

Virginia Western Community College
PNE 173
Pharmacology for Practical Nurses

Prerequisites

Acceptance into Practical Nursing program.

Course Description

Studies history, classification, sources, effects, uses and legalities of drugs. Teaches problem solving skills used in medication administrations. Emphasizes major drug classes and specific agents within each class. Lecture 2 hours per week

Semester Credits: # 2 CR; Lecture Hours: #2 Lab/Clinical/Internship Hours: #0

Required Materials**Textbook:**

Buchholz, S. (2016). Henke's Med-Math: Dosage calculation, preparation & administration (8th Ed.). Philadelphia, PA: Lippincott Williams & Wilkins. ISBN 9781496302847

Timby, B.K. (2018). Introductory medical-surgical nursing (12th Ed.). Philadelphia: Lippincott. ISBN 9781496351333

Timby, Barbara K. (2017). Fundamental Nursing Skills and Concepts (11th ed.). Philadelphia: Lippincott, Williams, & Wilkins. ISBN 978-1-4963-2762-8

Ford, Susan M., (2018). Roach's Introductory Clinical Pharmacology (11th Ed.). Philadelphia: Lippincott, Williams & Wilkins. ISBN 978149634567

Giddens, Foret Jean, (2017). Concepts for Nursing Practice (2nd Ed.). St. Louis: Elsevier. ISBN 9780323374736

Access to course ebooks.

Other Required Materials:

Skills Lab Kit (in tote bag) which must be purchased at the VWCC campus book store

Course Outcomes

At the completion of this course, the student should be able to:

- **PATIENT CENTERED CARE:**
 - Distinguish components of drug labels utilized in clinical practice to prevent med errors.

- **Critical Thinking:**
 - Select a method of calculating drug dosages (ration/proportion, formula, or dimensional analysis) to ensure correct dosing of medications, interpret drug orders for medications in order to calculate correct dosage of drugs ordered
 - Identify dosage forms for drugs given by enteral route
- **Teamwork and Collaboration:**
 - Describe how working as a member of the healthcare team helps ensure all patients receive quality care with calculation and dosing of medications
 - Analyze the role of PN as a member of the interdisciplinary health care team in medication administration
- **Evidence-Based Practice:**
 - Utilize current approved abbreviation list in order to foster patient-centered care and best practice
 - Use International System of units, metric, and household measures
 - Differentiate among various syringes to ensure accuracy when administering parenteral medications
 - Procedures for oral, topical, inhaled, and parenteral meds, methods of administering IV drugs and techniques for using various venous access devices
 - Relate factors affecting choice of IV tubing used, three techniques for infusing IV solution
 - Demonstrate critical thinking in procedure for preparing, starting, and discontinuing infusions
- **Informatics:**
 - Demonstrate how technology and EMR promote patient safety in medication administration
 - Relate use of technology and information management tools to support safe medication management
- **Culture:**
 - Identify cultural and socioeconomic beliefs that affect patient's compliance with medication administration
- **Safety:**
 - Basic arithmetic functions and conversion measurements household, and metric systems to ensure safe preparation and administration of medications
 - Utilize correct formula to calculate med dosages for diverse patients across the lifespan, including weight-based medications
 - Convert temperatures Centigrade to Fahrenheit and reverse
 - Legal and ethical aspects and nursing responsibilities in care, preparation, and administration of meds
 - Appropriate terminology associated with pharmacology and med administration
 - Relate drug action, adverse reactions, and nursing considerations affecting nursing judgement with administration of meds
 - Demonstrate knowledge and correct use of drug abbreviations, notations, and interpretations of medication labels
 - Properly identify anatomy landmarks used for parenteral injections

- **Quality Improvement:**
 - Follow policies and procedures to ensure quality of care maintained with preparation of oral, topical, injectable, and IV preparations

Topical Description

Course Outline

Unit 1: Nursing Foundation of Clinical Pharmacology

Ch. 1 Ford

1. General Principles of Pharmacology
2. Drug Names and Classification
3. Drug Development & FDA Programs
- Pharmacokinetic Phase
 1. Absorption
 2. Distribution
 3. Metabolism or biotransformation
 4. Excretion
 5. Onset, Peak, and Duration
 6. Age-related changes in pharmacokinetics
- Pharmacodynamic Phase
 7. Alteration in Cellular Function
 8. Alteration in Cellular Environment
- Pharmacogenomics
9. Drug Use in Pregnancy and Lactation
10. Drug Reactions
11. Drug Idiosyncrasy and Tolerance
12. Cumulative Effect
13. Toxic Effect
14. Drug Interactions
15. Factors Influencing Drug Response
16. Nursing Implication
17. Herbal Medicine
18. Teaching the patient/client

Ch. 2 Ford (pg. 21-25)

1. General Principles of Drug Administration

Ch. 5 Ford

1. Patient and Family Teaching

Unit II: Oral Medications

Ch. 32 Timby

Medication Orders

1. Components of a medication order
2. Verbal and telephone orders
3. Documentation in the medical record

Medication Administration

1. Administering oral medications
2. Administering oral medications by enteral tube
3. Documentation
4. Medication errors

Nursing Implications

Unit III: Drugs Used to Fight Infection

Ch. 6, 7, 8, 9, 10, 11, 12 Ford

1. Antibacterial Drugs: Sulfonamides
2. Antibacterial Drugs that Disrupt the Bacterial Cell Wall
3. Antibacterial Drugs that Interfere with Protein Synthesis
4. Antibacterial Drugs that Interfere with DNA/RNA Synthesis
5. Antitubercular Drugs
6. Antifungal and Antiparasitic Drugs

Unit IV: Drugs Used to Manage Pain

Ch. 13, 14, 15, 16, 17 Ford

1. Nonopioid Analgesics: Salicylates and Nonsalicylates
2. Nonopioid Analgesics: NSAIDs and Migraine Headache Medications
3. Opioid Analgesics
4. Opioid Antagonists
5. Anesthetic Drugs

Unit V: Topical and Inhalant Medications

Ch. 33 Timby

Topical Route

1. Cutaneous applications
2. Ophthalmic applications
3. Otic applications
4. Nasal applications
5. Sublingual and buccal applications
6. Vaginal applications
7. Rectal applications

Inhalant Route

Nursing Implications

Unit VI: Drugs that Affect the CNS

Ch. 18, 19, 20, 21, 22, 23 Ford

1. CNS Stimulants
2. Cholinesterase Inhibitors
3. Antianxiety Drugs
4. Sedatives and Hypnotics
5. Antidepressant Drugs
6. Antipsychotic Drugs

Unit VII: Drugs that Affect the PNS**Ch. 24, 25, 26, 27 Ford**

1. Adrenergic Drugs
2. Adrenergic Blocking Drugs
3. Cholinergic Drugs
4. Cholinergic Blocking Drugs

Unit VIII: Drugs that Affect the Neuromuscular System**Ch. 28, 29, 30 Ford**

1. Antiparkinson Drugs
2. Antiepileptics
3. Skeletal Muscle, Bone and Joint Disorder Drugs

Unit IX: Parenteral Medications**Ch. 34 Timby**

Parenteral Medication Equipment

1. Syringes
2. Needles
3. Modified safety injection equipment

Drug Preparation

1. Ampules
2. Vials
3. Prefilled cartridges

Injection Routes

8. Intradermal injections
9. Subcutaneous injections
10. Intramuscular injections

Nursing implications

Unit X: Drugs that Affect the Respiratory System**Ch. 31, 32 Ford**

1. Upper Respiratory System Drugs
2. Lower Respiratory System Drugs

Unit XI: Drugs that Affect the Cardiovascular System

1. Diuretics
2. Antihyperlipidemics Drugs
3. Antihypertensive Drugs
4. Antianginal and Vasodilating Drugs
5. Anticoagulant and Thrombolytic Drugs
6. Cardiotonic and Inotropic Drugs
7. Antiarrhythmic Drugs

Unit XII: Drugs that Affect the GI System

1. Upper GI System Drugs
2. Lower GI System Drugs

Unit XIII: Fluid and Chemical Balance**Ch. 16 Timby (IV Skills)**

Skills

1. Skill 16-2: Preparing IV Solutions
2. Skill 16-3: Starting an IV Infusion
3. Skill 16-4: Changing IV Solution containers
4. Skill 16-5: Changing IV Tubing
5. Skill 16-6: Discontinuing an IV Infusion
6. Skill 16-7: inserting a Medication Lock

Unit XIV: Intravenous Medications**Ch. 35 Timby**

1. Intravenous Medication Administration
 2. Continuous administration
 3. Intermittent administration
 4. Central venous Catheters
 5. Nontunneled percutaneous catheters
 6. Tunneled catheters
 7. Implanted catheters
 8. Medication administration using a central venous catheter
- Nursing Implications

Unit XV: Drugs that Affect the Endocrine System**Ch. 42, 43, 44, 45, 46 Ford**

1. Antidiabetic Drugs
2. Pituitary and Adrenocortical Hormones
3. Thyroid and Antithyroid Drugs
4. Male and Female Hormones
5. Uterine Drugs

Unit XVI: Drugs that Affect the Urinary System**Ch. 47, 48 Ford**

1. Menopause and Andropause Drugs
2. Urinary Tract Anti-infectives and Other Urinary Drugs

Unit XVI: Drugs that Affect the Immune System**Ch. 49, 50, 51 Ford**

1. Immunologic Agents
2. Antineoplastic Drugs and Targeted Therapies
3. Immunomodulating Drugs

Unit XVII: Drugs that Affect Other Body Systems**Ch. 52, 53, 54 Ford**

1. Skin Disorder Topical Drugs
2. Otic and Ophthalmic Drugs
3. Fluids, Electrolytes, and Parenteral Therapy

Notes to Instructors

- This is the basic skills of nursing care that persons working in Healthcare may use daily. Through demonstration of skills that meet program guidelines, student will be allowed to test out of this series of labs attendance.