

Pharmacology for the Dental Hygienist

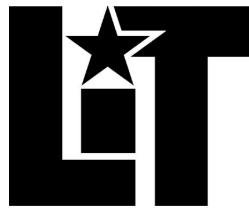
Lamar Institute of
Technology

DHYG 1235

Course Syllabus

Revised-Spring 2021

Taught by:
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DHYG 1235: Pharmacology
Course Schedule: Thursday, 9:00–9:50 AM
Hybrid Content through Blackboard

WEEK	CHAPTER/ TOPIC	TO DO
UNIT 1: General Principles, Autonomic Drugs, & Emergency Drugs		
Week 1	'START HERE' (Blackboard) Course Introduction, Course Contract & Drug cards Chapter 1 Information, Sources, Regulatory Agencies, Drug Legislation & Prescription Writing Chapter 2 Drug Action and Handling	Complete 'Start Here' Read textbook chapters Complete Week 1 Hybrid Module in Blackboard
Week 2	Chapter 3 Adverse Reactions Chapter 4 Autonomic Drugs	Read textbook chapters Complete Week 2 Hybrid Module in Blackboard
Week 3	Chapter 21 Emergency Drugs	Read textbook chapter Complete Week 3 Hybrid Module in Blackboard
	Unit 1 Exam Chapters 1, 2, 3, 4, 21	
UNIT 2: Drugs Used in Dentistry & Natural Herbal Products		
Week 4	Chapter 5 Nonopioid Analgesics Chapter 6 Opioid Analgesics and Antagonists	Read textbook chapters Complete Week 4 Hybrid Module in Blackboard
Week 5	Chapter 7 Antiinfective Agents Chapter 24 Natural/Herbal Products & Dietary Supplements	Read textbook chapters Complete Week 5 Hybrid Module in Blackboard
	Unit 2 Exam Chapters 5, 6, 7, 24	

UNIT 3: Drugs Used in Dentistry (cont.) & Oral Conditions and Their Treatment		
Week 6	Chapter 8 Antifungal and Antiviral Agents	Read textbook chapter Complete Week 6 Hybrid Module in Blackboard
Week 7	Chapter 9 Local Anesthetics Chapter 10 General Anesthetics	Read textbook chapters Complete Week 7 Hybrid Module in Blackboard
Week 8	Chapter 11 Antianxiety Agents Chapter 25 Oral Conditions and Their Treatment	Read textbook chapters Complete Week 8 Hybrid Module in Blackboard
	Unit 3 Exam Chapters 8, 9, 10, 11, 25	
UNIT 4: Drugs That May Alter Dental Treatment		
Week 9	Chapter 12 Drugs for the Treatment of Cardiovascular Diseases	Read textbook chapter Complete Week 9 Hybrid Module in Blackboard
Week 10	Chapter 13 Drugs for the Treatment of Gastrointestinal Disorders Chapter 14 Drugs for the Treatment of Seizure Disorders	Read textbook chapters Complete Week 10 Hybrid Module in Blackboard
Week 11	Chapter 15 Drugs for the Treatment of CNS Disorders	Read textbook chapters Complete Week 11 Hybrid Module in Blackboard
	Unit 4 Exam Chapters 12, 13, 14, 15	
Unit 5: Drugs That May Alter Dental Treatment (cont.), Pregnancy, & Substance Use Disorders		
Week 12	Chapter 17 Drugs for the Treatment of Respiratory Disorders and Allergic Rhinitis	Read textbook chapters Complete Week 12 Hybrid Module in Blackboard

DHYG 1235 Pharmacology

Week 13	Chapter 18 Drugs for the Treatment of Diabetes Mellitus Chapter 19 Drugs for the Treatment of Other Endocrine Disorders	Read textbook chapter Complete Week 13 Hybrid Module in Blackboard
Week 14	Chapter 16 Adrenocorticosteroids Chapter 20 Antineoplastic Drugs	Read textbook chapters Complete Week 14 Hybrid Module in Blackboard
Week 15	Chapter 22 Pregnancy and Breast Feeding Chapter 23 Substance Use Disorders	Read textbook chapters Complete Week 15 Hybrid Module in Blackboard
	Unit 5 Exam Chapters 16-20, 22, 23	

DHYG 1235 Pharmacology

COURSE DESCRIPTION

A study of the classes of drugs and their uses, actions, interactions, side effects, contraindications, and oral manifestations with emphasis on dental applications.

PREREQUISITE: DHYG 1301, DHYG 1431, DHYG 1304, DHYG 1227

CO-REQUISITE: DHYG 1260, DHYG 1219, DHYG 2301, DHYG 1207

COURSE GOALS

Upon completion of this course the student will be able to:

1. Apply general information to the treatment of patients regarding the nature of, source, administration routes and techniques, mechanisms of distribution and action, toxicity and side effects of drugs the patient may be taking.
2. Discuss the absorption, bio-transformation and elimination processes of drugs according to their chemical properties.
3. Apply knowledge of prescription practice by defining dose regimes and defining parts of the prescription.
4. State the purpose and routes of administration of each drug in an ADA accepted Emergency Kit given the appropriate emergency treatment.
5. Apply knowledge of medications that the dental hygienist is legally entitled to use in the practice of professional skills.
6. Apply knowledge of the effects of drugs used or dispensed in the dental office.
7. Apply knowledge of drugs which are being taken by your patients who are under the care of another health professional and whose diseases necessitate the use of those drugs.
8. Analyze the patient health history and apply pharmacologic information to determine patient care.
9. Apply and use written and electronic database to research pharmacologic information.

CREDIT HOURS

2 credit hours

CLASS MEETING TIME

Thursday 9:00– 9:50 am, MPC 112

Hybrid content delivered through Blackboard

INSTRUCTOR

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Virtual office hours: By appointment

COURSE POLICIES

1. Attendance Policy

Absenteeism

In order to ensure the students in the dental hygiene program achieve the necessary didactic and clinical competencies outlined in the curriculum, it is necessary that the student complete all assigned lecture classes, clinical and laboratory hours. It is the responsibility of the student to attend class, clinic or lab. The instructor expects each student to be present at each session.

It is expected that students will appear to take their exams at the regularly scheduled examination time. Make-up examinations will be given **only** if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the instructor.

If students are unable to attend lecture class, clinic or lab, it is **mandatory that you call the appropriate instructor prior to the scheduled class, clinic or lab time. An absence will be considered unexcused if the student fails to notify the course faculty prior to the start of class, clinic, or lab. Attendance through Blackboard Collaborate is considered an absence. The course instructor must be notified at least one hour prior to the beginning of class/lab if the student plans to attend through Blackboard Collaborate.** The student is responsible for all material missed at the time of absence. Extenuating circumstances will be taken into account to determine if the absence is excused. Extenuating circumstances might include but are not limited to: funeral of immediate family member, maternity, hospitalization, etc. If the student has surgery, a debilitating injury, or an extended illness, a doctor's release will be required before returning to clinic.

Fall/Spring Semesters:

Dental hygiene students will be allowed **two excused absences** in any lecture, clinic or lab. Absences must be accompanied by a written excuse on the next class day. In the event that a student must miss class, clinic or lab beyond the allowed absences, the following policy will be enforced:

- Student is expected to monitor their attendance in Starfish.
- 2 absences = notification in Starfish
- Beginning with the third absence, **2 points** will be deducted from the final course grade for each absence thereafter.
- Two (2) points will be deducted from the final course grade for each unexcused absence.

Tardiness

Tardiness is disruptive to the instructor and the students in the classroom. A student is considered tardy if not present at the start of class, clinic, or lab. It is expected that students will arrive on time for class, clinic or lab, and remain until dismissed by the instructor. If tardiness becomes an issue, the following policy will be enforced:

- Student is expected to monitor their tardy(s) in Starfish
- Tardy 1 time = notification in Starfish
- Tardy 2 times = considered an unexcused absence (see definition of unexcused absence)
- If a student is more than 15 minutes late to any class period, it will be considered an unexcused absence

Students should plan on attending classes, labs and clinic sessions as assigned throughout the semester. Family outings, vacations and personal business should be scheduled when school is not in

session and will not be considered excuses for missing assignments, examinations, classes, labs or clinic time.

2. Examination and Quiz Policy:

Examinations will be based on objectives, lecture notes, handouts, assigned readings, audiovisual material and class discussions. Major examinations will consist of multiple choice, true/false, matching, short answer, and case study questions. No questions will be allowed during exams.

Students are expected to complete examinations as scheduled. Make-up examinations will be given **ONLY** if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the Instructor. All make-up examinations must be taken within two (2) weeks from the scheduled exam date. All examinations will be kept on file by the Instructor. Students may have access to the examination by appointment during the Instructor's office hours. Exams may be reviewed up to two (2) weeks following the exam date. **You may not copy, reproduce, distribute or publish any exam questions.** A grade of "0" will be recorded for all assignments due on the day of absences unless prior arrangements have been made with the Instructor.

Respondus Lockdown Browser and Respondus Monitor will be used for examinations therefore, a webcam is required to take the test. The student is required to show the testing environment at the beginning of the exam to assure the instructor that it is clear of any study materials. Failure to do so will result in a 10-point exam grade deduction.

If a student requires technical assistance during a Blackboard exam, they are to contact Blackboard Technical Support (available 24/7) at 409-951-5701

3. Mandatory Tutoring

If a student receives a failing grade on any major exam, the student will be required to meet with the course instructor within 2 weeks of the failed exam.

4. Academic Integrity

It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices. It may also include the following: plagiarism, falsification and fabrication, abuse of academic materials, complicity in academic dishonesty, and personal misrepresentation.

Use of such devices during an examination will be considered academic dishonesty. The examination will be considered over and the student will receive a zero for the exam.

Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

5. Disability Statement

The Americans with Disability Act of 1990 and Section 504, Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the American with Disability Act of 1990, to students with a diagnosed disability. The Special Populations

Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)839-2018. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](http://www.lit.edu/special-populations)

6. Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Policies and Procedures*. The *LIT Policies and Procedures* may be accessed at <https://www.lit.edu/information/policies-and-procedures> or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Policies and Procedures* supersedes all other versions of the same document

7. Technical Requirements (for Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at: https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

8. Leaving Class During a Lecture

You should be prepared to remain in class for the entire class period. Any personal business should be taken care of prior to or after class. If a medical problem exists or an emergency occurs please inform the instructor.

9. Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or My LIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT. For more information click: <https://lit.edu/student-success/starfish>

10. Late Work. Assignments will not be accepted if submitted after the due date.

Faculty has the authority to modify the above policies if unusual circumstances mandate a change. Please refer to the Student Handbook for a complete listing of program policies.

TEACHING METHODS

Lecture, discussion, student presentations, web tools, case studies, and Blackboard learning activities

REQUIRED TEXT

Haveles, Elena Bablenis, **Applied Pharmacology for the Dental Hygienist**, 8th Edition, Elsevier Health Sciences, 2020. ISBN: 978-0-323-59539-1

Jeske, Arthur H., **Mosby's Dental Drug Reference**, 12th Edition, Elsevier Health Sciences, 2018. ISBN: 9780323511223

REFERENCES

Holland, Norman, and Michael Patrick Adams, **Core Concepts in Pharmacology**, 5th Edition, Pearson Education, Inc., 2018.

Hitner, Henry, et al., **Pharmacology, an Introduction**, 8th Edition, McGraw Hill LLC, 2022.

COURSE REQUIREMENTS

Exams (5)

Hybrid Learning

Hybrid content delivered through weekly Blackboard Modules.

Pharmacology Case Study

Research and analysis of an individual patient case scenario; including medication history, drug indications, effects, and treatment considerations.

Evaluation Criteria

• Exams (5)	60%
• Hybrid Learning (Quizzes, assignments, & participation)	20%
• Pharmacology Case Study	10%
• Herbal Products & Supplements assignment	5%
• Communication of Pharmacology Topics & Peer Evaluation	<u>5%</u>
	100%

GRADE SCALE

- A = 92 - 100
- B = 83 – 91
- C = 75 – 82
- D = 60 - 74
- F = 59 and below

REMEDIATION POLICY: See student handbook for remediation policy.

LEARNING OBJECTIVES

Chapter 1: Information, Sources, Regulatory Agencies, Drug Legislation, and Prescription Writing

1. Discuss the history of pharmacology and its relationship to the dental hygienist.
2. List where detailed and updated information on medications can be found.
3. Define the ways in which drugs are named and the significance of each.
4. Define generic equivalence and how it is related to drug substitution.
5. Describe the acts and agencies within the federal government designed to regulate drugs.
6. Identify the four phases of clinical evaluation involved in drug approval and the five schedules of drugs.
7. Discuss the history of drug legislation, including:
 - List the five schedules of controlled substances
 - Explain package inserts and black box warnings
 - Differentiate between labeled and off-label uses
 - Explain orphan drugs and drug recalls
8. Prescription writing. Become familiar with the basics of prescription writing as well as describing the parts of the prescription and prescription label regulations.

Chapter 2: Drug Action and Handling

1. Differentiate dose, potency, and efficacy in the context of the actions of drugs.
2. Explain the pharmacologic effect of a drug.
3. Discuss the major steps of pharmacokinetics: absorption, distribution, metabolism, and excretion.
4. Explain how altering absorption, distribution, metabolism, and excretion can affect clinical pharmacokinetics.
5. Explain how half-life relates to clinical pharmacokinetics.
6. Provide example of factors that may alter the effect of a drug.
7. Summarize the various routes of drug administration and the common dose forms used.

Chapter 3: Adverse Reactions

1. Define an adverse drug reaction, and name five categories of reaction.
2. Discuss the risk-to-benefit ratio of the use of a drug for therapeutic effect and its potential adverse reactions.
3. Explain how the toxic effects of drugs are evaluated.
4. Discuss the importance of recognizing adverse drug effects.

Chapter 4: Autonomic Drugs

1. Identify the major components and functional organization of the autonomic nervous system.
2. Discuss the major neurotransmitters in the sympathetic autonomic nervous system and the importance of receptors.
3. Discuss the pharmacologic effects, adverse reactions, contraindications, and dental considerations of cholinergic agents, which act on the parasympathetic nervous system.
4. Discuss the pharmacologic effects, adverse reactions, contraindications, and dental considerations of anticholinergic agents which act on the parasympathetic nervous system.
5. Discuss the pharmacologic effects, adverse reactions, contraindications, and dental considerations of adrenergic agents and list several specific adrenergic agents.
6. Explain the workings of adrenergic blocking agents and neuromuscular blocking agents.

Chapter 5: Nonopioid (Nonnarcotic) Analgesics

1. Describe pain and its purpose and main components.
2. Discuss the classification of analgesic agents and the chemistry, pharmacokinetics, pharmacologic effects, adverse reactions, toxicity, drug interactions, and uses of aspirin.
3. Define the term *nonsteroidal antiinflammatory drug*, and discuss the chemistry, pharmacokinetics, pharmacologic effects, adverse reactions, toxicity, drug interactions, and uses of these drugs, giving several examples of these.

4. Discuss the properties, pharmacologic effects, adverse reactions, drug interactions, uses, and dosing of acetaminophen.
5. Explain the disease known as *gout*, and summarize the drugs used to treat it.
6. Explain the disease known as rheumatoid arthritis and summarize the mechanism of action of the classes of drugs used to treat it.

Chapter 6: Opioid (Narcotic) Analgesics and Antagonists

1. Explain the classification, mechanism of action, and pharmacokinetics of opioids.
2. List and describe the pharmacologic effects and potential adverse reactions of opioids.
3. Discuss the addiction potential of opioids, including treatment.
4. Name and explain the analgesic actions of the most common opioid agonists.
5. Discuss the actions and provide examples of the mixed opioids.
6. Summarize the mechanism of action and adverse reactions of tramadol.
7. Apply the use of opioids to dentistry.

Chapter 7: Antiinfective Agents

1. Outline the history and basic principles of infection and its relevance to dentistry, including:
 - Define the terms pertinent to a discussion about infection.
 - Identify the factors that determine the likelihood of an infection.
 - Describe the importance of cultures and sensitivity in relation to infections.
 - Discuss the reasons an understanding of “resistance” is important with regard to infections.
2. Summarize the principal indications for the use of antimicrobial agents.
3. Name and describe the major adverse reactions and disadvantages associated with the use of antiinfective agents.
4. Discuss penicillins, macrolides, tetracyclines, cephalosporins—their chemical makeup, properties, mechanisms of action, uses, and potential adverse reactions—and name several specific types of each.
5. Name and describe two other types of antibiotics and antiinfectives, including their chemical makeup, properties, mechanisms of action, potential adverse reactions, and uses.
6. Discuss the rationale for the use of antiinfective agents in dentistry.
7. Discuss antimicrobial agents for nondental uses including their pharmacokinetics, mechanism of action, adverse reactions, and spectrum of use.
8. Describe the drugs used to treat tuberculosis and the difficulties this disease presents.
9. Discuss the use of topical antibiotics in dentistry.
10. Summarize the concept and practice of antibiotic prophylaxis in dentistry.

Chapter 8: Antifungal and Antiviral Agents

1. Name several types of antifungal agents and discuss their indications in dentistry and potential adverse reactions.
2. Discuss the use of antiviral agents in the treatment of herpes simplex.
3. Describe the various drugs and drug combinations used to treat acquired immunodeficiency syndrome (AIDS).
4. Describe the various drugs used to treat chronic hepatitis.

Chapter 9: Local Anesthetics

1. Discuss the history and reasons for the use of local anesthetics in dentistry, including:
 - List the properties an ideal local anesthetic would possess.
 - Describe the importance of understanding the chemistry involved in local anesthetic agents.
2. Explain the mechanism of action, pharmacokinetics, pharmacologic effects, and adverse reactions of local anesthetics.
3. Describe the composition of each of the drugs used in local anesthetic solutions, and summarize the factors involved in the choice of a local anesthetic.
4. Briefly discuss the use, types, and doses of topical anesthetics used in dentistry.

Chapter 10: General Anesthetics

1. Summarize the history of general anesthesia in dentistry.
2. Describe how general anesthesia works and the stages and planes involved, as well as possible adverse reactions associated with its use.
3. Compare and contrast the classifications of general anesthesia.
4. Discuss the use of nitrous oxide in dentistry, including how it works, the pharmacologic effects, adverse reactions, and contraindications.
5. Name and describe several types of halogenated hydrocarbons.
6. List the goals of surgical anesthesia and the importance of using balanced general anesthesia.

Chapter 11: Antianxiety Agents

1. Discuss the value of patient relaxation in dentistry.
2. Describe the pharmacokinetics, mechanism of action, pharmacologic effects, adverse reactions, drug interactions, medical uses and dental relevance of the benzodiazepines and barbiturates.
3. Name and briefly describe the mechanism of action of the nonbenzodiazepine-nonbarbiturate sedative-hypnotics and the nonbenzodiazepine-nonbarbiturate receptor agonists.
4. Name a melatonin receptor agonist and summarize its actions.
5. Explain the workings of the centrally acting muscle relaxants and how they are used.
6. Name and briefly describe a few of the miscellaneous muscle relaxant agents that can be used.
7. Discuss some general precautions about which the dental practitioner should be aware with the use of antianxiety agents.

Chapter 12: Drugs for the Treatment of Cardiovascular Disease

1. Identify the dental implications of cardiovascular disease including the contraindications to treatment, vasoconstrictor use and its relationship to periodontal disease.
2. Describe heart failure and identify drugs commonly used to treat it, including the mechanisms of action, pharmacologic effects, and adverse reactions.
3. Discuss the use of digoxin and the management of dental patients taking it.
4. Define arrhythmia and dysrhythmia and describe how the heart maintains its normal rhythm.
5. Describe the classifications, mechanisms of action, adverse reactions, and uses of antiarrhythmic agents, and identify the issues to consider in dental treatment.
6. Define angina pectoris and describe the types of drugs used to treat it; identify the dental implications of these drugs.
7. Define hypertension, describe the categories it is divided into and identify its treatment with the various types of antihypertensive agents, including:
 - Describe the mechanisms of action, pharmacologic effects, adverse reactions, and uses of the various antihypertensive agents.
 - Identify potential drug interactions and the dental implications of these drugs.
 - Discuss the management of dental patients taking these drugs.
8. Define hyperlipidemia and hyperlipoproteinemia and summarize the types of drugs used to restore cholesterol homeostasis in the body including the dental implications of their use.
9. Describe the role of warfarin in blood coagulation and the potential adverse reactions and interactions associated with its use.
10. Identify several other drugs that affect blood coagulation.

Chapter 13: Drugs for the Treatment of Gastrointestinal Disorders

1. Summarize the most common types of gastrointestinal diseases and their impact on oral health care.
2. Name and describe the types of drugs used to treat gastrointestinal diseases, their uses, adverse reactions, drug interactions and any implications to dentistry, including:
 - Discuss the role of H₂-receptor blockers in the treatment of peptic ulcer disease and gastroesophageal reflux disease.
 - Discuss the role of proton pump inhibitors and antibiotics in the treatment of peptic ulcer disease and gastroesophageal reflux disease.
 - Describe the role of antacids in the treatment of peptic ulcer disease and gastroesophageal reflux disease.
3. Discuss several miscellaneous gastrointestinal drugs that can be used and their possible side effects.

4. List the different types of laxatives and know the advantages and disadvantages of each.
5. List the medications used to treat diarrhea.
6. Define the term antiemetic and give examples of drugs used to treat vomiting and nausea.
7. Discuss the medications used to manage chronic inflammatory bowel disease (IBD).

Chapter 14: Drugs for the Treatment of Seizure Disorders

1. Define epilepsy, and briefly summarize the various types of seizures.
2. Discuss drug therapy of patients with epilepsy and describe the general adverse reactions to antiepileptic agents.
3. Summarize the pharmacologic effects, adverse reactions, and drug interactions of the main antiepileptics— valproate, lamotrigine, levetiracetam, oxcarbazepine, carbamazepine, and phenytoin.
4. Discuss ethosuximide and benzodiazepines (two miscellaneous antiepileptics) and describe the workings of each.
5. Provide several examples of new types of antiepileptics, including the mechanism of action, indications, and adverse reactions of each.
6. Outline the dental treatment of patients with epilepsy.

Chapter 15: Drugs for the Treatment of Central Nervous System Disorders

1. Name and describe the three categories of functional disorders discussed in this chapter.
2. Outline some basic precautions that the dental health care professional should keep in mind when treating patients with psychiatric disorders.
3. Discuss antipsychotic agents and their mechanism of action as well as the following:
 - Identify first-generation antipsychotics their adverse reactions, drug interactions, uses, and dental implications.
 - Identify second-generation antipsychotics, their adverse effects, drug interactions, uses, and dental implications.
4. Discuss antidepressant agents, including:
 - Describe the mechanism of action and adverse reactions of selective serotonin reuptake inhibitors.
 - Describe the mechanism of action and adverse effects of serotonin norepinephrine reuptake inhibitors.
 - Describe the mechanism of action, adverse reactions, and drug interactions of the tricyclic antidepressants.
5. Name several other types of antidepressants and their possible adverse reactions and dental implications.
6. List several drugs used to treat bipolar disorder.

Chapter 16: Adrenocorticosteroids

1. Define adrenocorticosteroids and describe how the body releases them.
2. Summarize the classification, administration, mechanism of action, and pharmacologic effects of adrenocorticosteroids.
3. Describe the various adverse reactions and uses of adrenocorticosteroids, including their application to dentistry.
4. List several examples of corticosteroid products and describe the ways in which they are differentiated.
5. List several dental implications to the use of steroids.

Chapter 17: Drugs for the Treatment of Respiratory Disorders and Allergic Rhinitis

1. Summarize the two groups of respiratory diseases.
2. Name and describe the mechanisms of action of several types of drugs used to treat respiratory diseases.
3. Discuss the types of drugs used to treat respiratory infections, including the implications to dentistry.
4. Define allergic rhinitis and describe the dental implications, pharmacologic effects, adverse reactions, and toxicity of antihistamines.
5. Describe the dental implications, pharmacologic effects, and adverse reactions of the intranasal corticosteroids.
6. Discuss montelukast, cromolyn sodium, and ipratropium bromide and describe their role in treating allergic rhinitis. Also describe the adverse reactions of ipratropium bromide.

7. Describe the use of decongestants, including:
 - Discuss the pharmacologic effects, adverse reactions and uses in treating allergies.
 - Discuss the use of intranasal decongestants as an alternative to oral decongestants.

Chapter 18: Drugs for the Treatment of Diabetes Mellitus

1. Describe the importance of the hormones released by the endocrine glands in maintaining homeostasis, including:
 - Discuss the two primary hormones secreted by the pancreas and their role in relation to diabetes mellitus.
 - Define diabetes mellitus, list and describe the two types of this disease, its complications, issues involving dentistry, cautions and contraindications in the treatment of patients with diabetes.
2. Describe the systemic complications of diabetes and the evaluation of the dental patient with diabetes.
3. Discuss the goals of therapy and describe the types of drugs used to treat diabetes.
5. Discuss four new drugs being used to treat diabetes and summarize their mechanism of action and possible adverse effects.
6. Discuss the treatment of hypoglycemia.

Chapter 19: Drugs for the Treatment of Other Endocrine Disorders

1. Discuss pituitary hormones, the functions of the anterior and posterior pituitary glands and describe the negative feedback mechanism that takes place in endocrine glands.
2. Provide an overview of the thyroid hormones and the conditions known as hypothyroidism and hyperthyroidism and the antithyroid drugs.
3. Summarize the major female and male sex hormones and describe several types of hormonal contraceptives.
4. Discuss other agents that affect sex hormone systems.

Chapter 20: Antineoplastic Drugs

1. Discuss antineoplastic agents and summarize their use, mechanisms of action, and classification.
2. Describe several adverse drug effects associated with antineoplastic agents.
3. Discuss the dental implications of patients planning to take or actively taking antineoplastic drugs.

Chapter 21: Emergency Drugs

1. Summarize the general measures a dental professional should follow to train for an emergency, including:
 - Describe the necessary preparation for treatment in the event of an emergency.
 - List what can be done to help minimize the occurrence of an emergency in the dental office.
 - List the steps that should be followed if an emergency does occur in the dental office.
2. Name and describe several categories of emergencies and provide common examples within each category.
3. List the critical drugs to include in a dental office emergency kit and several examples of second- or third-level drugs that would be optional.
4. Name several pieces of equipment that would be included in the emergency kit.

Chapter 22: Pregnancy and Breastfeeding

1. List the two main concerns in the administration of drugs during pregnancy.
2. Describe the pregnancy trimesters in relation to dental treatment, define teratogenicity, outline the US Food and Drug Administration's prescription drug use in special populations, including pregnancy, lactation and females and males of reproductive potential, and discuss how breastfeeding affects dental drug use.
3. Name several types of local anesthetic, antiinfective, and antianxiety agents, and state their indications or contraindications for pregnant women.

Chapter 23: Substance Use Disorders

1. Define substance use disorder.

2. Name several types of central nervous system depressants that are commonly abused and outline the typical pattern of abuse, treatment, adverse reactions, management of overdose and withdrawal, and dental treatment implications of each.
3. Identify several types of central nervous system stimulants that are commonly abused.
4. Describe the pattern of abuse and the withdrawal and treatment options associated with tobacco use and summarize the role of the dental hygienist in tobacco cessation.
5. Discuss several psychedelic hallucinogens, and recognize the symptoms produced by their use.
6. Discuss ways in which the dental hygienist can identify patients or colleagues who may be abusing drugs.

Chapter 24: Natural/Herbal Products and Dietary Supplements

1. Discuss why people choose herbal products over traditional medicine.
2. Discuss the federal legislation governing herbal and dietary products.
3. Discuss the safety of herbal and nutritional products and explain the adverse effects associated with their use and their impact on oral health care.
4. Explain the drug interactions associated with herbal products and their impact on oral health care.
5. Discuss the standardization of herbal products and the Good Manufacturing Practice standard introduced by the US Food and Drug Administration.
6. Discuss the herbal supplements that are used in oral health care.

Chapter 25: Oral Conditions and Their Treatment

1. Name several common infectious lesions of the oral cavity and summarize the treatments for each.
2. Describe immune reactions resulting in canker sores and lichen planus and discuss the treatments for each.
3. Name several oral conditions that result from inflammation and the measures used to treat them.
4. Discuss treatment options for xerostomia and name several other possible drug-induced oral side effects.
5. Discuss the pharmacologic agents most commonly used to treat oral lesions.

CONTENT OUTLINE

Part I: General Principles

Chapter 1: Information, Sources, Regulatory Agencies, Drug Legislation & Prescription Writing

1. History
2. Role of the Dental Hygienist
3. Sources of Information
4. Drug Names
5. Federal Regulations and Regulatory Agencies
6. Clinical Evaluation of a New Drug
7. Drug Legislation
8. Prescription Writing
9. Dental Hygiene Considerations
10. Academic Skills Assessment
11. Clinical Applications

Chapter 2: Drug Action and Handling

1. Characterization of Drug Action
2. Mechanism of Action of Drugs
3. Pharmacokinetics
4. Clinical Pharmacokinetics
5. Factors that Alter Drug Effects
6. Routes of Administration and Dose Forms
7. Dental Hygiene Considerations
8. Academic Skills Assessment
9. Clinical Case Study

Chapter 3: Adverse Reactions

1. Definitions and Classifications
2. Clinical Manifestations of Adverse Reactions
3. Toxicologic Evaluation of Drugs
4. Recognizing Adverse Drug Effects
5. Dental Hygiene Considerations
6. Academic Skills Assessment
7. Clinical Case Study

Part II: Drugs Used in Dentistry

Chapter 4: Autonomic Drugs

1. Autonomic Nervous System
2. Parasympathetic Autonomic Nervous System
3. Sympathetic Autonomic Nervous System
4. Dental Hygiene Considerations
5. Academic Skills Assessment
6. Clinical Case Study

Chapter 5: Nonopioid (Nonnarcotic) Analgesics

1. Pain
2. Classification
3. Salicylates
4. Nonsteroidal Antiinflammatory Drugs
5. Acetaminophen
6. Drugs Used to Treat Gout
7. Drugs Used to Treat Arthritis
8. Dental Hygiene Considerations
9. Academic Skills Assessment
10. Clinical Case Study

Chapter 6: Opioid (Narcotic) Analgesics and Antagonists

1. History
2. Classification
3. Mechanism of Action
4. Pharmacokinetics
5. Pharmacologic Effects
6. Adverse Reactions
7. Specific Opioids
8. Dental Use of Opioids
9. Chronic Dental Pain and Opioid Use
10. Dental Hygiene Considerations
11. Academic Skills Assessment
12. Clinical Case Studies

Chapter 7: Antiinfective Agents

1. Dental Infection "Evolution"
2. Definitions
3. Infection
4. Resistance
5. Indications for Antimicrobial Agents
6. General Adverse Reactions and Disadvantages Associated with Antiinfective Agents
7. Penicillins
8. Cephalosporins

9. Macrolides
10. Tetracyclines
11. Clindamycin
12. Metronidazole
13. Rational Use of Antiinfective Agents in Dentistry
14. Antimicrobial Agents for Nondental Use
15. Antituberculosis Agents
16. Topical Antibiotics
17. Antibiotic Prophylaxis Used in Dentistry
18. Dental Hygiene Considerations
19. Academic Skills Assessment
20. Clinical Case Study

Chapter 8: Antifungal and Antiviral Agents

1. Antifungal Agents
2. Antiviral Agents
3. Dental Hygiene Considerations
4. Academic Skills Assessment
5. Clinical Case Study

Chapter 9: Local Anesthetics

1. History
2. Ideal Local Anesthetic
3. Chemistry
4. Mechanism of Action
5. Pharmacokinetics
6. Pharmacologic Effects
7. Adverse Reactions
8. Composition of Local Anesthetic Solutions
9. Local Anesthetic Agents
10. Vasoconstrictors
11. Choice of Local Anesthetic
12. Topical Anesthetics
13. Doses of Local Anesthetic and Vasoconstrictor
14. Dental Hygiene Considerations
15. Academic Skills Assessment
16. Clinical Case Study

Chapter 10: General Anesthetics

1. History
2. Mechanism of Action
3. Adverse Reactions
4. General Anesthetics
5. Balanced General Anesthesia
6. Dental Hygiene Considerations
7. Academic Skills Assessment
8. Clinical Case Study

Chapter 11: Antianxiety Agents

1. Definitions
2. Benzodiazepines
3. Mechanism of Action
4. Barbiturates
5. Nonbenzodiazepine-Nonbarbiturate Sedative-Hypnotics

6. Nonbenzodiazepine Receptor Hypnotics
7. Melatonin Receptor Agonist
8. Melatonin
9. Orexin Receptor Antagonist
10. Centrally Acting Muscle Relaxants
11. Miscellaneous Agents
12. General Comments about Antianxiety Agents
13. Dental Hygiene Considerations
14. Academic Skills Assessment
15. Clinical Case Study

Part III: Drugs That May Alter Dental Treatment

Chapter 12: Drugs for the Treatment of Cardiovascular Diseases

1. Dental Implications of Cardiovascular Disease
2. Heart Failure
3. Angiotensin II Receptor Nephilysin Inhibitor
4. I₁ Channel Inhibitor
5. Cardiac Glycosides
6. Antiarrhythmic Agents
7. Antianginal Drugs
8. Antihypertensive Agents
9. Antihyperlipidemic Agents
10. Proprotein Convertase Subtilisin/ Kexin Type 9 Inhibitors
11. Drugs That Affect Blood Coagulation
12. Thienopyridines
13. Drugs That Increase Blood Clotting
14. Dental Hygiene Considerations
15. Academic Skills Assessment
16. Clinical Case Study

Chapter 13: Drugs for the Treatment of Gastrointestinal Disorders

1. Gastrointestinal Drugs
2. Drugs Used to Treat Gastrointestinal Diseases
3. Celiac Disease
4. Dental Hygiene Considerations
5. Academic Skills Assessment
6. Clinical Case Study

Chapter 14: Drugs for the Treatment of Seizure Disorders

1. Epilepsy
2. Drug Therapy for Patients with Epilepsy
3. Dental Treatment of the Patient with Epilepsy
4. Nonseizure Uses of Antiepileptics
5. Dental Hygiene Considerations
6. Academic Skills Assessment
7. Clinical Case Study

Chapter 15: Drugs for the Treatment of Central Nervous System Disorders

1. Psychiatric Disorders
2. Antipsychotic Agents
3. Antidepressant Agents
4. Drugs for Treatment of Bipolar Disorder
5. Dental Hygiene Considerations

6. Academic Skills Assessment
7. Clinical Case Study

Chapter 16: Adrenocorticosteroids

1. Mechanism of Release
2. Classification
3. Definitions
4. Routes of Administration
5. Mechanism of Action
6. Pharmacologic Effects
7. Adverse Reactions
8. Uses
9. Corticosteroid Products
10. Dental Implications
11. Dental Hygiene Considerations
12. Academic Skills Assessment
13. Clinical Case Study

Chapter 17: Drugs for the Treatment of Respiratory Disorders and Allergic Rhinitis

1. Respiratory Diseases
2. Drugs Used to Treat Respiratory Diseases
3. Dental Implications of the Respiratory Drugs
4. Allergic Rhinitis
5. Dental Hygiene Considerations
6. Academic Skills Assessment
7. Clinical Case Study

Chapter 18: Drugs for the Treatment of Diabetes Mellitus

1. Pancreatic Hormones
2. Diabetes Mellitus
3. Drugs Used to Manage Diabetes
4. Treatment of Hypoglycemia
5. Dental Hygiene Considerations
6. Academic Skills Assessment
7. Clinical Case Study

Chapter 19: Drugs for the Treatment of Other Endocrine Disorders

1. Pituitary Hormones
2. Thyroid Hormones
3. Female Sex Hormones
4. Male Sex Hormones
5. Other Agents That Affect Sex Hormone Systems
6. Dental Hygiene Considerations
7. Academic Skills Assessment
8. Clinical Case Study

Chapter 20: Antineoplastic Drugs

1. Use of Antineoplastic Agents
2. Mechanisms of Action
3. Classification
4. Adverse Drug Effects
5. Combinations
6. Dental Implications
7. Dental Hygiene Considerations

8. Academic Skills Assessment
9. Clinical Case Study

Part IV: Special Situations

Chapter 21: Emergency Drugs

1. General Measures
2. Categories of Emergencies
3. Emergency Kit for the Dental Office
4. Dental Hygiene Considerations
5. Academic Skills Assessment
6. Clinical Case Study

Chapter 22: Pregnancy and Breastfeeding

1. General Principles
2. Pregnancy
3. Breast Feeding
4. Dental Drugs
5. Dental Hygiene Considerations
6. Academic Skills Assessment
7. Clinical Case Study

Chapter 23: Substance Use Disorders

1. General Considerations
2. Central Nervous System Depressants
3. Sedative-Hypnotics
4. Central Nervous System Stimulants
5. Psychedelics (Hallucinogens)
6. Identifying the Substance User
7. The Impaired Dental Hygienist
8. Dental Hygiene Considerations
9. Academic Skills Assessment
10. Clinical Case Study

Chapter 24: Natural/Herbal Products and Dietary Supplements

1. Limited Regulation
2. Safety of Herbal and Nutritional Products
3. Drug Interactions
4. Standardization of Herbal Products
5. Good Manufacturing Practice
6. Herbal Supplements Used in Oral Health Care
7. Dental Hygiene Considerations
8. Academic Skills Assessment
9. Clinical Case Study

Chapter 25: Oral Conditions and Their Treatment

1. Infectious Lesions
2. Immune Reactions
3. Miscellaneous Oral Conditions
4. Inflammation
5. Drug-Induced Oral Side Effects
6. Agents Commonly Used to Treat Oral Lesions
7. Dental Hygiene Considerations
8. Academic Skills Assessment
9. Clinical Case Study