Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Pharmacology
Prefix and Course Number: RT 309

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Apply the following classes of medications:
    - Skeletal muscle Relaxants (Neuromuscular Blocking Agents)
    - Medications affecting the Central Nervous System
    - Diuretic Agents
    - Vasopressors, Inotropes, and Antiarrhythmic Agents
    - Medications affecting circulation: Antihypertensive, Antianginals, and Antithrombotic
- Describe the pharmacologic routes of drug administration
- State the indications and hazards of the medications administered critical care
- State the dosages and routes of administration for each medication
- Describe the mechanism of action for each medication
- Evaluate a case study in emergency and critical care medication
- Evaluate when the application of conscious sedation is appropriate
- Describe the application of pulmonary vasodilators including iNO and epoprostenol (Veletri)
- Evaluate situations in which Heliox mixtures may be needed
- Prepare and present a 10 minute case study related to clinical treatment of a patient in the adult ICU
- Prepare a written report on a specific drug and its application to the
- Treatment of a disease state

Course Outline:

I. Skeletal Muscle Relaxants
    A. Nondepolarizing agents
        1. Mechanism of action
        2. Pharmacokinetics
        3. Metabolism
    B. Depolarizing agents
        1. Mechanism of action
        2. Pharmacokinetics
        3. Metabolism
    C. Contraindications and adverse effects
    D. Clinical application
    E. Case study
II. Drugs Affecting the Central Nervous System
    A. Neurotransmitters
    B. Psychiatric medications
    C. Pain treatment/medications

D. Anesthesia
E. Central nervous system and respiratory stimulants
F. Case study

III. Diuretic Agents
A. Renal structure and function
B. Diuretic groups and medications
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
C. Adverse effects
D. Special situations
E. Case study

IV. Vasopressors, Inotropes, and Antiarrhythmic Agents
A. Overview of cardiovascular system
B. Agents used in the management of shock
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
C. Electrophysiology of the myocardium
D. Antiarrhythmic agents (class IA, IB, IC, II, III, IV)
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
E. Management and Pharmacotherapy of Advanced Cardiac Life Support
F. Case study

V. Drugs Affecting Circulation: Antihypertensive, Antianginals, Antithrombotic
A. Hypertension
B. Selected medications used in the treatment of hypertension
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
C. Angina and selected medications
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
D. Antithrombotic agents
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
E. Case study

VI. Conscious sedation

A. Selected medications
B. Roles and responsibilities of the respiratory therapist

VII. Selected Pulmonary Vasodilators
A. Inhaled nitric oxide
B. Inhaled prostacyclins

VIII. Heliox therapy

IX. Case study development and student presentation

X. Written report