

SYLLABUS

COURSE: DHBS 3209 Dental Emergencies
SEMESTER: Spring
CREDIT HOUR: 2.0

REVISED: 2003
REPRINTED: 2006

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GOAL

Because of the potential for the occurrence of life-threatening emergencies in the dental office there is an increased need for the dental hygienist to recognize emergencies and actively participate as a health professional in the team treatment of these situations. This course provides a study of dental office emergencies with emphasis on prevention, prompt recognition and effective emergency care. Emphasis is placed on etiology and pathology of common chronic diseases, treatment of emergencies and applicable assessment methods used in the prevention of emergencies related to the particular disease process.

Laboratory instruction will provide experience in monitoring vital signs, recognizing and handling emergency situations, on-hands use of emergency supplies and equipment, and Cardiopulmonary Resuscitation treatment.

When you have successfully completed this course, you will be able to discuss the etiology of common chronic diseases, treatment of dental emergencies and apply assessment methods used in the prevention of emergencies related to particular disease processes. You will be able to assess a patient in an emergency situation, perform Cardiopulmonary Resuscitation and you will know when and how to use emergency equipment.

OBJECTIVES

I. VITAL SIGNS:

1. Explain and demonstrate how to correctly take pulse.
 - 1.1 Identify three factors to be evaluated while monitoring pulse.
 - 1.2 Describe the proper technique to be used in taking pulse.
 - 1.3 Identify two arteries routinely used in taking pulse.
 - 1.4 Identify the technique for locating carotid artery.
 - 1.5 Identify the normal resting heart rates.
2. Explain and demonstrate how to correctly take a blood pressure reading.
 - 2.1 Describe the proper technique to be used in taking blood pressure.
 - 2.2 Describe the two types of manometers, advantages and disadvantages of both types.
 - 2.3 Identify phases of the Korotkoff sounds.
 - 2.4 Identify auscultatory gap and how to avoid missing it.
3. Explain and demonstrate how to correctly take a respiratory reading.
 - 3.1 Describe the proper technique to be used in determining respiratory rate.
 - 3.2 Identify the normal respiratory rates.
4. Explain and demonstrate how to correctly take a temperature reading.
 - 4.1 Describe the proper technique to be used in obtaining temperature.
 - 4.2 Identify and describe three methods of temperature measurement.
 - 4.3 Identify two causes of fever.
 - 4.4 List three causes of subnormal body temperature.

II. PREVENTION OF EMERGENCIES

1. Name four different groups of people that emergencies could happen to in the dental office. (handout)
2. Identify four factors that may increase the incidents of life-threatening emergencies within the typical dental practice. (Malamed, 4-7/Handout)
3. Describe three evaluation procedures that could be employed to aid in prevention of emergencies in the dental office. (handout)
4. Identify and describe two ways to minimize stress for the dental patient. (handout)
5. Describe the dental hygienists responsibilities in relation to emergency situations.
6. Identify the recommended standard and alternate prophylactic regimens for dental, oral or upper respiratory procedures. (Malamed, 20)
7. Identify and briefly describe each category in the American Society of Anesthesiology Physical Status Classification System. Identify the purpose of the system. (Malamed, 41-43)

8. Describe specific conditions that could exist if the patient exhibits the following symptoms. (handout)
 - 8.1 Problems with posture
 - 8.2 Tremors
 - 8.3 Rapid speech
 - 8.4 Speech difficulties
 - 8.5 Sweet fruity odor of breath
 - 8.6 Ammonia odor of breath
 - 8.7 Skin - cold and wet
warm and wet
warm and dry
 - 8.8 Skin color - pallor
cyanosis
flushed
jaundice
 - 8.9 Prominent jugular vein
 - 8.10 clubbing of fingers
 - 8.11 swelling of ankles
 - 8.12 exophthalmos
9. Define and describe informed consent. Identify eight matters about which the patient must be advised and must understand. (handout)
10. Define negligence. Define and describe four specific elements of negligence that must be proved in a court of law to impose liability. (handout)
11. Identify and describe benefits of a proper health history. Handout
12. Identify the steps to follow in the event that you receive a needlestick injury. (Safety and Infection Control section of Clinic Manual - 2.40 Bloodborne Pathogen Exposure)

III. CARDIAC EMERGENCIES:

1. Know the risk factors of heart attack and stroke, which can be changed, which cannot be changed. (AHA, 49-59)
2. Describe five specific ways that prudent heart living can be established and maintained. (AHA, 49-59)
3. Identify coronary heart disease and its cause. (Malamed, 426; AHA, 23-31)
4. Define angina pectoris. Why is angina clinically important to the dental practitioner? (Malamed, 437 and AHA, 23-31)
5. Differentiate the plan of action of a suspected heart attack victim who has unknown coronary heart disease versus the one who has known coronary heart disease. (AHA, 28)
6. Identify factors that can precipitate an angina attack. (Malamed, 438)
7. Describe factors that should be considered during dental therapy of a patient with a diagnosis of angina pectoris. (Malamed, 442-5)
8. Describe the pain of angina as to location, character and duration. (AHA, 2-5 and Malamed, 445)

9. Identify the primary goal in the management of the acute anginal episode. (Malamed, 447)
10. Describe the treatment of an acute anginal episode. (Malamed, 447-9)
11. Identify the drugs that are used in treating angina. (Malamed, 447-9)
12. Describe the chest discomfort of a heart attack victim as to character, location and duration. (AHA, 2-6)
13. Know four signs of heart attack in addition to pain. (AHA, 2-6, Malamed 459-61)
14. Describe the treatment of an acute myocardial infarction patient. Malamed, 461-4
15. Identify the drugs that are used in treating an acute myocardial infarction patient. (Malamed, 461-3)
16. Identify factors to be considered in treating a post-myocardial infarction patient. (Malamed, 457-8)
17. Identify and describe seven causes of noncardiac chest pain. (Malamed, 469-70)
18. Identify the components of the ECG complex.
 - 18.1 Identify and describe the components of the ECG complex (handout)
 - 18.2 Identify causes of cardiac dysrhythmias. (handout)
 - 18.3 Identify the classification of cardiac dysrhythmias. (handout)
 - 18.4 Recognize ECG configurations of normal sinus rhythm, ventricular tachycardia, ventricular fibrillation, premature ventricular complex, ventricular bigeminy, and ventricular trigeminy. (handout)
19. Demonstrate the ability to correctly use the vital signs monitoring equipment.
 - 19.1 Demonstrate the ability to correctly apply ECG leads.
 - 19.2 Demonstrate the ability to operate the blood pressure monitor.
 - 19.3 Demonstrate the ability to connect the pulse oximeter leads.

IV. RESPIRATORY EMERGENCIES:

1. Describe the signs of partial and complete airway obstruction. (AHA, 123-129; Malamed 182-3)
2. Explain and demonstrate the proper steps for relief of airway obstruction according to the American Heart Association. (AHA, 123-129)
3. Identify: Anoxia, apnea, dyspnea, hyperpnea, hypoxia, respiration, orthopnea, tachypnea. (Malamed, 170)
4. Know possible causes of respiratory difficulty. (Malamed, Table I0-I, Page 170)
5. Identify the structures of the respiratory system. (AHA, 15-20)
6. Identify and describe what has increased the possibility of small objects falling into the oropharynx during dental treatment. Identify what may result when small objects fall into the oropharynx. (Malamed, 176)

7. Identify six measures that can be used in preventing aspiration or swallowing objects during dental treatment. (Malamed, 176-9)
8. Describe treatment of the patient who has swallowed an object. (Malamed, 179-82)
9. Describe treatment of the patient who has aspirated an object. (Malamed, 179-82)
10. Describe cricothyrotomy and the situations in which it may be used. (Malamed, 193-7)
11. Define hyperventilation. Describe the clinical manifestations of hyperventilation. Identify the causes. (Malamed, 201)
12. Know the steps that can be taken to aid the patient that is hyperventilating. Is oxygen recommended for the treatment of hyperventilation? (Malamed, 204-6)
13. Identify asthma. (Malamed, 209)
14. Describe the clinical manifestations of asthma. (Malamed, 214)
15. Identify four categories of asthma and identify the characteristics of each category. (Malamed, 210-11)
16. Identify factors that may precipitate asthmatic attacks. (Malamed, 210-11)
17. Identify the goal in dental management of the patient with asthma. (Malamed, 211)
18. Describe the treatment of an acute asthmatic attack. (Malamed, 218-21)
19. Identify the drugs that are used in treating an asthmatic patient. (Malamed, 212)
20. Compare the mechanism of breathing in the asthmatic and the nonasthmatic patients. (Malamed, 216)
21. Define COPD. (handout)
22. Identify emphysema and its causes. Identify bronchitis and its causes. Identify chronic bronchitis. (handout)
23. Define heart failure. What physical findings may be evident on visual inspection of the patient with heart failure? (Malamed, 225, 229-30)
24. Describe the symptoms of left heart failure and right heart failure. Describe the two ways that disease produces heart failure. Identify the leading cause of right ventricular heart failure. (Malamed, 226, 232-3)
25. Describe how to manage heart failure and acute pulmonary edema. Identify the drugs that are used in treating heart failure. (Malamed, 238-40)

V. UNCONSCIOUSNESS

1. Identify anoxia, hypoxia, consciousness, faint, syncope, coma, and unconsciousness. (Malamed, 108)
2. Identify ten causes of unconsciousness in the dental office. (Malamed, 109)

3. Identify three predisposing factors that, when present, increase the chances that loss of consciousness will occur. Identify two ways that an antibiotic injection can cause unconsciousness. (Malamed, 108-9)
4. Describe three actions that may be taken to prevent loss of consciousness of the dental patient. (Malamed, 109-10)
5. Identify four mechanisms that produce unconsciousness. (Malamed, 110)
6. Describe what happens when a patient becomes unconscious and why this may result in oxygen deprivation. (Malamed, 110)
7. Identify the primary objective in management of the unconscious patient. (Malamed, 113)
8. Define vasopressor syncope. (Malamed, 125)
9. Identify and describe two groups of factors that can precipitate vasopressor syncope. (Malamed, 126)
10. Describe what the dental practitioner can do to prevent vasodepressor syncope. Which is most important? (Malamed, 126-7)
11. Describe the clinical manifestations of vasodepressor syncope. (Malamed, 128)
12. Describe how to manage the patient experiencing vasodepressor syncope. (Malamed, 130-2)
13. Define postural hypotension and identify nine factors that may predispose a patient to orthostatic hypotension. (Malamed, 135-6)
14. Review anatomy and function of adrenal glands. (Malamed, 136)
15. Describe the function of cortisol. (Malamed, 119)
16. Differentiate between primary and secondary adrenal insufficiency. (Malamed, 145)
17. Identify the causes of primary and secondary adrenal insufficiency. (Malamed, 136-7)
18. Know the one factor that is the primary contributor to the development of secondary adrenal insufficiency. (Malamed, 146)
19. Identify clinical indications for adrenocortical steroids. (Malamed [Table 8-I] 145-6)
20. Identify factors influencing return of adrenocortical functioning following exogenous glucocorticosteroid therapy. (Malamed 147)
21. Identify the Rule of Two's. (Malamed, 149)
22. Describe clinical signs and symptoms of acute adrenocortical insufficiency. (Malamed 151)
23. Describe how to manage the patient experiencing adrenocortical insufficiency. (Malamed, 155-8)

24. Identify the drugs that are systemic corticosteroids. ([Table 8-2] Malamed, 148)
25. Describe presyncopal signs and symptoms that may alert the dental professional and aid in making a correct diagnosis. (Malamed, 163-5)

VI. DIABETES, HYPERGLYCEMIA, HYPOGLYCEMIA

1. Define diabetes mellitus. (Malamed, 251)
2. Define and describe two acute complications of importance to the dental professional managing the diabetic patient. Describe the causes and symptoms of each. (Malamed, 257-8)
3. Describe how the diabetic patient experiencing acute complications should be managed. (Malamed, 268-71)
4. Identify drugs that are used in the treatment of diabetic complications and/or emergencies. (Malamed 268-71)
5. Identify and describe chronic complications of diabetes. (Malamed, 252)
6. Identify four major factors that may predispose a person to the development of diabetes mellitus. (Malamed, 253)
7. Identify and describe the types of diabetes. Describe how they differ. (Malamed, 255-56)

VII. ALTERED CONSCIOUSNESS

1. Define: confusion, delirium, and dizziness. (Malamed, 248)
2. Identify the causes of altered consciousness. Name is the most common cause. (Malamed 248) Name four major categories of drugs commonly used in dentistry.
3. Define hyperthyroidism and causes. Describe clinical symptoms and how to manage the patient with hyperthyroidism. Identify common names of hyperthyroidism. (Malamed, 276-77)
4. Define hypothyroidism and causes. Describe clinical symptoms and how to manage the patient with hypothyroidism. (Malamed, 276)
5. Identify drugs that are used in the treatment of hypothyroidism and hyperthyroidism. (Malamed, 283-5)
6. Define cerebrovascular accident and its causes. (Malamed, 287-8)
7. Describe clinical manifestations of cerebrovascular accident. (Malamed, 295)
8. Describe management of the CVA patient experiencing complications. (Malamed, 298-300)
9. Identify drugs that may be used in the treatment of CVA. (Malamed, 293-4)
10. Define and describe transient ischemic attack (TIA). (Malamed, 298-9)

VIII. SEIZURE DISORDERS:

1. Define: seizure, epilepsy, status epilepticus, tonic, clonic, stretorous, and ictus. (Malamed, 310)
2. Define and describe the types of seizures and causes. Describe characteristics of each. (Malamed 311-312)
3. Identify and describe the causes of epilepsy. (Malamed, 312)
4. Identify factors that increase the frequency with which seizures develop. (Malamed, 313-4)
5. Identify and describe the three phases of tonic clonic seizure. (Malamed 318-20)
6. Describe how to manage a patient experiencing a seizure. (Malamed, 321-7)
7. Know the drug of choice for the management of convulsive episodes. (Malamed 326)
8. Know the basis of management of a patient during the tonic-clonic phase of a generalized seizure. (Malamed 321-7)
9. Identify drugs that are used in long term therapy of epilepsy. (Malamed 315)
10. Identify psychological implications that relate to seizure disorders. (Malamed 316-7)
11. Identify the most common seizure producing factors in the dental office. (Malamed, 314)

IX. EMERGENCY EQUIPMENT

1. Identify the location of the emergency cart designated for the dental hygiene clinic.
2. Describe the steps to follow in the event of a medical emergency.
3. Identify drugs that have been discussed in lecture.
4. Describe how the emergency drugs are organized on the emergency cart.
5. Identify emergency equipment items and uses.
6. Demonstrate how to attach a blade to a laryngoscope handle.
7. Describe the record keeping required for emergency supplies and equipment.
8. Demonstrate how to turn on the oxygen supply.
9. Define how often the emergency supplies should be inspected.
10. Describe where emergency equipment and supplies should be stored.

X. BLEEDING AND SHOCK- ALLERGY

1. Describe and demonstrate how to control serious bleeding. Identify the pressure points.
2. Define hypovolemic shock and describe signs and symptoms of same. Identify causes of hypovolemic shock.

3. Describe the treatment for hypovolemic shock.
4. Describe the following:
 - 4.1 how to control nosebleed
 - 4.2 how to control bleeding from tooth socket.
5. Define: (Malamed, 386)
 - 5.1 allergy
 - 5.2 anaphylaxis
 - 5.3 antibody
 - 5.4 atopy
 - 5.5 urticaria
 - 5.6 allergen
 - 5.7 angioedema
 - 5.8 antigen
 - 5.9 pruritis
6. Be familiar with the three phases of clinical manifestations of allergy (refer to table 24-4, 24-5, 24-6). (Malamed, 397-9)
7. Differentiate between the treatment for delayed allergic skin reaction and the treatment for immediate allergic skin reaction. (Malamed, 404-6)
8. Describe the treatment of choice for respiratory allergic manifestations of allergy. (Malamed, 406-9)
9. Identify drugs that are used in the treatment of allergic response. (Malamed, 404-12)
10. Define histamine and describe clinical manifestations that occur when it is released. (Malamed, 402-3)
11. Identify sources of allergic response in the dental office. (Malamed, 387-91)

XI. DRUG RELATED EMERGENCIES - EMERGENCY DRUGS

1. Identify four categories of drugs that are frequently used in the practice of dentistry. (Malamed, 338-42)
2. Describe four routes of drug administration. (Malamed 336)
 - 2.1 Identify which route of drug administration generally elicits more serious drug reactions.
 - 2.2 Identify the most effective route and why is it more effective.
3. Describe the three drug-related or drug-induced emergency situations that are of immediate importance to the dental practitioner. (Malamed, 337-8)
4. Identify procedures that could be employed to prevent the complication from local anesthetic injection. (Malamed, 356-8)
5. Describe the symptoms of a local anesthetic overdose. (Malamed, 361)
6. Describe management of the patient experiencing a local anesthetic overdose. Identify the number of carpules of local anesthesia can cause an overdose? (Malamed, 363-8)

7. Identify two different sources from which a dental patient may come in contact with epinephrine. (Malamed, 368-9)
8. Identify symptoms of epinephrine overdose reaction and describe how to manage epinephrine overdose. (Malamed, 369-71)
9. Identify symptoms of CNS depressant overdose reaction and describe how to manage. (Malamed, 371-9)
10. Identify emergency drugs (handout), their dosage, mode of administration, primary purpose, type of drug and action.
11. Demonstrate how to correctly assemble a hypodermic syringe.
12. Demonstrate how to correctly spike an intravenous solution bag.
13. Demonstrate how to correctly withdraw medications from a vial, an ampule, and a mix-o-vial.
14. Demonstrate how to assemble a tubex syringe.

XII. SURGICAL EMERGENCIES IN THE DENTAL OFFICE (handout)

1. Describe the steps to be followed in treating hemorrhage from the mouth.
2. Describe the treatment for bleeding from within bone.
3. Identify when fractures of the mandible are likely to occur.
4. Describe immediate treatment of mandibular fractures in the dental office. What purpose does this treatment serve?
5. Describe when a tuberosity fracture is likely to occur.
6. Describe how an oral antral opening may occur.
7. Identify what actions the patient should avoid when there is an oral antral opening.
8. Describe how a root tip can be retrieved from the maxillary antrum. Identify the name of the procedure.
9. Describe how to deal with broken instruments or injection needles.
10. Identify common methods used to treat swelling resulting from a dental procedure.
11. Identify the complication that may occur as a result of administering steroids.
12. Identify causes of severe pain following oral surgery.
13. Describe what should be done if a portion of an extracted tooth cannot be found.

RESOURCES

I. Media Resources

A. Printed Media

Required textbooks

Malamed, Stanley F.
Medical Emergencies in the Dental Office,
C. V. Mosby Company, 2000

Basic Life Support for Healthcare Providers
American Heart Association, Latest Edition

B. Non Printed Media

Audio Tape

Abe Ravin
Sounds of Korotkoff
University of Colorado School of Medicine

C. Human Resources

MaryAnn Adkisson
Phone: 713-500-4008, Room DBB 348
Email: Mary.A.Adkisson@uth.tmc.edu
Hours: 7:30 am – 5:30 pm

Course Director

STUDY PLAN AND REQUIREMENTS

**DHBS 3209 DENTAL EMERGENCIES
2006 Spring Semester Lecture and Lab Schedule**

Labs: Tue, 2:30-4:00 pm (Room 25); Lectures: Fri, 9-10:50 am (Room 446)

Date	Lecture and Laboratory Sessions	Assignment
Fri Jan 6	Introduction, Vital Signs Lecture – Clinical Guidelines	Vital Signs Handout
Tue Jan 10	Vital Signs Lab – Group I	Vital Signs Handout
Fri Jan 13	Prevention of Emergencies Lecture	Malamed, Ch. 2, 4
Tue Jan 17	Vital Signs Lab- Group II	Vital Signs Handout
Fri Jan 20	Cardiac Emergencies Lecture	AHA: Ch. 2-3 Malamed, Ch 26-29
Tue Jan 24	EXAM 1 Room 340	
Fri Jan 27	Respiratory Emergencies Lecture – Part I	AHA: Ch. 4 Malamed, Ch. 10-15
Tue Jan 31	ECG Laboratory – Group I	ECG Handout
Fri Feb 3	<i>No lecture</i> <i>SADHA Meeting</i>	
Tue Feb 7	ECG Laboratory – Group II	ECG Handout
Fri Feb 10	Respiratory Emergencies Lecture – Part II	Same As Above
Tue Feb 14	EXAM 2 Room 340	Malamed, Ch. 5-9
Fri Feb 17	Unconsciousness Lecture	
Tue Feb 21	Drug Equipment Lab – Group I	Handout
Fri Feb 24	Diabetes, Hyperglycemia, Hypoglycemia Lecture	Malamed, Ch. 17
Tue Feb 28	Drug Equipment Lab – Group II	Handout

Date	Lecture and Laboratory Sessions	Assignment
Fri Mar 3	Altered Consciousness Lecture	Malamed, Ch. 16, 18-20
Mar 5-10	<i>Spring Break</i>	
Tue Mar 14	EXAM 3 Room 340	
Fri Mar 17	Seizure Disorders Lecture	Malamed, Ch. 21
Tue Mar 21	Equipment Lab – Group I	Handout
Fri Mar 24	Bleeding, Shock & Allergies Lecture	Malamed, Ch.24, Handout
Tue Mar 28	Equipment Lab – Group II	Handout
Fri Mar 31 10-11:50 am	EXAM 4 Room 207 <i>(Please note the time change.)</i>	
Tue Apr 4	Vital Signs Practicum – Group I Room 20	
Fri Apr 7	Drug Related Emergencies Lecture	Malamed, Ch. 22, 23, 25
Tue Apr 11	Vital Signs Practicum – Group II Room 20	
Fri Apr 14	<i>No lecture</i> <i>(Good Friday)</i>	
Tue Apr 18	Surgical Emergencies Lecture Room 132 Course Evaluation	Handout
Fri Apr 21	<i>No class</i> <i>Greater Houston Dental Meeting</i>	
Tue Apr 25	EXAM 5 Room 340	

EVALUATION METHODS

Students will be evaluated according to the following:

1. Five, 50-question, multiple-choice tests 75%

Exam 1	15%
Exam 2	15%
Exam 3	15%
Exam 4	15%
Exam 5	15%

2. Participation in laboratory exercises and vital signs practicum: 10%.
To pass the course the student must receive a pass grade in the laboratory. The vital signs practicum is pass-fail.

3. Written case study 15%

Bachelor's students are required to complete a written case study related to dental emergencies which is pass-fail. The study should be at least four, word-processed pages (font size 12) in length and reference at least three professional medical or dental resources other than the required textbook for the course. Two resources must be dental or medical journals. The study can be an actual ASA II or ASA III patient from the dental clinic or it can be a scenario that is created. The paper should include all information related to the potential for medical emergencies. The case study must include:

 - a. Identity and description of the physical conditions of the patient that could contribute to an emergency.
 - b. Identity and description of the patient's ASA status
 - c. Vital signs information
 - d. Evaluation procedures that have been used or should be used to aid in prevention of emergencies with this patient
 - e. Methods of minimizing stress for this patient
 - f. Medications that the patient is taking and the potential for emergencies that could occur related to these emergencies
 - g. Treatment of potential emergencies related to this patient's physical conditions

The written case study will be assessed on accuracy, content, grammar and spelling and will account for 15% of the course grade.

4. Students are required to attend scheduled lectures/seminars. The course grade will be lowered one grade level if more than 10% of lectures and laboratories are missed. If you are unable to attend class, contact the instructor prior to your absence. You are responsible for obtaining information, materials and/or assignments that were presented during the missed session.

5. If an examination is missed, a conference appointment must be made with the instructor as soon as possible after the absence. Make-up exams will be scheduled during finals week. A ten-point penalty will be assessed unless a valid written excuse is provided to the program director at the time of the absence.