

University of Arkansas - Fort Smith
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General Syllabus

DHYG 4512 Local Anesthesia and Nitrous Oxide

Credit Hours: 2

Lecture Hours: 1

Laboratory Hours: 4

Prerequisites: DHYG 3113 Clinic I Theory, DHYG 3212 Periodontology I, DHYG 3213 Dental Hygiene Clinic I, DHYG 3443 Pharmacology, and DHYG 3453 General and Oral Pathology

Corequisites: DHYG 4122 Clinic II Theory, DHYG 4224 Dental Hygiene Clinic II, DHYG 4142 Advanced Dental Hygiene Theory for Special Needs Patients, DHYG 4311 Periodontology II, DHYG 4372 Dental Nutrition, and DHYG 4463 Dental Materials

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Anatomy, physiology, pharmacology, patient assessment, indications and contraindications, selection of agents, injection techniques, complications, emergency management, and legal and ethical considerations are covered. Classroom and laboratory sessions are included for the student to develop competency in the techniques of administering local anesthetics and nitrous oxide inhalation sedation.

B. Additional Information-None

II. Student Learning Outcomes

A. Subject Matter

Upon completion of this course, the student will:

1. Discuss the mechanism of nerve impulse transmission and specify how local anesthetic agents prevent impulse transmission.
2. Differentiate between pain perception and pain reaction.
3. Describe the anesthetic agents and vasoconstrictors used in dentistry.
4. Calculate the maximum safe dose of local anesthetic agents and vasoconstrictors for individual patients.

5. Assess the patient's health history to determine suitability to receive local anesthesia or vasoconstrictors.
6. Name and locate landmarks associated with administration of the anterior superior alveolar (ASA), middle superior alveolar (MSA), posterior superior alveolar (PSA), greater palatine (GP), nasopalatine (NP), long buccal (LB), mental, incisive, inferior alveolar (IA), lingual, and single tooth infiltration injections.
7. Safely administer the following techniques of regional anesthesia for the following: ASA, MSA, PSA, GP, NP, IA, LB, mental, incisive and single tooth infiltration injections.
8. Describe how nitrous oxide produces sedation.
9. Demonstrate the ability to properly assemble and care for the nitrous and local anesthetic armamentarium.
10. Recognize disease conditions and medications that may alter or contraindicate the use of local anesthetic agents or nitrous oxide.
11. Document local anesthetic and nitrous administration appropriately in the dental record.
12. Recognize signs and symptoms of local and systemic complications associated with the administration of local anesthetic agents and nitrous oxide sedation.
13. Discuss and potentially assist in the management of local and systemic complications associated with the administration of local anesthetic agents and systemic complications associated with nitrous oxide administration.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students will demonstrate the ability to use critical thinking to collect data with respect to patient health to make appropriate decision for anesthetic use for pain and stress reduction.

Quantitative Reasoning: Students will demonstrate quantitative reasoning with the ability to use numbers by calculating the appropriate dosage of local anesthetic needed based on patient weight and other health factors as necessary.

Communication Skills (written and oral)

Students will demonstrate communication through their laboratory/clinical experiences in explaining the rationale for the administration of local anesthetics to their assigned clinical patients.

Ethical Decision Making

Students will demonstrate their personal and professional responsibility in relation to the Practice act of the Arkansas State Board of Dental Examiners.

III. Major Course Topics

- A. Neurophysiology
- B. Pharmacology of Local Anesthetic Agents
- C. Vasoconstrictors
- D. Medical History and Local Anesthetic Use
- E. Clinical Action of Specific Agents
- F. Calculating Dosages of Local Anesthetic Agents
- G. Head and Neck Anatomy Review
- H. Techniques of Maxillary Anesthesia
- I. Techniques of Mandibular Anesthesia
- J. Local and Systemic Complications
- K. Emergency Procedures for Local and Systemic Complications
- L. Occupational Exposures and Clinical Protocol