

DS208- PEDIATRIC AND PREVENTIVE DENTISTRY

Objectives

At the end of 3 years of training the candidate should be able to

1. Create not only a good oral health in the child but also a good citizen tomorrow.
2. Instill a positive attitude and behavior in children
3. Understand the principles of prevention and preventive dentistry right from birth to adolescence
4. Guide and counsel the parents in regards to various treatment modalities including different facets of preventive dentistry
5. Prevent and intercept developing malocclusion

Skills

1. Obtain proper clinical history, methodological examination of the child patient, perform essential diagnostic procedures and interpret them, and arrive at a reasonable diagnosis and treat appropriately
2. Be competent to treat dental diseases which are occurring in child patient.
3. Manage to repair and restore the lost / tooth structure to maintain harmony between both hard and soft tissues of the oral cavity.
4. Manage the disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

Attitudes

1. Develop an attitude to adopt ethical principles in all aspects of Pedodontic practice.
2. Professional honesty and integrity are to be fostered
3. Treatment care is to be delivered irrespective of the social status, cast, creed, and religion of the patients.
4. Willingness to share the knowledge and clinical experience with professional colleagues.
5. Willingness to adopt, after a critical assessment, new methods and techniques of Pedodontic management developed from time to time, based on scientific research, which are in the best interest of the child patient.
6. Respect child patient's rights and privileges, including child patients right to information and right to seek a second opinion.
7. Develop an attitude to seek opinion from allied medical and dental specialities, as and when required

Course contents

Part-I

Paper I: Applied Basic Sciences : Applied Anatomy, Physiology, and Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics Growth and Development and Dental plaque, Genetics.

1. Applied Anatomy & genetics
2. Applied Physiology
3. Applied Pathology
4. Nutrition and Dietetics
5. Growth & Development: Prenatal and postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.

Part-II:**Paper-I : Clinical Pedodontics****Paper-II : Preventive and Community Dentistry as applied to pediatric dentistry Paper-III : Descriptive and analysing type question**

1. Child Psychology: Development & Classification of behavior, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension its management.
2. Behavior Management: Non- pharmacological 8b Pharmacological methods.
3. Child Abuse & Dental Neglect.
4. Conscious Sedation, Deep Sedation 8s General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children.
5. Preventive Pedodontics: Concepts, chair bide preventive measures for dental diseases, high-risk caries including rampant & extensive caries - Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet 8s Nutrition as related to dental caries. Diet Counseling.
6. Dental Plaque: Definition, Initiation, Pathogenesis, Biochemistry, and Morphology' & Metabolism.
7. Microbiology & Immunology as related to Oral Diseases in Children. Basic concepts, immune system in human body, Auto Immune diseases, Histopathology, Pathogenesis, Immunology of dental caries, Periodontal diseases. Tumors, Oral Mucosal lesions etc.
8. Gingival 8s Periodontal diseases in Children:
 - Normal Gingiva & Periodontium in children.
 - Gingival & Periodontal diseases - Etiology, Pathogenesis, Prevention & Management.
9. Pediatric Operative Dentistry
 - Principle Of Operative Dentistry along with modifications of materials/past, current & latest including tooth colored materials.
 - Modifications required for cavity preparation in primary and young permanent teeth.
 - Various Isolation Techniques
 - Restorations of decayed primary, young permanent and permanent teeth in children using various restorative material like Glass Ionomer, Composites, Silver, Amalgam & latest material (gallium)
 - Stainless steel, Polycarbonate Resin Crowns / Veneers & fibre post systems.
10. Pediatric Endodontics:
 - Primary Dentition: -Diagnosis of pulpal diseases and their management - Pulp capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies 8s recent concepts.
 - Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.
 - Recent advances in Pediatric diagnosis and Endodontics.
11. Prosthetic consideration in-Paediatric Dentistry.
12. Traumatic Injuries in Children:
 - Classifications & Importance.
 - Sequelae & reaction of teeth to trauma.

- Management of Traumatized teeth with latest concepts.
- Management of jaw fracture in children.

13. Interceptive Orthodontics:

- Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
- A comprehensive review of the local and systemic factors in the causation of malocclusion.
- Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
- Biology of tooth movement: A comprehensive review of the principles of tooth movement. Review of contemporary literature. Histopathology of bone and periodontal ligament, Molecular and ultra cellular consideration in tooth movement.
- Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication
- Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
- Case selection & diagnosis in interceptive Orthodontics (Cephalometric, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
- Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interception orthodontics.

14. Oral Habits in Children:

- Definition, Etiology & Classification
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children

15. Dental care of Children with special needs:

- Definition Etiology, Classification, Behavioral, Clinical features & Management of children with:
- Physically handicapping conditions
- Mentally compromising conditions
- Medically compromising conditions
- Genetic disorders

16. Oral manifestations of Systemic Conditions in Children & their Management

17. Management of Minor Oral Surgical Procedures in Children

18. Dental Radiology as related to Pediatric Dentistry

19. Cariology

- Historical background
- Definition, Etiology & Pathogenesis
- Caries pattern in primary, young permanent and permanent teeth in children.
- Rampant caries, early childhood caries and extensive caries. Definition, etiology, Pathogenesis, Clinical features, Complications & Management.
- Role of diet and nutrition in Dental Caries
- Dietary modifications & Diet counseling.
- Subjective & objective methods of Caries detection with emphasis on Caries Activity tests, Caries prediction, Caries susceptibility & their clinical Applications

20. Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental

dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc.

21. Congenital Abnormalities in Children: Definition, Classification, Clinical features of Management.

22. Dental Emergencies in Children and their Management.

23. Dental Materials used in Pediatric Dentistry.

24. Preventive Dentistry:

- Definition
- Principles & Scope
- Types of prevention
- Different preventive measures used in Pediatric Dentistry including fissure sealants and caries vaccine.

25. Dental Health Education & School Dental Health Programmes

26. Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry

27. Fluorides:

- Historical background
- Systemic & Topical fluorides
- Mechanism of action
- Toxicity & Management.
- Defluoridation techniques.

28. Medico legal aspects in Paediatric Dentistry with emphasis on informed consent.

29. Counseling in Paediatric Dentistry

30. Case History Recording, Outline of principles of examination, diagnosis & treatment planning.

31. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases.

32. Comprehensive Infant Oral Health Care.

33. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography

34. Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolar bone remodeling, speech rehabilitation.

35. Setting up of Pedodontics & Preventive Dentistry Clinic.

36. Emerging concept in Paediatric Dentistry of scope of laser/minimum invasive procedures

37. 3D printing

1ST YEAR

Preclinical Work

(Duration - first 6 Months of First Year MDS)(One On Each Exercise)

1. Carving of all deciduous teeth
2. Basic wire bending exercises
3. Fabrication of
 - a. Maxillary bite plate / Hawley's'
 - b. Maxillary expansion screw appliance
 - c. Canine retractor appliance
 - d. All habit breaking appliances

i. Removable type

- ii. Fixed type
 - iii. Partially fixed and removable
- e. Two Myofunctional appliance
- f. Making of inclined plane appliance
- g. Feeding appliances
- 4. Basic soldering exercise I - making of a lamppost of stainless steel wire pieces of different gauges soldered on either side of heavy gauge main post.
- 5. Fabrication of space maintainers
 - a. Removable type-
 - Unilateral Non - functional space maintainer
 - Bilateral Non-Functional space maintainer
 - Unilateral functional space maintainer
 - Bilateral functional space maintainer
 - b. Space Regainers -
 - Hawley's appliances with Helical space regainer
 - Removable appliance with Slingshot space regainer
 - Removable appliance with Dumbbell space regainer
 - c. Fixed Space maintainers
 - Band & long loop space maintainer
 - Band & short loop space maintainer
 - Mayne's space maintainer
 - Transpalatal arch space maintainer
 - Nance Palatal holding arch
 - Nance Palatal holding arch with canine stoppers
 - Gerber space regainer
 - Distal shoe appliance
 - Active space maintainers
 - For guiding the eruption of first permanent molar -rags
 - Arch holding device
 - Functional space maintainer
- 6. Basics for spot welding exercise
- 7. Collection of extracted deciduous and permanent teeth
 - a. Sectioning of the teeth at various levels and planes
 - b. Drawing of section and shapes of pulp
 - c. Phantom Head Excercises: Performing ideal cavity preparation for various Restorative materials for both Deciduous and permanent teeth
 - d. Performing pulpotomy, root canal treatment and Apexification procedure
 - Tooth preparation and fabrication of various temporary and permanent restorations on fractured anterior teeth.
 - Preparation of teeth for various types of crowns
 - Laminates/veneers
 - Bonding & banding exercise
- 8. Performing of behavioral rating and IQ tests for children.
- 9. Computation of: -
 - a) Caries index and performing various carrier activity test.
 - b) Oral Hygiene Index
 - c) Periodontal Index

d) Fluorosis Index

10. Surgical Exercises : a. Fabrication of splints b. Type of Wiring c. Suturing

11. Radiology in Paediatric Patients

- Taking of periapical, occlusal, bitewing radiographs of children
- Developing and processing of films, thus obtained
- Tracing of soft tissue dental and skeletal landmarks as observed on Cephalometric radiographs and drawing of various planes and angles, further interpretation of cephalometric radiographs in analysis.

12. Mixed dentition cast analysis.

13. Library assignment

14. Synopsis

Clinical work Requirements from 7 to 36 months

The following is the minimum requirement to be completed before the candidate can be considered eligible to appear in the final M.D.S Examinations: -

No.	Clinical Work	Total	7 To 12 Months	13 To 24 Months	25 To 36 Months
1	Behavior Management of different age groups children with complete records.	17	2	10	5
2	Detailed Case evaluation with complete records, treatment planning and presentation of cases with chair side and discussion	17	2	10	5
3	Step-by-step chair side preventive dentistry scheduled for high risk children with gingival and periodontal diseases & Dental Caries	11	1	5	5
4	Practical application of Preventive dentistry concepts in a class of 35-50 children & Dental Health Education & Motivation.	7	1	4	2
5	Pediatric Operative Dentistry with application of recent concepts.(a). Management of Dental Caries (I) Class I	50	30	10	10

(II) Class II	100	40	50	10
(III) Other Restorations	100	20	50	30
(b).Management of traumatized anterior teeth	15	04	06	05
(c) Aesthetic Restorations	25	05	10	10
(d). Pediatric Endodontic Procedures- Deciduous teeth				
Pulpotomy / Pulpectomy	150	30	50	70
Permanent Molars-	20	3	7	10
Permanent Incisor-	15	2	3	10

	Apexification &	20	02	08	10
	Apexogenesis				
6	Stainless Steel Crowns	50	10	20	20
7	Other Crowns	05	01	02	02
8	Fixed Space Maintainers	30	08	12	10
9	Removable Space Maintainers	20	05	07	08
10	Functional Maintainers	05	01	02	02
11	Preventive measures like fluoride applications & Pit & Fissure Sealants applications with complete follow-up and diet counseling	20	08	08	04
12	Special Assignments(i) SchoolDental Health Programmes	03	01	01	01
	(ii) Camps etc.,	02	01	01	

13 Library usage

14. Laboratory usage

15. Continuing Dental Health Programme

(The figures given against SI. No. 4 to 12 are the minimum number of recommended procedures to be performed)

Monitoring Learning Progress

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given Section IV.

PAPER-I : Applied Basic Sciences : Applied Anatomy, Physiology, Pathology, Microbiology, Growth & Development and Dental plaque, Genetics.

PAPER-II : Clinical Paedodontics

1. Conscious sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry
2. Gingival & Periodontal Diseases in Children
3. Pediatric Operative Dentistry
4. Pediatric Endodontics
5. Traumatic Injuries in Children Interceptive Orthodontics
6. Oral Habits in children
7. Dental Care of Children with special needs
8. Oral Manifestations of Systemic Conditions in Children & their Management
9. Management of Minor Oral Surgical Procedures in Children
10. Dental Radiology as Related to Pediatric Dentistry
11. Pediatric Oral Medicine & Clinical Pathology
12. Congenital Abnormalities in Children
13. Dental Emergencies in Children & Their Management
14. Dental Materials Used in Pediatric Dentistry
15. Case History Recording

16. Setting up of Pedodontic & Preventive Dentistry Clinic

PAPER III: Preventive and Community Dentistry as applied to Pediatric Dentistry

1. Child Psychology
2. Behavior Management
3. Child Abuse & Dental Neglect
4. Preventive Pedodontics
5. Cariology
6. Preventive Dentistry
7. Dental Health Education & School Dental Health Programmes
8. Fluorides
9. Epidemiology
10. Comprehensive Infant Oral Health Care/Comprehensive cleft care
11. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography

PAPER-IV: Descriptive and analyzing type of question

The topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics.

University Practical Exams:

Practical Examination 200 Marks

The Clinical / Practical and Viva-Voce Examinations are conducted for a minimum of two days.

First Day:

1. Case Discussion, Pulp Therapy i.e. Pulpectomy on a Primary Molar. Case Discussion 20 marks

Rubber Dam application 10 marks

Working length X-ray 20 marks

Obturation : 20 marks

Total 70 marks

Case Discussion, Crown preparation on a Primary Molar for Stainless steel crown and cementation of the same.

Case discussion 10 marks

Crown Preparation 20 marks

Crown selection and Cementation 20 marks

Total 50 marks

Case discussion, band adaptation for fixed type of space maintainer and-impression making.

Case discussion 20 marks

Band adaptation 20 marks

Impression 20 marks

Total 60 marks

Second Day:

1. Evaluation of Fixed Space Maintainer and Cementation : 20 marks

C. Viva Voce :

100 Marks

i. Viva-Voce examination: 80 marks

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.

ii. Pedagogy Exercise: 20 marks

A topic is given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes

Recommended Books and Journals

Sr. No	Name of the book	Author
1	Dentistry for the child and Adolescent	McDonald and Avery
2	Handbook of Pediatric dentistry	Angus C Cameron
3	Pediatric dentistry (infancy through adolescence)	Pinkham
4	Pediatric dentistry: scientific foundation and clinical practice	Ray E. Stewart
5	Clinical pedodontics	Sidney B.Finn
6	Pediatric operative dentistry	Kennedy
7	Behavior management	Wright
8	Clinical use of fluoride	Stephen H.Wei
9	Textbook of pediatric dentistry	Braham morris
10	Primary preventive dentistry	Norman O Harris, Franklin Garcia
11	Understanding of dental caries	Nikiforuk
12	Textbook and color atlas of Traumatic injuries of teeth	J.O. Andreason, C.M. Andreason
13	Handbook of Nitrous oxide and oxygen sedation	Clark, Morris S.
14	Dental caries ; The disease and its clinical management	Frejerskov, Ole
15	Scully's medical problems in dentistry	Scully, Crispian
16	Clinical cases in pediatric dentistry	Moursi, Amr M.
17	Textbook of pediatrics	nelson
18	Interceptive Orthodontics; A practical guide to occlusal management	Noar, Joseph
19	Diet and nutrition	
20	Restorative techniques in pediatric dentistry	Monty S.Duggle
21	Fundamentals of pediatric dentistry	mathewson
22	Fluorides and dental caries	newburn
23	Fluoride and dental caries; a compendium	Amrit tewari
24	Pediatric laser dentistry; A user's guide	Giovanni Olivi
25	Textbook of pedodontics	Shoba tondon
26	Principles and practice of Pedodontics	Aarthi Rao
27	Textbook of pediatric dentistry	S.G Damle
28	Pediatric Dentistry. Principles and Practice	MS Muthu, N. Shiva kumar
29	Understanding and management of special child in Pediatric dentistry	Priya verma gupta and Amitha Hegde