
4. Tuberculosis (TB) – caused by a bacteria. Treatment with a combination of anti-tuberculosis drugs such as INH and Rifadin is usually necessary.

IX. Digestive System (see next page Figure 8.13)

A. Structures.

1. Mouth – Includes the teeth, tongue and salivary glands. Takes food in, chews it and mixes food with saliva; one liter of saliva is produced daily.
2. Esophagus – tube from mouth to stomach.
3. Stomach – mixes food and fluids with digestive juices.
4. Liver – largest internal organ in the body and the primary organ of drug metabolism. The liver secretes substances that aid in digestion and

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



5. Gallbladder – stores bile.
6. Pancreas – also part of the endocrine system. Secretes insulin used to break complex carbohydrates into simple useable energy.
7. Small intestine – is twenty feet long and made up of 3 sections; the duodenum, the jejunum and the ileum. Food is absorbed into the bloodstream in the small intestine.
8. Large intestine – is five to six feet long and made up of 3 sections; the ascending, the transverse and the descending colon. The large intestine reabsorbs water and moves waste products through the system to the rectum.
9. Rectum – connects the large intestine to the anus.

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

B. Functions.

1. Ingests food and fluids.

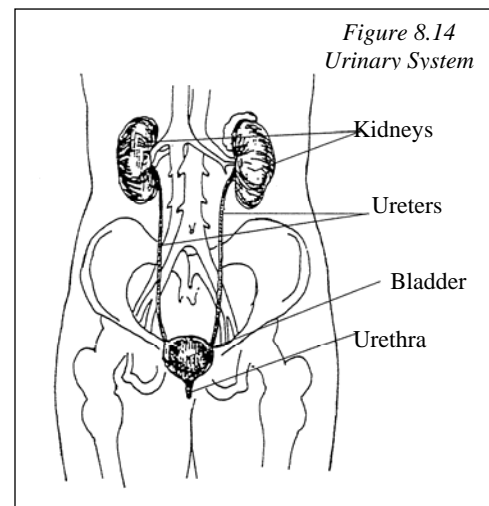
2. Prepares food for use by the body – breaks food into 3 main nutrients: carbohydrates, fats, and proteins.
 3. Excretes wastes.
- C. Age related changes affecting the digestive system.
1. Loss of teeth results in decreased dietary intake and weight loss.
 2. Nutritional needs remain the same, but the need for calories decreases as activity and metabolic rate decreases.
 3. Slower peristalsis results in constipation and increased intestinal gas (flatus).
 4. Saliva production diminishes which can make swallowing difficult and leads to a drier mouth.
 5. Decreased blood flow to the liver and decrease liver enzymes results in less efficient drug metabolism and detoxification.
 6. Decreased gastrointestinal secretions affect digestion and absorption of food and drugs.
- D. Diseases and conditions affecting the digestive system.
1. Cancer of the mouth, stomach, liver and intestines.
 2. Cirrhosis of the liver – due to fibrous tissue formed as a result of infection or obstruction of bile ducts.
 3. Constipation – the passage of unusually hard dry stools. It may be caused by inadequate fluid and/or fiber intake, and lack of exercise. If left untreated constipation can lead to fecal impaction; the buildup of hard stool that cannot pass through the rectum normally. Laxatives such as Milk of Magnesia, Colace, and castor oil, or enemas such as Fleet Enema may be used to treat constipation. Bulk producing laxatives such as Metamucil may be ordered on a daily basis to prevent constipation.
 4. Diarrhea – the frequent passage of unformed watery stool is treated with Anti-diarrheals such as Lomotil or Imodium. Bacterial diarrhea, also called “traveler’s diarrhea,” is also treated with an antibiotic such as Cipro.
 5. Gallstones – when a stone is formed by bile pigments and calcium salts that may cause pain and jaundice. Patients who are unable to undergo surgery to remove gallstones may be given drugs such as Actigall to help dissolve the stones.

6. Gastritis – an inflammation of the stomach. It is frequently treated with antacids such as Mylanta and drugs such as Zantac to decrease stomach acid.
7. Gastro Esophageal Reflux Disease (GERD) – occurs when the stomach acid flows back into the esophagus causing pain and irritation. Drugs such as Prevacid that decrease the production of acid and GI stimulants that increase the rate of gastric emptying such as Reglan may be used.
8. Hemorrhoids – enlarged veins in the lower rectum or anus. They are usually treated with anti-inflammatory suppositories, ointments, or creams such as Anusol.
9. Hepatitis.
 - a. Type A – transmitted by the fecal/oral route.
 - b. Type B – transmitted by blood and/or body fluids.
 - c. Type C – transmitted by blood and/or body fluids.
 - d. Type D – transmitted by blood and/or body fluids.
 - e. Others.
10. Hiatal hernia – protrusion of part of the stomach upwards through the diaphragm.
11. Ulcers – open lesions on gastric mucosa. Antacids such Maalox, and drugs that block the release of stomach acids such as Tagamet and Prevacid are commonly prescribed.

X. Urinary System (see Figure 8.14)

A. Structures.

1. Kidneys – filter the blood.
2. Ureters – transports urine from the kidneys to bladder.
3. Bladder – muscular sac that stores urine.
4. Urethra – connect the bladder to the urinary meatus, the external opening through which urine passes.



B. Functions.

1. Normally produces 1000cc-1500cc of clear yellow urine each day.
2. Removes waste products from the blood stream.
3. Maintains a stable balance of water and body chemicals (homeostasis).

C. Age related changes affecting the urinary system.

1. Bladder opening weakens and may result in incontinence and dribbling of urine.
2. Decrease in bladder muscle tone results in incomplete emptying of the bladder which leads to chronic retention and urinary tract infections.
3. Decreased ability of the kidneys to filter wastes and concentrate urine.

D. Diseases and conditions affecting the urinary system.

1. Urinary tract infections (UTI) can occur at any point in the urinary system. The most frequent cause of infection is *E. Coli* – a pathogen from the intestinal tract. Urinary tract infections are treated with antibiotics such as Cipro; sulfonamides such as Gantrisin; and combination drugs such as Septra. Pyridium, a urinary analgesic, may be used to relieve the pain associated with a UTI.
2. Renal failure – the inability of the kidneys to excrete wastes, concentrate urine and conserve electrolytes. Antibiotics and diuretics may be used.
3. Benign prostatic hypertrophy (BPH) – common in men over the age of 50. Symptoms include difficulty urinating and decreased urinary stream. Medications include Proscar and Hytrin.
4. Urinary retention – the inability to empty the bladder. Antispasmodic drugs such as Urispas maybe used to relax the smooth muscle in the urethra and bladder and promote normal bladder function.
5. Urinary incontinence – the inability to control the release of urine from the bladder. Antispasmodic drugs such as Ditropan may be used to relax the smooth muscle in the urethra and bladder and promote normal bladder function.

XI. Reproductive System

A. Structures.

1. Male (see next page Figure 8.15).

