OBJECTIVES

Upon completion of this unit the student will:

1. Read and write Roman numerals.
2. Demonstrate, in writing the ability to calculate problems using addition, subtraction, multiplication and division of fractions.
3. Demonstrate, in writing the ability to calculate problems using addition, subtraction, multiplication, and division of decimals.
4. Convert decimals to fractions, and convert fractions to decimals.
5. Demonstrate, in writing, the ability to calculate mathematical problems using percentages.
6. Convert percents to fractions and decimals, and convert fractions and decimals to percents.
7. Demonstrate, in writing, the ability to simplify ratios and use proportions for solving problems.
8. Demonstrate proficiency in rounding to the nearest whole number, tenths, and hundredths.
9. Describe and apply the math rules for MCSPN.

PLAN OF LESSON

I. Roman Numerals
   A. Roman and Arabic Systems
   B. Expression of Roman numerals in Medication Administration

II. Fractions
   A. Common Fractions
   B. Working with Fractions
   C. Mixed Numbers
   D. Cancellation

III. Decimals
   A. Working with Decimals
   B. Converting Decimals to Fractions
   C. Converting Fractions to Decimals

IV. Percents
   A. Calculating Percents
   B. Changing Percents to Fractions
   C. Changing Percents to Decimals
   D. Changing Fractions to Percents
   E. Changing Decimals to Percents

V. Ratios
   A. Simplifying Ratios
   B. Solving Proportions

VI. Math Rules
OBJECTIVES

Upon completion of this unit student will:

1. Identify the formulas for changing Fahrenheit to Celsius.
2. Demonstrate, in writing, the ability to convert from Fahrenheit to Celsius.
3. Identify the formulas for changing Celsius to Fahrenheit.
4. Demonstrate, in writing, the ability to convert from Celsius to Fahrenheit.
5. Convert standard time to universal time.
6. Convert universal time to standard time.
7. List accepted abbreviations for words related to medication administration.
8. Recognize and interpret abbreviations used in medication administration.
9. Review and apply MCSPN math rules.

PLAN OF LESSON

I. Fahrenheit to Celsius
   A. Formula C = (F – 32) x 5/9
   B. Conversion Problems
II. Celsius to Fahrenheit
   A. Formula F = (C x 9/5) + 32
   B. Conversion Problems
   C. Conversion Tables/Electric Thermometers May Be Available, but Nurse Should Have Ability to Convert One Scale to Another
III. Time Conversions
   A. Universal
   B. Standard
IV. Abbreviations
V. Math Rules
OBJECTIVES

Upon completion of this unit student will:

1. List and give equivalences within the household system.
2. Identify and write abbreviations/symbols for the household system.
3. Identify and write correctly the metric units and prefixes, and abbreviations.
4. List and give equivalences within the metric system.
5. Demonstrate the use of the metric staircase.
6. Convert measurements between systems.
7. Identify and list approved abbreviations for all discussed units of measurement.
8. Review and apply MCSPN math rules.

PLAN OF LESSON

I. Household
   A. Common/Familiar
   B. Least Accurate
   C. Measures

II. Metric System
   A. Metric Measures for:
      1. Weight (Gram)
      2. Length (Meter)
      3. Volume (Liter)
   B. Metric Prefixes
   C. System Based on Multiples/Divisions of 10
   D. Exact System – Preferred by Medical Professionals and Used by Most of the World
   E. Metric Staircase

III. System-to-System Conversions
   A. When Converting Larger to Smaller Measurement, Multiply
   B. When Converting Smaller to Larger Measurement, Divide
   C. Ratio & Proportion Effective in All Cases
      1. Must Identify Relationships
      2. Must Calculate Accurately
   D. Converting Pounds to Kilograms and Kilograms to Pounds

IV. Math Rules

Written: 09/90
Reviewed: 11/93; 11/96; 11/98; 01/10; 12/12; 01/14
Revised: 12/00; 12/02; 01/05; 12/06; 12/08; 03/11; 01/14; 12/14; 12/16
OBJECTIVES

Upon completion of this unit student will:

1. Describe, prepare, and calculate multiples of unit dose of solid drugs.
2. Describe, prepare, and calculate liquid medication for use.
3. Describe, prepare, and calculate injectable medications.
4. Describe, prepare, and calculate injectable insulin doses.
5. Describe, prepare, and calculate injectable antibiotic doses.
6. Describe and use in calculation the terms “units” and “milliequivalents.”
7. Discuss differences in insulin and heparin units and how calculations of such vary.
8. Identify and list approved abbreviations for all discussed units of measurement.
9. Review and apply MCSPN math rules.

PLAN OF LESSON

I. Fixed Forms
   A. Unit Dose of Solid Drugs
   B. Multiples of Unit Dose
   C. Divisions of Unit Dose
II. Formula D/H x Q = G
    (Desired/Have x Quantity = Give)
III. Ratio and Proportion
IV. Liquid Medication Calculations
V. Injectable Medication Calculations
VI. Insulin
    A. U-100 Syringe
    B. Calibrations on Syringes
       1. Lo-Dose
       2. Standard
    C. No Dosage Calculation of Insulin Units
VII. Antibiotic Injectables
     A. Reconstitution
     B. Pharmacy Role
VIII. Units
     A. Insulin – no calculation!
     B. Heparin – requires calculation
IX. Milliequivalents

Written: 09/90
Reviewed: 01/92; 11/96; 11/98; 01/10; 12/12; 12/14
Revised: 11/93; 12/00; 12/02; 01/05; 12/06; 12/08; 03/11; 12/16
OBJECTIVES

Upon completion of this unit student will:

1. Define pharmacology.
2. List therapeutic methods.
3. Define the term “drug.”
4. Discuss four categories of drug names.
5. List and describe publications which designate standards of purity and potency for drugs.
6. List and describe publications which provide information on drugs.
10. Describe, in detail, the schedules for the Controlled Substances Act of 1970.
11. Discuss federal and state laws regarding possession of controlled substances.
12. Summarize the procedure outlined by the FDA to develop and market new drugs.

PLAN OF LESSON

I. Introduction
   A. Pharmacology Definitions
   B. Therapeutic Methods
   C. Drug Definition

II. Drug Names
   A. Chemical
   B. Generic
   C. Official
   D. Trademark/Brand

III. Sources of Drug Standards
   A. United States Pharmacopoeia (USP)
   B. National Formulary (NF)
   C. USP Dictionary
   D. United States Adopted Name Council (USAN)

IV. Sources of Drug Information
   A. American Drug Index
   B. American Hospital Formulary Service
   C. Drug Interaction Facts
   D. Drug Facts and Comparisons
   E. Handbook on Injectable Drugs
   F. Handbook of Nonprescription Drugs
   G. Martindale – The Complete Drug Reference
   H. Natural Medicines Comprehensive Database

V. Sources of Patient Information
   A. United States Pharmacopoeia Dispensing Information (USPDI)
   B. Tyler’s Honest Herbal
   C. Others

VI. Drug Legislation
   A. Harrison Narcotic Act, 1914
   B. Federal Food, Drug, and Cosmetic Act, 1938
      1. Durham-Humphrey Amendment, 1952
      2. Kefauver-Harris Amendment, 1962
   C. Controlled Substances Act, 1970
   D. Controlled Substances Schedules

VII. Possession of Controlled Substances

VIII. FDA Drug Review Process
Upon completion of this unit student will:

1. List the five basic principles of drug action.
2. Discuss the rationale for baseline assessment and data collection.
3. Define agonist, antagonist, and partial agonist.
4. List the four stages of drug assimilation.
5. Discuss absorption of drugs, listing factors that affect absorption.
6. Define enteral, parenteral, and percutaneous routes.
7. Explain how forms of drugs cause variations in absorption.
8. Discuss and explain factors influencing distribution of drugs to body tissues.
9. Define metabolism/biotransformation and explain the role of the liver in this process.
10. Discuss excretion of drugs and list the usual routes whereby drugs leave the body.
11. List factors that modify drug distribution.
12. Define and discuss half-life.
13. State the effect of renal and hepatic impairment on half-life.
14. Describe the relationship of half-life to usual dosage patterns.
15. Define and discuss desired action, side effect, adverse effect, idiosyncratic reaction, paradoxic response, overresponse, allergic reaction, carcinogenicity, and teratogenicity.
16. List and discuss factors which influence drug action.
17. List and discuss factors related to drug interaction.
18. Define drug interaction effects, including additive, synergistic, antagonistic, displacement, interference, and incompatibility.

IV. Metabolism
A. Biotransformation/Inactivation of the Drug
B. Enzyme Activity of Liver

V. Excretion
A. Drugs and Metabolites Excreted Primarily in Urine and Feces
B. All Body Fluids May Contain Drug

VI. Factors Modifying Quantity of Drug Which Reaches Site of Action

VII. Half-life
A. Definition
B. Half-Life Determined by Individual’s Metabolism and Excretion
C. Impaired Metabolism and Excretion From Renal or Hepatic Disease Lengthens Half-life
D. Half-life Determines Dosage Patterns

E. Observe Lab Data That May Indicate Renal or Hepatic Impairment
General:

Unit: Introduction to Pharmacology
Lesson: 6 (Cont’d)
Title: Principles of Drug Action & Interaction
Time: Theory 3 Hours (Cont’d)

Implementation:
Clayton & Willihnganz, Ch. 2; Lecture; Discussion; Handouts;
Study Terminology
Evaluation: Written Exam, Application in Patient Care
Integrated: N/A

PLAN OF LESSON

VIII. Drug Action
A. Desired Action
B. Side Effect/Adverse Effect
C. Idiosyncratic Reaction
D. Paradox Response
E. Allergic Reaction/Over-response
   1. Rash vs. Hives (Urticaria)
   2. Hay Fever/Asthma Symptoms
   3. Anaphylactic Reaction (Shock)
F. Carcinogenicity
G. Teratogenicity

IX. Factors Influencing Drug Action
A. Variations Within Individuals
B. Age & Gender
C. Body Weight
D. Metabolic Rate
E. Health/Nutritional Status
F. Psychological Mindset
G. Tolerance
H. Dependence
I. Cumulative Effect
J. Route

X. Drug Interactions
A. Drug Altered by the Action of Another Drug
   1. Additive
   2. Synergistic
   3. Antagonistic
   4. Displacement
   5. Interference
   6. Incompatibility
B. Sources of Information r/t Incompatibility (Charts, Texts, Package Inserts, Others)
Upon completion of this unit the student will:

1. Discuss, explain, and list legal and ethical considerations related to medication administration.
2. List and discuss the contents of patient charts.
3. Describe and discuss kardex use.
4. Discuss four systems of medication distribution and compare advantages/disadvantages of each.
5. Describe and discuss factors in narcotic control.
6. Discuss physician’s order on prescriptions and hospital order sheet.
7. Define terminology related to drug orders; identify and list associated abbreviations.
8. Discuss nursing responsibilities in administering medications.
9. List and explain the seven rights of medication administration.
10. Discuss the nursing process and its importance in medication administration.
11. Describe and discuss patient teaching r/t medication administration.
12. Document medication administration on the medication administration record (MAR).
13. Describe actions to prevent medication errors.
14. Discuss steps in reporting and handling medication errors.

I. Legal and Ethical Considerations
   A. Practice of Nursing Under License is Privilege, Not Right
   B. Accountability
   C. Nurse Practice Act
   D. Established Policies and Procedures
      1. Educational Preparation for Administering Medication/Licensure
      2. Agencies May Require Exam to Prove Knowledge
      3. Agencies May Restrict IV Therapy to RNs Only
      4. Certain Meds May Be Restricted
      5. Knowledge of Drug Therapy
      6. Accuracy
      7. Follow-up Assessment
      8. Claiming Unfamiliarity Unacceptable
      9. Health Teaching is Nursing Duty to Assure Better Health

II. Patient Charts
   A. Major Source of Info (Data)
      1. Interventions/Nursing Care Plans
      2. Documentation
      3. Communication Link for Continuity of Care
   B. Chart Contents
      1. Study in Clinical Areas
      2. Includes Nurse’s Notes, Physician’s Progress Notes, Order Sheets, Others

III. Kardex Records
   A. Convenient
   B. Concise Information/Transcription
   C. Handwritten or Computerized

IV. Drug Distribution Systems
   A. Floor Stock
      1. Older System
      2. Advantages and Disadvantages
   B. Individual Prescription Order
      1. Dispensed in Bottles 3 – 5 Day Supply
      2. Stored on Shelf (By Room Number or Alphabetically)
      3. Advantages and Disadvantages
   C. Unit Dose
      1. Single Dose/Each Labeled
      2. Stored in “Unit Dose” Cabinet (Cart/Computerized System)
Unit: Introduction to Pharmacology
Lesson: 7 (Cont’d)
Title: Principles of Medication Administration
Time: Theory 3 Hours (Cont’d)

Implementation: Clayton & Willihnganz, Ch. 4 & 6; Gray Morris, Ch. 10 – 13; Lecture; Discussion; Examples of Patient Chart Contents and Care Plans; Sample MAR; Handouts; Display of Drug Forms
Evaluation: Written Exam, Application in Patient Care
Integrated: N/A

PLAN OF LESSON

3. Cart Usually Stocked Q 24 Hours in Acute Care and Q 30 Days in LTC
4. Most Economical Method In Use
5. Pharmacist Can Analyze Better For Interactions
6. Dosage Calculations Done by Pharmacist; Nurse Must Verify

D. Computerized Dispensing System (Pyxis)
   1. Based on Unit Dose
   3. Computer Maintains Detailed Record of Meds Dispensed by Whom and to Whom, Date/Time, Charges
   4. Contains Controlled Substances and Other Commonly Administered Drugs
   5. Safest Method

V. Controlled Substances
   A. Unit Dose/Accountable
   B. Complete Records
      1. Sign Out Sheet
      2. Count at Shift Change
   C. Any Discarded – Witness

VI. Drug Order
   A. Licensed Physician/Dentist/PA/NP
      1. Prescription
      2. Order on Chart
      3. Contents of Drug Order
   B. Terms
      1. Stat Order
      2. Single Order
      3. Standing Order
         a. Automatic Cancellations
         b. Renewal Orders
      4. PRN Order
   C. Telephone & Verbal Orders (NOT ADVISABLE)
      1. Know State’s Nurse Practice Act/Agency Policy
      2. Repeat order for Verification (TORV or VORV)
      2. Physician Must Sign Within 24 Hours
   D. Faxing/Electronically Sending Orders
      1. Avoid if Possible
      2. Ensure Confidentiality
      3. Physician Original Signature Within 24 Hours

VII. Nurse’s Responsibility
   A. Order Interpretation/Judgment
   B. Patient Safety
   C. Inappropriate/Incomplete Orders
   D. Transcription/Verification of Orders
PLAN OF LESSON

VIII. Seven Rights
A. Accuracy – Must Read
   Label x 3 Before
   Administration
B. Save Unit Dose Packages
   for 4th Check/
   Documentation
C. Rules for Safe
   Administration
D. Check MAR With
   Kardex/Orders
   1. Acute Care – QS &
      With New Orders
   2. LTC – Every Month &
      With New Orders
E. Nearly All Mistakes
   Traced to Lack of
   Compliance With Safety
   Checks!

IX. Right Drug
A. Correct Spelling
B. Many Drugs Sound/Look
   Alike

X. Right Time
A. Abbreviations
B. Standardized
   Administration Times
C. Blood Levels/Dx Testing
D. Drug Absorption

XI. Right Dose
A. Hepatic/Renal Function

B. Peds/Geriatric Variations
C. Nausea/Vomiting
D. Accurate Dose Form
E. Accurate Calculation/
   Measurement

XII. Right Patient
A. Check Name Band/ID
   Bracelet Every Time!
B. Two Identifiers
C. Special Care With
   Pediatric/Geriatric Patient

XIII. Right Route
A. Enteral, Parenteral, Or
   Percutaneous
B. Cannot Change Route
   Without Order

XIV. Right Indication

XV. Right Documentation
A. If It Isn’t Charted, It Wasn’t
   Done!
B. Guidelines

XVI. Patient Teaching
A. Determine Patient’s
   Knowledge of Meds
B. Supplement Knowledge
   re: Purpose, S/E, Allergic
   Reactions, & Appropriate
   Actions

XVII. Medication Errors
A. Prevention
B. Reporting & Handling
OBJECTIVES

Upon completion of this unit the student will:

1. List and define three categories of drug administration.
2. Define, discuss, and identify commonly used enteral drug forms.
3. Define, discuss, and identify common equipment used in enteral medication administration.
4. Discuss general principles of solid form medication administration.
5. Discuss general principles of liquid form oral medication.
6. Discuss nursing action when patient unable to tolerate oral medications.
7. Explain procedure for and demonstrate administration of drugs by NGT & PEG tube.
8. Discuss administration of drugs by rectal route.
9. Discuss importance of and content of documentation.
10. Prepare and administer enteral medications.
12. Review and apply MCSPN math rules.

Implementation: Clayton & Willihnganz, Ch. 8; Gray Morris, Ch. 17; Lecture/Discussion; Display of Drug Samples; Demonstration
Evaluation: Return Demonstration, Written Exam, Application in Patient Care
Integrated: N/A

PLAN OF LESSON

I. Introduction
   A. Categories of Drug Administration
   B. Enteral Meds

II. Dosage Forms
   A. Capsule
   B. Timed-Release Capsule
   C. Lozenge/Troche
   D. Pill
   E. Tablet
      1. Scored
      2. Layered
      3. Enteric Coated
   F. Elixir
   G. Emulsion
   H. Suspension
   I. Syrup

III. Equipment
   A. Unit Dose
   B. Souffle Cup
   C. Medicine Cup
   D. Medicine Dropper
   E. Measuring Teaspoon
   F. Oral Syringe
   G. Nipple (Avoid if Possible)
   H. Pill Crusher
   I. Pill Splitter

IV. Administration of Solid Form Oral Medication
   A. Medication Card
   B. Unit Dose

V. General Principles of Solid Form Medication Administration
   A. Points in Giving Meds
      1. Full Glass H₂O
      2. Ensure Med Swallowed
Unit: Introduction to Pharmacology
Lesson: 8 (Cont’d)
Title: Enteral Medications (Cont’d)
Time: Theory 3 Hours (Cont’d)

Implementation: Clayton & Willihnganz, Ch. 8; Gray Morris, Ch. 17; Lecture/Discussion; Display of Drug Samples; Demonstration
Evaluation: Return Demonstration, Written Exam, Application in Patient Care
Integrated: N/A

PLAN OF LESSON
B. Medicine Card
C. Unit Dose
VI. General Principles of Liquid Form Oral Medication
A. Adult
B. Child/Infant
C. Equipment
VII. Decision to Hold Medications
A. Special Considerations
B. Selecting Route When Two are Prescribed
VIII. Administration of Drugs by NGT & PEG Tube
IX. Administration of Rectal Suppositories and Enemas
X. Documentation
A. Contents
B. Accuracy
XI. Math Rules

Written: 09/90
Reviewed: 11/92; 11/96; 11/98; 01/10; 12/12; 12/14
Revised: 11/93; 12/00; 12/02; 01/05; 12/06; 12/08; 03/11; 12/16
OBJECTIVES

Upon completion of this unit the student will:

1. Define and discuss the terms enteral, parenteral, and percutaneous.
2. Describe types of syringes used to administer parenteral drugs.
3. Read calibrations and prepare drugs in mL (cc) and units.
4. Identify needle parts, gauges, and lengths.
5. Discuss rationale in selecting needle sizes for various injections.
6. Demonstrate mixing of two drugs in one syringe, including insulins.
7. Summarize important points in giving ID, SC, IM, and IV medications.
8. Discuss the LPN’s role in IV therapy.
9. Discuss and identify equipment needed for various types of IV therapy (continuous and piggyback).
10. Indicate how drop size varies (macro-drip vs. micro-drip sets).
11. Calculate IV flow rate for pump-controlled and other infusions.
12. Prepare and administer ID, SC, IM, and peripheral IV meds (premixed antibiotics, plain solutions, and basic electrolyte solutions; may not give first dose of IV medication).
13. Describe complications that may occur with parenteral medication administration and appropriate nursing interventions for each.
15. Review and apply MCSPN math rules.

Written: 09/90
Reviewed: 11/92; 11/96; 11/98; 01/10; 12/14
Revised: 11/93; 12/00; 12/02; 01/05; 12/06; 12/08; 03/11; 12/12; 12/16

Implementation: Clayton & Willihnganz, Ch. 9 – 11; Gray Morris, Ch. 18 – 20, 21 – 23; Lecture/Discussion; Samples: Syringes/Needles, Vials, Ampules, IV Equipment; Demonstration; Online Videos: Burton & Ludwig (2015).

Evaluation: Review and apply MCSPN math rules. Describe complications that may occur with parenteral medication administration.

Integrated: Medication Administration; Medications, Intravenous; Medications, Parenteral

Exam, Application in Patient Care

Fundamentals Lab 3 Hours

PLAN OF LESSON

I. Routes of Drug Administration
   A. Enteral
   B. Parenteral
   C. Percutaneous

II. Equipment Used in Parenteral Administration
   A. Glass Syringe
   B. Plastic Syringe
   C. Insulin Syringes
   D. Tuberculin Syringe
   E. Prefilled Syringe
   F. Carpuject System

III. Needle
   A. Parts
   B. Gauges
   C. Lengths
   D. Safety Systems
   E. Intravenous Needles & Sets

IV. Selection of Syringe and Needle
   A. Syringe
      1. Volume Needed
      2. Degree of Accuracy
      3. Type of Med
   B. Needle
      1. Viscosity of Med
      2. Length Needed for Route
         a. Body Size
         b. Age

V. Parenteral Dosage Forms
   A. Ampules
   B. Vials
   C. Mix-o-Vials
   D. Large Volume Solution Containers
   E. Small Volume Solution Containers
      1. Piggy Back (IVPB)
      2. Push (IVP) by RN

VI. Preparation of Parenteral Medication
   A. Equipment
   B. Techniques
   C. Guidelines
   D. Reconstitution
   E. Removal of Drug from Ampule, Vial, & Mix-o-Vial
   F. Preparing Two Medications in One Syringe
      1. Pre-op/Post-op Meds
      2. Insulins (NRRN)
   G. Administration of Medications by ID Route
   H. Administration of Medications by SC Route
Unit: Introduction to Pharmacology
Lesson: 9 (Cont’d)
Title: Parenteral Medications
Time: Theory 3 Hours (Cont’d)

Implementation: Clayton & Willihnganz, Ch. 9 – 11; Gray Morris, Ch. 18 – 20, 21 – 23; Lecture/Discussion; Samples: Syringes/Needles, Vials, Ampules, IV Equipment; Demonstration; Online Videos: Burton & Ludwig (2015). Medication Administration; Medications, Intravenous; & Medications, Parenteral

Evaluation: Return Demonstration, Practice & Evaluation in Lab, Written Exam, Application in Patient Care
Integrated: Fundamentals Lab 3 Hours

PLAN OF LESSON

I. Administration of Medications by IM Route (Including Z-Track)
   1. Deltoid
   2. Ventrogluteal
   3. Dorsogluteal
   4. Vastus Lateralis
   5. Rectus Femoris (Avoid if Possible)

J. Administration of Medication by IV Route (Continuous and Piggyback)

K. Monitoring IV Therapy
   1. Equipment Selection & Pump Use
   2. Site Selection/Insertion Technique
   3. Monitoring Site
   4. Maintenance
      a. Solutions
      b. SAS/SASH
      c. Tubing Changes
      d. Site Changes
      e. Other
   5. Dressing Changes

6. Complications
   a. Phlebitis/Thrombophlebitis
   b. Infection/Septicemia
   c. Infiltration/Extravasation
   d. Air Embolus/Pulmonary Embolus
   e. Circulatory Overload/Pulmonary Edema
   f. Speed Shock

L. Documentation

M. Math Rules
Unit: Introduction to Pharmacology
Lesson: 10
Title: Percutaneous Medications
Time: Theory 3 Hours

OBJECTIVES

Upon completion of this unit the student will:

1. Define enteral, parenteral, and percutaneous.
2. Describe topical dosage forms.
3. List and discuss pertinent points in the use of topical creams, lotions, ointments (including nitroglycerin), and powders.
4. Describe and discuss patch testing.
5. Describe and discuss the procedure for administering transdermal patches, including nitroglycerin, nicotine, and lidocaine.
6. List and discuss pertinent points in administering drugs to the mucous membranes.
7. List and discuss pertinent points in administering sublingual and buccal tablets, including nitroglycerin.
8. List and discuss pertinent points related to instilling eye drops/ointment/disks and ear drops.
9. List and discuss important points in giving nose drops/nasal sprays.
10. Describe and demonstrate the administration of medications by inhaler and nebulizer (in-class activity).
11. List and summarize administration of vaginal medications.
12. Prepare, administer, and document percutaneous medications.
13. Review and apply MCSPN math rules.

Implementation: Clayton & Willihnganz, Ch. 7; Lecture/Discussion; Equipment Display; Handouts; Demonstration (Patch, Drops, Inhaler w/ Spacer, Nebulizer); Online Videos: Burton & Ludwig (2015). Medication Administration

Evaluation: Return Demonstration, Written Exam, Application in Patient Care

Integrated: N/A

PLAN OF LESSON

I. Percutaneous Drug Administration
II. Administration of Topical Medications
III. Administration of Creams, Lotions, Ointments, and Powders
IV. Patch Testing for Allergens
V. Administration of Transdermal Patches
VI. Administration of Sublingual and Buccal Tablets
VII. Administration of Eye Drops, Ointment, and Disks
VIII. Administration of Ear Drops
IX. Administration of Nose Drops and Nasal Sprays
X. Administration of Medications by Inhaler and Nebulizer
XI. Administration of Vaginal Medications
XII. Documentation
XIII. Math Rules
XIV. Med Summary Requirements

Written: 09/90
Reviewed: 11/92; 11/96; 11/98; 01/10; 12/14
Revised: 11/93; 12/00; 12/02; 01/05; 12/06; 12/08; 03/11; 12/12; 12/16
OBJECTIVES

Upon completion of this unit student will:

1. Define and describe the peripheral nervous system including the sympathetic and parasympathetic divisions of the autonomic nervous system.
2. List and describe the major neurotransmitters.
3. Define catecholamine, noncatecholamine, and receptors.
4. Describe adrenergic agents and recognize drugs from this group.
5. Define adrenergic blocking agents and recognize drugs from this group.
6. Describe cholinergic agents and recognize drugs from this group.
7. Define anticholinergics and recognize drugs from this group.
8. Summarize the desired effects, side effects, adverse effects, and nursing implications for each drug classification.

PLAN OF LESSON

I. Peripheral Nervous System
   A. Motor Nervous System
   B. Autonomic Nervous System
   C. Functions of Autonomic Nervous System
      1. Controls Function of All Tissue Except Striated Muscle
      2. Divided Into Sympathetic & Parasympathetic
   D. Neurotransmitters
      1. Norepinephrine and Epinephrine (Adrenergic)
      2. Acetylcholine (Cholinergic)

II. Adrenergic Agents
   A. Catecholamines
      1. Norepinephrine
      2. Epinephrine
      3. Dopamine
   B. Noncatecholamines
      1. Similar to catecholamine
      2. More selective
      3. Longer duration
   C. Receptors
      1. Alpha
      2. Beta
      3. Dopaminergic

III. Adrenergic-Blocking Agents
   A. Alpha-Adrenergic Blockers
   B. Beta-Adrenergic Blockers

IV. Cholinergic Agents

V. Anticholinergic Agents

VI. Effects of ANS Drugs on Body
   A. Desired
   B. Side/Adverse
   C. Nursing Implications
OBJECTIVES

Upon completion of this unit student will:

1. Define sedative and hypnotic, and state their purposes for use.
2. Define and discuss barbiturates and benzodiazepines.
3. Give examples of other sedatives and hypnotics.
4. List examples of drugs used to treat Parkinson’s disease and discuss the overall use of medications in treatment.
5. Describe anxiety, mood, and psychotic disorders.
6. Summarize the use of anxiolytics, mood stabilizers, and antipsychotics in patient care.
7. Give examples of anxiolytics, mood stabilizers, and antipsychotics used in treatment today.
8. Discuss drugs used to treat convulsions and summarize those used most often.
9. Describe the physiological phenomenon of motion sickness and discuss examples of drugs used to treat motion sickness.
10. Define analgesia and summarize the most commonly used analgesic drugs and related information.
11. Describe pain assessment (5th vital sign) and management techniques, both pharmacologic and nonpharmacologic.
12. Describe actions and uses of acetaminophen and caffeine in pain management.
13. Summarize the desired effects, side effects, adverse effects, and nursing implications for each drug classification.

I. Sedatives & Hypnotics
   A. Actions and Uses
   B. Side Effects
   C. Adverse Effects
   D. Examples: Barbiturates & Benzodiazepines
   E. Nursing Implications
II. Antiparkinson’s Agents
    A. Actions and Uses
    B. Side Effects
    C. Adverse Effects
    D. Examples: Dopamine Agonists & Anticholinergics
    E. Nursing Implications
III. Anxiolytics
    A. Actions and Uses
    B. Side Effects
    C. Adverse Effects
    D. Examples: Benzodiazepines, Azaspirones, SSRIs, & Miscellaneous
    E. Nursing Implications
IV. Mood Stabilizers
    A. Actions and Uses
    B. Side Effects
    C. Adverse Effects
    D. Examples: SSRI, TCA, MAOI, Antimanics, & Miscellaneous
    E. Nursing Implications
V. Antipsychotic Agents
    A. Actions and Uses
    B. Side Effects
    C. Adverse Effects
    D. Examples: Typical & Atypical
    E. Nursing Implications
VI. Anticonvulsants
    A. Actions and Uses
    B. Side Effects
    C. Adverse Effects
    D. Examples: Barbiturates, Benzodiazepines, Hydantoins, Succinimides, & Miscellaneous
    E. Nursing Implications
VII. Antimotion Agents
     A. Actions and Uses
     B. Side Effects
     C. Adverse Effects
     D. Examples: Anticholinergics, Antihistamines
     E. Nursing Implications
VIII. Analgesics/Pain Management
      A. Actions and Uses
      B. Side Effects
      C. Adverse Effects
      D. Examples: Opiate Agonists, Opiate Partial Agonists, Opiate Antagonists, Salicylates, & NSAIDs
      E. Nursing Implications
IX. Others
    A. Acetaminophen
    B. Caffeine

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Upon completion of this unit student will:

1. Define antimicrobial agent.
2. Describe a brief history of antimicrobial therapy and the development of resistant organisms.
3. Define and discuss culture and sensitivity (C & S) testing.
4. List possible allergic responses to antimicrobials and the LPN’s duties related to these.
5. Discuss how direct tissue damage may occur.
6. Explain the phenomenon of superinfection.
7. Discuss nursing considerations (precautions and observations) related to antimicrobial therapy.
8. List and state details of aminoglycosides and carbapenems.
10. List and state details of penicillins.
12. List and state details of tetracyclines.
15. List and state details regarding miscellaneous antimicrobials, including anthelmintics, antifungals, antituberculars, and antivirals.
16. Summarize the desired effects, side effects, adverse effects, and nursing implications for each drug classification.
OBJECTIVES

Upon completion of this unit student will:

1. Identify major drug categories related to body systems.
2. List and discuss particular facts, as presented, regarding various categories of drugs.
3. List examples of drugs in categories as presented.
4. Summarize the desired actions, common side/adverse effects, nursing implications, and patient teaching points for each drug classification presented in class.
5. Complete and submit med summary assignment.

PLAN OF LESSON

I. Drugs Used to Treat Cardiovascular Disorders (Lipidemia, HTN, CHF, Arrhythmias, Angina, PVD, DVT/PE)
II. Drugs Used to Treat Respiratory Disorders (Upper & Lower)
III. Drugs Used to Treat Digestive Disorders (GERD, PUD, N/V/D, Constipation)
IV. Drugs Used to Treat Urinary Disorders (UTI, Overactive Bladder)
V. Drugs Used to Treat Endocrine Disorders (DM, Thyroid)
VI. Corticosteroids