

SYLLABUS

COURSE: DENF 2962 Pediatric Dentistry I
SEMESTER: Fall
CREDIT HOURS: 1.0

REVISED: 2002
REPRINTED: 2009

COURSE DIRECTOR: Bhavini Acharya, B.D.S., M.P.H.

GOAL

The purpose of this course is to prepare students to render dental treatment to their pediatric patients. At the completion of this course, the student will be able to recognize the differences that exist in the delivery of treatment to children vs. adults. This course will introduce child development, growth and development of the dental arches and behavior management that is necessary in the treatment of children. The student will acquire a thorough understanding in the development and morphology of primary and permanent teeth, their eruption sequences, and common developmental disturbances that are frequently seen in growing children. A review of the cariogenic theories and caries prevalence, as it relates to the developing child, will be discussed. The course will provide indications and contraindications for fluoride supplementation and sealants along with necessary information regarding oral hygiene instructions and nutrition requirements of these patients. The student will learn to recognize common signs of child abuse and appropriate agencies required by law to report suspected cases. Common periodontal problems in children will be introduced.

OBJECTIVES

I. DEVELOPMENT AND MORPHOLOGY OF THE PRIMARY TEETH

A. Development of the Primary Teeth

1. State when initiation and calcification of primary teeth occurs.
2. State the name of and be able to identify each primary tooth
3. List the stages of development of primary teeth
4. List the eruption of teeth as it relates to:
 - 4.1 average age for primary teeth
 - 4.2 normal limits for primary teeth
 - 4.3 average age for permanent teeth
5. Describe the occlusion and alignment of the primary teeth
6. List the resorption and exfoliation chronology of the primary teeth

B. Morphology of the Primary Teeth

1. Compare the size of primary teeth to permanent teeth
2. Compare the proportions of primary teeth to permanent teeth
3. Compare the shape of the primary teeth to permanent teeth
4. Compare the similarities found between the internal structures of the primary teeth and permanent teeth
5. Contrast the differences found between the internal structures of the primary and permanent teeth

II. COMMON DISTURBANCES OF THE PRIMARY AND MIXED DENTITION I

A. Common Disturbances of the Primary and Mixed Dentition

1. Be able to identify and describe the following:
 - 1.1 Neonatal teeth
 - 1.2 Ectopic eruption/placement
 - 1.3 Eruption sequestrum
 - 1.4 Pericoronitis
 - 1.5 Mesiodens
 - 1.6 Eruption hematoma
 - 1.7 Transposition of the teeth

B. Disturbances of the Dentition

1. Be able to identify and describe the following anomalies:

- 1.1 Odontoma
- 1.2 Fusion
- 1.3 Generation
- 1.4 Ankylosis
- 1.5 Dens in dente
- 1.6 Taurodontism

III. COMMON DISTURBANCES OF THE PRIMARY AND MIXED DENTITION I

A. Anomalies of the Tongue

1. Be able to identify the following anomalies of the tongue:

- 1.1 Macroglossia
- 1.2 Ankyloglossia
- 1.3 Benign migratory glossitis

B. Anomalies of the Labial Frenum

1. Be able to identify and describe an abnormal labial frenum

IV. CHILD ABUSE AND NEGLECT

A. Definition of Child Abuse and Neglect

1. Define child abuse and neglect.
2. Distinguish the differences between child abuse and neglect.

B. Types of Child Abuse and Neglect

1. Describe and give examples of emotional abuse and neglect.
2. Describe and give examples of physical abuse and neglect.
3. Describe and give examples of sexual abuse.
4. Describe dental neglect including the necessary requirements to substantiate the charges.

C. The Abused Child

1. List and describe the physical indicators of child abuse.
2. Describe the behavioral indicators for child abuse.

D. Clinical Protocol for Child Abuse and Neglect

1. Describe the components of a physical exam by the dentist. The discussion should be based on:
 - 1.1 examination of exposed external parts, i.e., hair, hands, arms, face, etc.
 - 1.2 examination of teeth, soft tissue, and radiographic exam
2. Describe the radiographic exam particularly noting previous injuries.

3. Describe the importance of good photographic documentation.
4. Describe the methods for the proper interrogation of the child relating to the trauma and previous trauma.
5. Describe the methods and the significance of the interrogation of the parent to the trauma and previous trauma.
6. Describe the methods that the dentist uses to arrive at a possible diagnosis of abuse and/or dental neglect.

E. Documentation and Reporting of Abuse and Neglect

1. List the necessary information needed for documentation.
2. List the names of the proper agencies for reporting abuse and neglect.
3. Describe how the dentist contacts these agencies.
4. Describe the obligation of the dentist in reporting.

V. GINGIVITIS AND PERIODONTAL DISEASE IN CHILDREN: SOFT TISSUE ASSESSMENT IN THE PEDIATRIC DENTAL PATIENT

A. Characteristics of Healthy Periodontium

1. List the three zones of the gingiva found in children.
2. Describe where the three zones of gingiva are located.
3. Define the term "interdental col".
4. List unique characteristics found in the periodontium of children in the following areas.
 - 4.1 Papillary gingiva
 - 4.2 Marginal gingiva
 - 4.3 Attached gingiva
 - 4.4 Alveolar mucosa
 - 4.5 Periodontal membrane
 - 4.6 Alveolar bone

VI. GROWTH AND DEVELOPMENT - OCCLUSION

A. Growth and Pattern of Occlusion

1. Explain the relationship and dimensional changes that occur in the maxilla and mandible in overbite and overjet from birth to six months.
2. Describe the relationship of the distal terminal planes of opposing second primary molar teeth.
3. Define flush, mesial-step and distal-step terminal planes.

4. Describe the statistical data derived from studies reported by Arya, Savara, and Thomas and by Carlesn and Meredith regarding the incidence of each type of primary terminal planes.
5. Describe the four relationships of permanent first molars when initial occluding contact occurs during eruption.
6. Give a graphic illustration of permanent first molar occlusion development that represents three terminal planes of the primary second molars and their relationship to the developing occlusion of the first permanent molar.
7. Describe the criteria for ideal dental occlusion for a seven-year old child.
8. Describe the age at which the relationship of maxilla to mandible is well established and overall maxillomandibular pattern does not change significantly.
9. What is one key diagnostic feature as to future occlusion status? Explain.
10. Explain the importance of initial occluding contact the first permanent molars to later occlusion status.
11. Describe environmental factors that can change occlusal relationships in the growing period of a child.

B. Growth and Dental Arch Pattern

1. Describe the sequence of calcification of the primary teeth.
2. Describe the eruption pattern of the primary dentition.
3. Describe the eruption pattern of the permanent dentition.
4. Describe the dimensional changes for dental arch length, circumference inter-molar and inter-canine widths during child and adolescence.
5. Describe the simplest method of evaluating the dental arch for predisposing malocclusion factors for a seven-year old child.
6. Describe the ideal dental arch pattern for a seven-year old child.
7. Describe why tooth size and alveolar size are the primary factors that determine the status of the permanent dental arch.
8. Describe the mixed-dentition space analysis.
9. Explain why the lower dental arch is the focus for space analysis and the basis of orthodontic diagnosis and treatment planning.
10. Explain leeway space and its importance.
11. Describe several means for creating dental arch space.
12. Describe the relationship of uprighting labially inclined incisors to arch length.
13. Describe the clinical disposition guidelines for various dental arch space conditions resulting from overall mixed dentition space appraisal.

14. Describe environmental factors most commonly affecting dental arch status.
15. Describe the study by Northway with regards to a decrease dental arch length by early loss of the primary first molars, second molars, or both.

VII. DENTAL CARIES IN THE CHILD AND ADOLESCENT

A. Epidemiology of Dental Caries

1. Describe the role of dental caries as a continued health problem in the US population.
2. Describe how prevention has had an impact on dental caries.
3. Describe caries prevalence in pre-school children.
4. Describe the differences between DMFT and DMFS indices for dental caries prevalence.

B. Etiology of Dental Caries

1. Describe the currently accepted theories of the cause of dental caries.
2. Describe in detail the acidogenic theory of Miller and the process which occurs in the development of caries.
3. Describe the role of microorganisms in the development of dental caries.
4. Describe the roles of acid and plaque to the caries process.
5. Describe the dynamic process of demineralization/remineralization and the development of the white spot lesion.

C. Caries Susceptibility

1. Describe in order the sequence of caries attack in the primary dentition.
2. Describe the prevalence of inter-proximal decay in the primary dentition and the time at which it occurs.
3. Describe the role of radiographs in diagnosing inter-proximal decay.
4. Describe areas of caries susceptibility in the mixed dentition.
5. Describe areas of caries susceptibility in the permanent dentition.
6. Describe secondary factors which may play a role in the development of dental caries.
7. Describe the term rampant dental caries and the clinical picture of the condition.
8. Describe the clinical picture, etiology and prevention of early childhood caries.

VIII. PREVENTION OF DENTAL CARIES

A. Control of Dental Caries

1. Describe several strategies for the reduction of dental caries.
2. Describe a means of controlling active carious lesions.
3. Describe the role of diet in controlling dental caries.
4. Describe the use of a dietary analysis with patients to help reduce intake of freely fermentable carbohydrates.
5. Describe the role of between meal eating habits and dental caries.
6. Describe how the physical state of food relates to the caries process.
7. Describe methods to reduce the number of oral microorganisms to control caries.
8. Describe the role of oral hygiene instruction in reducing dental caries.

B. Fluorides

1. Describe the role of fluorides in reducing dental caries and the mechanisms by which this occurs.
2. Describe the role of fluoride in the remineralization process.
3. Describe the roles of systemic fluoride and topical fluoride in reducing dental caries.
4. Describe the epidemiological evidence to support communal water fluoridation.
5. Describe the benefits of communal water fluoridation.
6. Describe the roles of fluoride containing dentifrices in reducing dental caries.
7. Describe the use of and effectiveness of several fluoride dentifrice systems.
8. Describe the use and benefits of a professionally applied concentrated topical fluoride.
9. Describe the properties, effectiveness and application of stannous fluoride as a professional topical agent.
10. Describe the properties, effectiveness and application of APF as a professional topical agent.
11. Describe appropriate methods of applying topical fluorides in the dental office and safety precautions which should be taken.
12. Describe the use of fluoride mouth rinses at home in pediatric patients.
13. Describe the appropriate systemic fluoride supplementation for children by age and the amount of fluoride in their drinking water, according to the ADA.

14. Describe the guidelines for fluoride regimens in children.
15. Describe the guidelines for office fluoride regimens.
16. Describe guidelines for topical fluoride measures for home use.
17. Describe systemic fluoride measures.
18. Describe the role of saliva as a natural protective mechanism.
19. Describe three dental caries activity tests and their application to the control of dental caries.

IX. PREVENTION OF DENTAL CARIES

A. Home Oral Hygiene for the Child and Adolescent

1. Describe the role of parent, child and dentist in providing appropriate home oral hygiene for the pediatric dental patient.
2. Describe the use of and importance of the following plaque control aids.
 - 2.1 disclosing agents
 - 2.2 toothbrushes
 - 2.3 dental floss
 - 2.4 flossing aids
 - 2.5 dentifrice
 - 2.6 other adjuncts
3. Describe tooth brushing methods and the parents' role in this process.
4. Describe guidelines for home oral hygiene for the infant, child, and adolescent.
5. Describe home oral hygiene practices for the orthodontic patient.

B. Pit and Fissure Sealants

1. Describe the relative percentage of decay which occurs in the pits and fissure surfaces of teeth.
2. Describe the effects of fluoride in reducing pit and fissure decay.
3. Describe the development of the acid etch technique.
4. Describe the results of clinical trials with sealants used in a three-year period.
5. Describe the process that occurs when sealant is placed over carious lesions.
6. Describe the mechanism by which sealants have a cariostatic effect.
7. Describe the rationale for the use of sealants.
8. Describe the selection of teeth for sealing.
9. Describe the steps in sealant placement in detail.

10. Describe the importance of periodic re-evaluation of sealed teeth.
11. Identify several advantages of using colored sealant over clear sealant material.
12. Given a dental case history of a school age child for whom you have recommended sealants on first permanent molars, explain the value of this treatment modality and its life expectancy as you would to the child's parents.

XI. THEORIES OF PSYCHOLOGICAL DEVELOPMENT OF THE CHILD

A. Erickson's Theory of Social-Emotional Development

1. Describe Erickson's stages of social-emotional development.
2. Describe children's needs at each stage relate to their dental treatment.

B. Piaget's Theory of Cognitive Development

1. Describe Piaget's stages of cognitive development.
2. Describe the implications of Piaget's stages to the delivery of dental care for children.

C. The Learning Theory of Child Development

1. Describe the basic principles of learning theory.
2. Relate each type of learning to the child patient.

D. Age-Related Psychosocial Traits Skills for Children

1. Based on the work of Dr. A. Gessel, describe psychosocial traits and skills for two to five year-old children.
2. Describe the average age and range of skeletal, physical and development milestones.

XII. VARIABLES INFLUENCING CHILDREN'S BEHAVIORS

A. Dental Fear

1. Describe the sources of dental fear in children.
2. Describe maternal anxiety and its relationship to the child's behavior.

B. Crying as a Diagnostic Tool

1. Recognize the four types of crying exhibited in the dental office.
2. Describe the management of crying according to its characteristics.

C. Classification of Children's Behavior

1. Describe Wright's clinical classification.
2. Describe the Frankl behavioral rating scale.

3. Describe the characteristics and management of a cooperative child.
 4. Describe the characteristics and management of timid or shy child.
 5. Describe the characteristics and management of an incorrigible or overindulged child.
 6. Describe the characteristics and management of a defiant child.
 7. Describe the characteristics and management of a fearful child.
 8. Describe the characteristics and management of a child lacking in cooperative ability.
- D. Parents of Pediatric Patients
1. Describe the overprotective parent and how the dentist deals with the parent.
 2. Describe the hostile parent.
 3. Describe the neglectful parent.

XIII. STRATEGIES OF THE DENTAL TEAM

- A. Describe strategies of the Dental Team with regard to:
1. Structuring the appointment
 2. Pre-appointment
 3. Behavior modification
 4. Importance of the first visit
- B. Describe behavior management goals and objectives in the following manners:
1. The positive approach
 2. The team attitude
 3. Truthfulness
 4. Flexibility
- C. Describe communicating with children in the following contents:
1. Establishment of communication
 2. Message clarity - Tell-show-do
 3. Voice control
 4. Multisensory communication
 5. Problem ownership

6. Active listening
 7. Appropriate responses
- D. Describe behavior shaping with regard to the following:
1. Positive reinforcement
 2. Negative reinforcement
 3. Punishment
 4. Omission / Time-out
 5. Modeling
 6. Scheduling
 7. Parent-child separation
 8. Aversive conditioning
 9. Tangible reinforcement

RESOURCES

I. Media Resources

A. Printed Media

1. Required textbook

McDonald RE, Avery D R, and Dean J.A.
Dentistry for the Child and Adolescent, 8th ed.
Mosby Co., 2004

2. Required reading

Proffit WR, Fields Jr. Hw, DDS, and Sarver DM.
Contemporary Orthodontics, 4th ed.
Mosby Co., 2007 (pp. 48-62)

3. Supplement textbook

Fuller JL, Denehy GE and Hall SA.
Concise Dental Anatomy and Morphology, 3rd ed.
University Iowa Press 1999

4. Supplemental reading

Ray E Stewart
Pediatric Dentistry, Scientific Foundations and Clinical Practice
C.V. Mosby, 1982 (pp. 229-232)

American Academy of Pediatric Dentistry Reference Manual
2007-2008

5. Handbook

Harris County Child Abuse Handbook, April 1999
Lecture 12

B. Electronic media

BlackBoardCourseInfo: <http://blackboard.uth.tmc.edu>
Please check website regularly under Course DENF 2962

II. Human Resources

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STUDY PLAN AND REQUIREMENTS

**DENF 2962 PEDIATRIC DENTISTRY I
2009 Fall Semester Schedule**

Monday, 9-9:50 am

Final exam: December 17, 10-11:50 am

DATE	SESSION TOPICS/READING ASSIGNMENTS	PRESENTERS
Aug 17	Introduction Development and Morphology of the Primary Teeth <u>Required Textbook</u> <i>Dentistry for Children and Adolescent</i> (Chapter 4: pp. 50-58 Chapter 9: pp. 174-202) <u>Supplemental Textbook</u> <i>Concise Dental Anatomy and Morphology</i> (pp. 231-254)	Tate
Aug 24	Common Disturbances of the Primary and Mixed Dentition I <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 7: 103-147)	Acharya
Aug 31	Common Disturbances of the Primary and Mixed Dentition II <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 7: 103-147)	Acharya
Sep 7	<i>Labor Day Holiday</i>	
Sep 14	Child Abuse and Neglect <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 2: pp. 23-32) <u>Handbook</u> <i>Harris County Child Abuse Handbook</i>	Velasquez
Sep 21	EXAM Room 207 (covering lectures 1,2, 3 and 4)	Faculty
Sep 28	Gingivitis and Periodontal Disease in Children <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 20: pp. 414-453)	Tate
Oct 5	Growth and Development - Occlusion <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 25: 580-597)	Velasquez
Oct 12	Dental Caries, Use of Fluorides and Nutrition I <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> Chapter 10: pp. 203-235 Chapter 12: pp. 257-269)	Acharya

DATE	SESSION TOPICS/READING ASSIGNMENTS	PRESENTERS
Oct 19	Dental Caries, Use of Fluorides and Nutrition II <u>Required Textbook</u> <i>Dentistry for the Child and Adolescent</i> (Chapter 10: pp. 203-235 Chapter 12: pp. 257-269)	Acharya
Oct 26	Oral Hygiene and Sealants in Children <u>Required Textbook</u> (Oral Hygiene - Chapter 11: pp. 236-256, Sealants - Chapter 17: pp. 353-363)	Velasquez
Nov 2	EXAM Room 207 (covering lectures 5, 6, 7, 8, and 9)	Faculty
Nov 9	AAPD Definition of Pediatric Dentistry, Emotional and Cognitive Development in Children <u>Required Textbook</u> Proffitt, <i>Contemporary Orthodontics</i> (pp. 53-62)	Acharya
Nov 16	Learning and the Development of Behavior I <u>Required Textbook</u> - Proffitt, <i>Contemporary Orthodontics</i> (pp. 41-47) Behavior Management <u>Required Textbook</u> - Proffitt, <i>Contemporary Orthodontics</i> (Chapter 3, pp. 48-53)	Fenton
Nov 23	Learning and the Development of Behavior II <u>Required Textbook</u> - Proffitt, <i>Contemporary Orthodontics</i> (pp. 41-47) Behavior Management <u>Required Textbook</u> - Proffitt, <i>Contemporary Orthodontics</i> (Chapter 3, pp. 48-53) Course Evaluation	Fenton
Nov 30	Review	Faculty
Dec 17 10-11:50 am	COMPREHENSIVE FINAL EXAM Room 207	Faculty

EVALUATION METHODS

There will be two, one-hour examinations during this semester; each will count for 30% of your final grade. A comprehensive final examination, which will constitute the remaining 40% of your grade, will be administered at the end of the semester. The format of all exams will be a combination of multiple choices, true/false, short answers, and fill in the blanks.

Summary of Evaluation Methods:

First exam	30%
Second exam	30%
Final exam	40%
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Course grade	100%

In order to pass the course you must obtain a grade of 70% or higher on the final examination **AND** have a combined average of all three examinations of 70% or higher. There will be no retakes for either of the one-hour examinations. However, should you fail the final examination, one retake after remediation will be allowed. **The maximum grade achievable on this remake final examination is a 70%.**

If a final grade of 70% or greater is not achieved in this course, the student will be required to repeat this course the next time it is normally scheduled (Fall Semester 2010).