

# Virginia Western Community College

## DNH 216

### Pharmacology

#### Prerequisites

DNH 111; DNH 115; DNH 120; DNH 130 and DNH 141

#### Course Description

Studies the chemical and therapeutic agents used in dentistry, including their preparation, effectiveness, and specific application.

**Semester Credits: 2**

**Lecture Hours: 2**

#### Required Materials

##### **Textbooks:**

Haveles, Applied Pharmacology for the Dental Hygienist (8<sup>th</sup> Edition) ISBN # 9780323595391  
Mosby \*\*\*OR current updated edition\*\*\*

Wynn, et al. Drug Information Handbook for Dentistry. 26<sup>th</sup> edition ISBN: 978-1-59195-382-1  
Lexicomp \*\*\*OR current updated edition\*\*\*

Clinical Practice of the Dental Hygienist by Boyd. 13<sup>th</sup> edition ISBN: 9781496396273 Jones &  
Bartlett Learning

Virginia Western Community College, Dental Hygiene Student Guidelines and Procedures  
Manual (2023-2024)

##### **Required Items:**

- **Plastic Box** to File Several Index Cards
- **No larger than** - 6 ½ inches long x 5 inches tall x 4 inches deep
- **Lined** Index Cards (need to fit with plastic box noted above)
- **Divider Cards /Tab Cards** (need to fit with plastic box noted above)

## **Course Outcomes**

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

1. Apply knowledge from the previous semester to the concepts of pharmacology presented in this course.
2. Utilize the information presented to augment your current knowledge in treatment planning and treatment modifications for clinical situations.
3. Gain an understanding of the significance and impact of pharmacotherapeutic agents on the overall health status of the clients in your clinical caseload.
4. Recognize the impact of interaction of the prescription and OTC drugs taken by the client with drugs used in dental treatment.
5. Recognize the impact of research and release of new drugs on the study of pharmacology as a science.
6. Recognize the need for ongoing education in this area due to the advent of new drugs and manifestations of diseases.

## **Student Learning Outcomes**

DNH 216 Pharmacology builds on the fundamentals acquired in DNH 120 & 141 to provide the knowledge, skill and attitudes that will enable students to reach the following competencies expected of new graduates:

DOMAIN: Ethical Values & Professionalism

The dental hygiene graduate must be able to:

- Apply the ADHA Code of Ethics as a guide for ethical consciousness, decision-making, and practice.
- Adhere to state/federal laws, regulations, and recommendations in the provision of dental hygiene care.
- Serve all patients without discrimination, appreciating population diversity.
- Communicate effectively with patients, families, communities and other health professionals in a responsive and responsible manner using verbal, non-verbal, written & electronic communication skills.

DOMAIN: Professional Commitment and Development

The dental hygiene graduate must be able to:

- Evaluate professional issues and scientific literature to make evidence-based decisions.
- Engage appropriately with individuals of other professions to maintain a climate of mutual respect and shared values.

DOMAIN: Dental Hygiene Process of Care

The dental hygiene graduate must be able to carry out the components of the process as delineated below:

- Provide accurate, consistent & complete documentation for assessment, diagnosis, planning, implementation, evaluation & documentation of dental hygiene services.
- Use principles of risk management to assess & manage risk and prevent liability.
- Utilize critical thinking and problem-solving skills.
- Evaluate and integrate evidence-based research outcomes with clinical expertise and patient values.
- Support optimal oral wellness for all patients.

## **Course Information**

DNH 216 is a distance-learning course with online and face-to-face components. The course will follow a timeline. Lecture material is delivered once a week via two-way audio and two-way video. This synchronous video communication utilizes the ZOOM video conferencing platform & Panopto lecture capture platform. Panopto & Zoom will be utilized for recordings and connection. Lecture material and resources are accessible within the CANVAS learning management system. Lecture material is reinforced and practiced/applied during the clinical components of the program. Clinics offer and support an opportunity for the student to demonstrate a working knowledge of lecture material. In addition, the course and clinics support the continuation of the DNH 120 / 141 Drug Card Collection Assignment.

### **Course material will be shared in a linear sequence as follows:**

- Unit 1 - Information Sources, Regulatory Agencies, Drug Legislation, and Prescription Writing, Natural/Herbal Products and Dietary Supplements, Pregnancy/Breast Feeding, Drug Action & Handling, Adverse Reactions, and Substance Use Disorders
- Unit 2 - Autonomic Drugs, Adrenergic and Adrenergic Blocking Agents Drugs for the Treatment of CNS Disorders
- Unit 3 - Non-Opioids, Opioids & Antagonists, Local Anesthetic, General Anesthetics Anti-Infective Agents, Antifungal & Antiviral Agents, and Adrenocorticosteroids,
- Unit 4 - Antianxiety Agents, Drugs for The Treatment of Seizure Disorders, Drugs for The Treatment of Cardiovascular Disease, Drugs For The Treatment Of GI Disorders, Drugs For The Treatment Of Diabetes Mellitus, Drugs For The Treatment Of Other Endocrine Disorders, Drugs For The Treatment Of Respiratory Disorders And Allergic Rhinitis, And Antineoplastic Drugs

## **Topical Description**

### **Unit 1: Information Sources, Regulatory Agencies, Drug Legislation, and Prescription Writing, Natural/Herbal Products and Dietary Supplements, Pregnancy/Breast Feeding, Drug Action & Handling, Adverse Reactions, Substance Use Drug Disorders Weeks 1-3**

- a. History
- b. Pharmacology and the Role of the Dental Hygienist

- c. Sources of Information
- d. Drug Names
- e. Federal Regulations and Regulatory Agencies
- f. Clinical Evaluation of a New Drug
- g. Drug Legislation
- h. Prescription Writing
- i. Natural/Herbal Products and Dietary Supplements
- j. Limited Regulation
- k. Safety
- l. Drug Interactions
- m. Standardization of Products
- n. Good Manufacturing Practice
- o. Products used in Oral Health Care
- p. Pregnancy and Breast Feeding - General Principles
- q. Pregnancy Trimesters
- r. Pregnancy Teratogenicity
- s. FDA Pregnancy Categories
- t. Breast Feeding
- u. Dental Drugs and Dental Hygiene Considerations
- v. Characterization of Drug Action, Mechanism of Action, and Pharmacokinetics
- w. Routes of Administration and Dose Forms
- x. Adverse Reactions - Definitions and Classifications
- y. Clinical Manifestations of Adverse Reactions and Toxicologic Evaluation of Drugs
- z. Recognizing Adverse Drug Effects
- aa. Dental Hygiene Considerations
- bb. Drug Abuse
- cc. General Considerations
- dd. CNS Depressants
- ee. CNS Stimulants
- ff. Psychedelics
- gg. Identifying Drug Abuser and Impaired Health Care Worker

## **Unit 2: Autonomic Drugs, Adrenergic and Adrenergic Blocking Agents, Drugs for the Treatment of Central Nervous System Disorders Weeks 4-6**

- a. Anatomy
- b. Parasympathetic Autonomic Nervous System
- c. Sympathetic Autonomic Nervous System
- d. Functional Organization
- e. Neurotransmitters

## f. Drug Groups

**Unit 3: Non opioids, Opioids (Narcotic) Analgesics & Antagonists, Local Anesthetic, General Anesthetics, Anti-infective Agents, Anti-fungal and Antiviral Agents, Adrenocorticosteroids  
Weeks 7-11**

- a. Define Pain
- b. Nonopioids and Classification
- c. Salicylates
- d. Nonsteroidal Anti-inflammatory Drugs
- e. Acetaminophen
- f. Drugs Used to Treat Gout
- g. Opioid (Narcotic) Analgesics and Antagonists
- h. Opioid History, Terminology, Classification, Mechanism of Action, Pharmacokinetics, Pharmacologic Effects and Adverse Reactions
- i. Specific Opioids
- j. Dental Use of Opioids
- k. Chronic Dental Pain and Opioid Use
- l. Local Anesthetics – Chemistry, Mechanism of Action, Pharmacokinetics, Pharmacologic Effects, Adverse Reactions
- m. Composition of Local Anesthetics
- n. Local Anesthetic Agents
- o. Local Anesthetic Vasoconstrictors & Topical Anesthetics
- p. Doses of Local Anesthetic and Vasoconstrictors
- q. General Anesthetics – History, Mechanism of Action, Adverse Reaction, Classification, and Balanced General Anesthesia
- r. Dental Infection “Evolution”
- s. Definitions of Anti-infective, Infection and Resistance
- t. Indications for Antimicrobial Agents
- u. General Adverse Reactions and Disadvantages Associated with Anti-infective Agents
- v. Rational Use of Anti-infective Agents in Dentistry
- w. Antimicrobial Agents for Nondental Use
- x. Antituberculosis Agents
- y. Topical Antibiotics
- z. Antibiotic Prophylaxis Used in Dentistry
- aa. Antifungal Agents - Nystatin, Imidazole’s, and Other Antifungal Agents
- bb. Antivirals
- cc. Herpes Simplex, AIDS, Chronic Hepatitis
- dd. Adrenocorticosteroids - Mechanism of Release, Classification, Definitions, Mechanism of Action, Pharmacologic Effects, Adverse Reactions, and Uses
- ee. Corticosteroid Products and Dental Implications

**Unit 4: Antianxiety Agents, Drugs for The Treatment of Seizure Disorders, Drugs for The Treatment of Cardiovascular Disease, Drugs for The Treatment of Gi Disorders, Drugs for The Treatment of Diabetes Mellitus, Drugs for The Treatment of Other Endocrine Disorders, Drugs for The Treatment of Respiratory Disorders and Allergic Rhinitis, & Antineoplastic Drugs**

**Weeks 12-14**

- a. Antianxiety
- b. Benzodiazepines
- c. Barbiturates
- d. Nonbenzodiazepine-Nonbarbiturate Sedative-Hypnotics
- e. Nonbenzodiazepine-Nonbarbiturate Receptor Agonists
- f. Melatonin Receptor Agonist
- g. Centrally Acting Muscle Relaxants
- h. Miscellaneous Agents
- i. Epilepsy and Drug Therapy of Patients with Epilepsy
- j. Dental Treatment of the Patient with Epilepsy
- k. Non-seizure Uses of Antiepileptics
- l. Psychiatric Disorders
- m. Antipsychotic & Antidepressant Agents
- n. Antidepressants
- o. Drugs for Treatment of Bipolar
- p. Dental Implications of Cardiovascular Disease
- q. Heart Failure
- r. Cardiac Glycosides
- s. Antiarrhythmic Agents
- t. Antianginal Drugs
- u. Antihypertensive Agents
- v. Antihyperlipidemic Agents
- w. Drugs that Affect Blood Coagulation
- x. Drugs that Increase Blood Clotting
- y. Gastrointestinal Diseases and Drugs Used to Treat GI Diseases
- z. Pancreatic Hormones
- aa. Diabetes Mellitus and Drugs Used to Manage Diabetes Mellitus
- bb. Treatment of Hypoglycemia
- cc. Endocrine Disorders
- dd. Hormones: Pituitary, Thyroid, Female, and Male and Other Agents that Affect Sex Hormone Systems
- ee. Respiratory Disorders and Diseases
- ff. Dental Implications of the Respiratory Drugs: Antihistamines (H1-Receptor Antagonists), Intranasal Corticosteroids, Leukotriene Modifiers, Mast Cell Stabilizers, Intranasal Anticholinergics, Decongestants
- gg. Antineoplastic-Uses, Mechanism of Action, Classification and Drug Effects

