**DEPARTMENT OF PEDIATRIC & PREVENTIVE DENTISTRY**

**PROGRAM OUTCOME POSTGRADUATE**

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

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

**Skills**

* 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.
* be competent to treat dental diseases which are occurring in child patient.
* Manage to repair and restore the lost *I* tooth structure to maintain harmony between both hard and soft tissues of the oral cavity.
* Manage the disabled children effectively and efficiently, tailored to the needs of individual requirement and conditions.

**Attitudes**

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

**ASSESSMENT PROCESSES FOR POST GRADUATES:**

**Attendance & Records/Log Books:**The candidate should be assessed based on regular attendance (Theory-75% & Practical/clinical-80%), clinical records books and scores obtained in the record.

**Journal club:** The journal club shall be held at least once a week. It is required that all PGs and staff associated will actively participate and enter relevant details in the logbook. A standard checklist to follow when assessing the presentation of journal clubs

**Case discussions:** Regular case discussions to be held with postgraduate students to evaluate their case based problem solving skills.

**Clinical postings:** Each PG shall work in the department clinics on regular basis to gain adequate professional skills and competency in managing various cases of pertaining specialty.

**Teaching skills:** All PG's should be encouraged to engage either by lectures and case discussions in undergraduate teaching programmes. A model check list to be followed for assessment of the teaching

**Synopsis/Dissertation / Thesis:** The PG's should submit synopsis & prepare a dissertation based on the clinical or experimental work or any other research performed by them under the supervision of the guide.

**Short term studies:**The PG’s are assessed for research skills through shot term studies.

**Written and practical assessment exam:** Written and practical assessment exam should be conducted after completion of each academic year during pot graduate curriculum at institutional level.

# DEPARTMENT OF PEDIATRIC & PREVENTIVE DENTISTRY

**COURSE OUTCOME POSTGRADUATE**

**ASSESSMENT PROCESSES FOR POST GRADUATES:**

**Attendance & Records/Log Books:** The candidate should be assessed based on regular attendance (Theory-75% & Practical/clinical-80%), clinical records books and scores obtained in the record.

**Journal club:** The journal club shall be held at least once a week. It is required that all PGs and staff associated will actively participate and enter relevant details in the logbook. A standard checklist to follow when assessing the presentation of journal clubs

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**Written and practical assessment exam:** Written and practical assessment exam should be conducted after completion of each academic year during pot graduate curriculum at institutional level.

**First 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
	1. Maxillary bite plate / Hawley's
	2. Maxillary expansion screw appliance
	3. Canine retractor appliance
	4. All habit breaking appliances
		1. Removable type
		2. Fixed type
		3. Partially fixed anq removable
	5. Two Myofunctional appliance
	6. Making of inclined plane appliance
	7. Acrylic inclined plane
4. Basic soldering exercise I -making of a lamppost of stainless steel wire pieces of different gauges soldered on either sid~ of heavy gauge main post.
5. Fabrication of space maintainers
	1. Removable type -
* Unilateral Non -Functional space maintainer
* Bilateral Non-Functional space maintainer
* Bilateral functional space maintainer
	1. Space Regainers -
* Hawley's appliances with Helical space regainer
* Removable appliance with Slingshot space regainer
* Removable appliance with Dumbell space regainer
	1. 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
	1. Active space maintainers
	2. For guiding the eruption of first permanent molar
	3. Arch holding device
	4. Functional space maintainer
1. Basics for spot welding exercise
2. Collection of extracted deciduous and permanent teeth
	1. Sectioning of the teeth at various levels and planes
	2. Drawing of section and shapes of pulp
	3. Performing ideal cavity preparation for various restorative materials for both Deciduous and permanent teeth
	4. Performing pulpotomy, root canal treatment and Apexification procedure.
	5. Tooth preparation and fabrication of various lemporary and permanent restorations on fractured anterior teeth.
	6. Preparation of teeth for stainless steel crowns
3. Performing of behavioral rating and IQ tests for children.
4. Computation of :
	1. Caries index and performing various caries activity test.
	2. Oral Hygiene Index
	3. Periodontal lndex
5. a. Taking of periapical, occlusal, bitewing radiographs of children

b. Developing and processing of films, thus obtained

c. Tracing of soft tissue dental and skeletal landmark is as observed on Cephalometric radiographs and drawing of various planes and angles.

1. Library assignment
2. 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 concepts1. Management of Dental Caries
	1. Class I
	2. Class II
	3. Other Restorations 100
2. Management of traumatized anterior teeth
3. anaesthetic Restorations
4. Paediatric Endodontic procedures Deciduous teeth

Pulpotomy / Pulpectomy Permanent Molars Permanent Incisor Apexification & Apexogenesis |  |  |  |  |
|  | 50 | 30 | 10 | 10 |
|  | 100 | 40 | 50 | 10 |
|  |  | 50 |  |  |
|  | 20 | 04 | 3006 | 05 |
|  | 1525 | 05 | 10 | 10 |
|  |  | 30 |  |  |
|  |  | 3 | 50 | 70 |
|  | 150 | 2 | 07 | 10 |
|  | 20 | 02 | 03 | 10 |
|  | 15 |  | 08 | 10 |
|  | 20 |  |  |  |
| 6 | Stainless Steel Crown | 50 | 10 | 20 | 20 |
| 7 | Other Crown | 05 | 01 | 02 | 02 |
| 8 | Fixed Space Maintainers | 30 | 08 | 12 | 10 |
| 9 | Removable Space Maintainers | 20 | 05 | 07 | 08 |

1. Library usage
2. Laboratory usage
3. 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 in Section IV

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**DEPARTMENT OF PAEDIATRIC AND PREVENTIVE DENTISTRY**

**LEARNING OUTCOME OF POSTGRADUATE**

|  |  |  |
| --- | --- | --- |
| **Sr. No** | **Topic** | **Learning Outcome** |
| 1 |  Introduction, Definition, Scope and Practice Management and Importance of Pedodontics: | * Overall health of the child should be of primary concern.
* Prevention should be the primary objective rather than the treatment.
* While selecting the treatment modality, Pedodontist should always focus on comprehensive oral health of the child.
* Developing dentition in child need to be monitored by the Pedodontist constantly from the beginning.
* Pedodontist should always trained psychologist and should form solid institution for child patient by instilling in him positive dental attitude..

Paediatric dentistry include treatment and early diagnosis of oral diseases and condition in child and adolescent mouth including caries and periodontal abscesses, mineralisation defects, etc .Paediatric dentistry is an integrated science of all dental practices. |
| 2 | Diagnosis In Paediatric Dentistry | * Oral examination includes the records of history, examination of patient, provisional diagnosis, special examination, final diagnosis, and treatment plan.
* History includes information about history of present illness, family history, medical history, past dental history, behavioural history etc.
* Chief complaint should be in own words of patient.
* History of present illness should be elaboration of chief complaint.
* Oral mucosa examination is helpful for underlying systemic disease or nutritional deficiency.
* Occlusion examination will help in early diagnosis of malocclusion and will help in proper treatment planning.
 |
| 3 | Paediatric Oral Pathology | * Diagnosis in paediatric dentistry is based on pathological diagnosis which includes various pathological lesions.
* There are various developmental defects related to number, shape, size, and structure of teeth.
 |
| 4 | Growth and Development of Orofacial Structure | * Development orofacial structure occurs during 4th to 12th week of prenatal development, spanning the later embryonic period and early fetal period.
* Structure of oral cavity derived from the first brachial arch.
* By the end of 4th week of development the frontonasal, 2 maxillary, 2 mandibular processes are visible.
* Mandible develops from the cartilage of 1st arch i.e. Merkel’s cartilage.
* Postnatal growth of maxilla is by displacement, remodelling, and growth at sutures.

Postnatal growth of mandible is based on displacement and Enlow’s principle |
| 5 | Development of Occlussion | * Occlusion in the primary dentition plays a significant role in determining the space for and occlusion in the succeeding permanent dentition.
* Periods of occlusion development is divided in developmental periods like:

 1. Neonatal period (last upto 6 months after birth) 2. Primary dentition (6month to 6 years) 3. Mixed dentition (6 years to 12 years) 4. Permanent dentition.* Primate spaces present mesial to maxillary deciduous canines and distal to mandibular deciduous canine. Total physiologic space in maxillary arch is 4mm and in mandibular arch is 3mm.

There is andrew’s six keys of occlusion for permanent dentition are molar inter-arch relationship, crown angulation, labiolingual crown inclination, absence of rotation, tight contacts, curve of spee, bolton’s descrepency |
| 6 | Gingival and Periodontal Disorders in Children: | * Plaque induced gingivitis is seen most commonly in children.
* Inflammatory response of gingiva without destruction of surrounding tissues is called gingivitis.
* There are various systemic condition that may reduce the host response in children and adolescents thus increasing their susceptibility to periodontal bone loss and ultimately loss of teeth.

Periodontal diseases can be characterised by destruction of periodontal connective tissue attachment and alveolar bone.* Various genetic disorder also involves periodontal and gingival diseases.
* Plaque control record and periodontal screening and recording are various method used for assessment for gingival and periodontal diseases.
 |
| 7 | Diet and Nutrition | * Balanced diet is the one which supplies all the nutrients in the right quantity and proportion.
* Carbohydrate: 55-60%, Proteins: 10-15%, Fats: 30-35%.
* According to RDA levels of intake of essential nutrients are currently considered essential and which meet the physiological needs of nearly all individual.
* USDA daily food guide divides commonly eaten food into five groups: 1. Vegetable-fruit, 2. Bread-cereals, 3.milk-cheese, 4.meat, poultry, fish and beans, 5. Fats, sweets, and alcohol.
* First food pyramid was published in Sweden in 1974.
 |
| 8 | Oral Habits | * Habit is fixed or constant practise established by frequent repetition.
* Mouth breathing, thumb sucking, tongue thrusting, bruxism, nail biting are the most common oral habit.
* Various oral habits affects the normal occlusion.
* Tongue thrust is the forward movement of tongue tip between teeth to meet the lower lip during deglutition and in sounds of speech. It can be habitual, anatomic, functional or physiologic. Clinical feature are open bite, cross bite, bimaxillary protrusion and incompetent lip.
* Mouth breathing is habitual respiration through mouth instead of nose. It may be obstructive, habitual or anatomic. Clinical features are adenoid facies, gingivitis, and anterior maxillary caries. Treatment is lip exercise and oral screen.

Bruxism is habitual grinding of teeth when individual is not chewing or swallowing |
| 9 | Cariology | * Dental caries is an infectious microbiologic disease of the teeth that results in localised dissolution and destruction of calcified tissue.
* Theories of caries: vital theory, chemical theory, parasitic theory, milller’s chemoparasitic theory, proteolytic theory, chelation theory, sulfatase theory and complexing and phosphorylation theory.
* Concept of caries was given by Keyes as an epidemiological model contains factors: host, agent and environmental influences.
* There are 3 major hypothesis for eitiology of dental caries: 1. Specific plaque hypothesis, 2. Nonspecific plaque hypothesis 3. Ecological plaque hypothesis.
* Window of infectivity: 1st window: 7-31 months :teeth erupt

 2nd window:6-12 years: permanent teeth erupt.* Caries progression is at its peak rate at 3 years after eruption of teeth.
* Demineralisation-remineralisation is caries not result of single acid attack caused by acid formed as a result of fermentation of dietary substrate by oral microflora.
* Histologically, enamel caries has four zones 1. Translucent zone. 2. Dark zone, 3. Body of lesion 4. Surface intact zone.
* Histologically, dentinal caries has five zones 1. Decomposed zone 2.bacterial invasion 3. Demineralisation 4. Dentinal sclerosis 5. Fatty degeneration.
 |
| 10 | Restorative Dentistry | * This best practice provides clinicians with guidance to form decisions about restorative dentistry, including when treatment is necessary and which techniques and materials are appropriate for restorative dentistry in pediatric patients.
* Not every caries lesion requires restoration, and restorative treatment of caries alone does not stop the disease process.
* Restorative approaches and supporting evidence for the excavation and restoration of deep caries lesions, including complete excavation, stepwise (i.e., two-step) excavation, partial (i.e., one-step) excavation, and no removal of caries prior to restoration
* GV Black in 1924 outlined the classification of cavity preparation into 5 later it was modified by Simon.
* Finn classification is used in paediatric dentistry.
* Mount and Hume classification exemplifies the complexity of lesion.
* Principal of tooth preparation: 1. Initial tooth preparation includes; outline form, resistance form, retention form, convenience form. Whereas final tooth preparation involves; removal of remaining infected dentin and old restorative material, pulp protection, secondary resistance and retention form and finishing external walls and cleaning.
* Cementation aims to bond the prosthetic restoration to the prepared enamel or enamel and dentine.
* The type, shade, thickness of resin cement and the shade of the ceramic, all together, have a tangible influence on the final restoration color.
* Dental luting cements can be classified according to their chemical composition and application.
* Dental cement can be oil-, water-, or resin-based
 |
| 11 | Child Psychology | * The attitudes and feelings of the patient toward the dentist and the dental procedures are as important to successful treatment as are the technical skills of the dentist.
* The attitudes and feelings of the patient toward the dentist and the dental procedures are as important to successful treatment as are the technical skills of the dentist.
* A. Psychodynamic Theory: Psychosexual Concept by Sigmund Freud in 1905 Psychosocial / Personality development Theory by Erik Erikson in 1963 Cognitive development theory by Jean Piaget in 1952 B. Behavioural Learning Theory Classical conditioning Theory by Ivan Pavlov in 1927 Operant conditioning Theory by Skinner in 1938 Social learning Concept by Albert Bandura in 1963 Hierarchy needs theory by Abraham Maslow in 1954
* Erik Erikson has eight sequential stages of individual development that have an influence on the socio-economical, psychological and biological status of an individual throughout their lifespan.
* Freud Psychosexual theory focuses on two elements of human nature such as “sex” and “aggression”
* Child psychology is considered to be an important component of a pedodontist’s training as it plays a major role in the clinical practice of many pediatric practitioners to handle the behaviour of pediatric patients efficiently
 |
| 12 | Behaviour Management | * Behavior guidance is a continual process from basic to advanced techniques, using non-pharmacological and pharmacological options.
* The following items should be addressed before, during, and after patient treatment: informed consent, pain assessment, behavior documentation, and preventive and deferred treatment considering all behavior guidance options
* Basic behaviour guidance includes communication guidance, positive pre-visit imagery, direct observation, tell-show-do, ask-tell-ask, voice control, non-verbal communication, positive reinforcement and descriptive praise, distraction, and desensitization
* For anxious patients and those with special health care needs, additional behaviour guidance options include sensory adapted dental environments, animal assisted therapy, picture exchange communication systems, and nitrous oxide-oxygen inhalation. Advanced behaviour guidance includes protective stabilization, sedation, and general anesthesia
* Goals of behaviour guidance are to: 1) establish communication, 2) alleviate the child’s dental fear and anxiety, 3) promote patient’s and parents’ awareness of the need for good oral health and the process by which it is achieved, 4) promote the child’s positive attitude toward oral health care, 5) build a trusting relationship between dentist/staff and child/parent, and 6) provide quality oral health care in a comfortable, minimallyrestrictive, safe, and effective manner.
* Tell-show-do is the technique involves verbal explanations of procedures in phrases appropriate to the developmental level of the patient (tell); demonstrations for the patient of the visual, auditory, olfactory, and tactile aspects of the procedure in a carefully defined, nonthreatening setting (show); and then, without deviating from the explanation and demonstration, completion of the procedure (do).
* Ask-tell-ask is technique involves inquiring about the patient’s visit and feelings toward or about any planned procedures (ask); explaining the procedures through demonstrations and non-threatening language appropriate to the cognitive level of the patient (tell); and again inquiring if the patient understands and how she feels about the impending treatment (ask).
* Positive reinforcement and descriptive praise: In the process of establishing desirable patient behaviour, it is essential to give appropriate feedback. Positive reinforcement rewards desired behaviours thereby strengthening the likelihood of recurrence of those behaviours
* Distraction is the technique of diverting the patient’s attention from what may be perceived as an unpleasant procedure.
* Desensitization to dental setting and procedures: Systematic desensitization is a psychological technique that can be applied to modify behaviours of anxious patients in the dental setting.
* Sedation can be used safely and effectively with patients who are unable to cooperate due to lack of psychological or emotional maturity and/or mental, physical, or medical conditions. Background information and documentation for the use of sedation is detailed in the Guideline for Monitoring and Management of Paediatric Patients During and After Sedation for Diagnostic and Therapeutic Procedures
 |
| 13 | Traumatic Injury | * The greatest incidence of trauma to the primary teeth occurs at 2 to 3 years of age, when motor coordination is developing
* The most common injuries to permanent teeth occur secondary to falls, followed by traffic accidents, violence, and sports.
* Subluxation: Mobility of the tooth due to injury to the supporting structures of the tooth.
* Avulsion: tooth is completely displaced out of the tooth socket
* Lateral Luxation: the tooth is displaced and a neighbouring bone is fractured.
* Intrusion: the tooth is pushed into the bone
* Extrusion: The tooth is pushed out of the bone
* Fracture of the tooth
* Ellis and Davey in 1970 proposed a classification system for tooth fractures based on the extent of damage to the tooth structure.

Class 1: Simple fracture of the crown involving little or no dentinClass 2: Extensive fracture of the crown involving considerable dentin but not pulpClass 3: Extensive fracture of the crown involving considerable dentin, and exposing the dental pulpClass 4: The traumatized tooth which becomes nonvisual with or without loss of crownClass 5: Teeth lost as a traumaClass 6: Fracture of the root with or without loss of crown structureClass 7: Displacement of the tooth without fracture of crown or rootClass 8: Fracture of the crown en masse and its replacementClass 9: Traumatic Injury to primary dentition* Different types of storage media are Saline solution, Tap water, Saliva, Milk, Hank’s Balanced Salt Solution, ViaSpan, Gatorade, etc.
* In case of primary tooth if the tooth is displaced and not obstructing permanent tooth then allow it to erupt on its own and if it is obstructing it is best to extract.
* In case of avulsion reimplantation is contraindicated.
 |
| 14 | Paediatric Endodontics | * The dental diseases affecting the pulp and periapical tissues in the primary and permanent dentitions pose treatment challenges for the endodontists because of the vast variations in these dentitions basically due to factors like longetivity of primary teeth , coronal structure and root canal morphology and anatomy of the teeth which needs to be critically analysed before rendering treatment.
* In recent years, new materials, equipments and instruments have evolve to a great extent and simplified the endodontic treatment procedures for the clinicians.
* In case of incisors the pulp chamber is fan shaped when viewed from labial aspect and corresponds with shape of crown.
* Pulp chamber of canine is similar to deciduous incisor in many aspects except that it has a single pulp horn.

Pulp chamber of molars is very large extending to external walls of crown. Root canals are more irregular and complicated that in permanent molar |
| 15 | Handicapped Children | * The AAPD defines special health care needs as “any physical, developmental, mental, sensory, behavioural, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs. The condition may be congenital, developmental, or acquired through disease, trauma, or environmental cause and may impose limitations in performing daily self-maintenance activities or substantial limitations in a major life activity.
* Children may include those with behavioural (e.g., anxiety, attention deficit hyperactivity disorder, autism spectrum disorder), congenital (e.g., trisomy 21, congenital heart disease), developmental (e.g., cerebral palsy) or cognitive (e.g., intellectual disability) disorders, and systemic diseases (e.g., childhood cancer, sickle cell disesase).
* Oral health conditions include: • build-up of calculus resulting in increased gingivitis and risk for periodontal disease. • enamel hypoplasia. • dental caries. • oral aversion and behaviour problems. • dental crowding. • malocclusion. • anomalies in tooth development, size, shape, eruption, and arch formation. • bruxism and wear facets. • fracture of teeth or trauma
* The goals of care include: (1) establishing dental home at an early age, (2) obtaining thorough medical, dental, and social patient histories, (3) creating an environment conducive for the child to receive care, (4) providing comprehensive oral health education and anticipatory guidance to the child and caregiver, and (5) providing preventive and therapeutic services including behaviour guidance and a multidisciplinary approach when needed.
* Medical consultation: When appropriate, the physician should be consulted regarding medications, sedation, general anesthesia, and special restrictions or preparations that may be required to ensure the safe delivery of oral health care. A multidisciplinary approach may be necessary in complex case management. The dentist and staff always should be prepared to manage a medical emergency.
* According to revised guidelines by AAPD (2011): minimal use of antibiotics is indicated to avoid the risk of developing resistance due to antibiotics usage.
 |
| 16 | Fluorides | * Dental caries (cavities) continues to be the most chronic disease of childhood.Although dental caries is multifactorial in its etiology, fluoride is an important chemotherapeutic intervention to strengthen teeth and prevent disease progression.
* Fluoride works to prevent dental caries through both topical and systemic mechanisms via 3 processes: inhibiting tooth demineralization, enhancing remineralization, and inhibiting bacterial metabolism. The topical effect provides the majority of the benefit.
* Topical fluoride in the form of toothpaste (at-home use) and varnish (in-office use) should be recommended for all children starting at tooth eruption.
* TOPICAL FLUORIDE: Toothpaste: Fluoridated toothpaste is recommended upon initial tooth emergence during infancy and throughout life. Do not recommend fluoride-free “training toothpaste.”1. From tooth emergence until age 3 years, a grain of rice-sized (or “dab”) amount of fluoride toothpaste should be used to brush the teeth both morning and night.2. For children aged older than 3 years, or when a child can effectively spit, a pea-sized amount of fluoride toothpaste should be applied morning and night.
* Mouth rinses: Over-the-counter fluoride rinses may be beneficial for use for children, particularly those who have high caries risk or live in fluoride-deficient areas. Mouth rinses should be reserved for high-risk children aged older than 6 years who can rinse and spit.
* Varnish: Fluoride varnish is a highly concentrated form of topical fluoride that is applied to teeth in a professionally supervised setting. Durapat is highly recommended varnish.
* Dental providers may recommend other forms of topical fluoride, including highly concentrated fluoride gels. Community water fluoridation: Lastly, fluoridated community water aids in prevention of dental caries by up to 27%21 and reduces dental expenditures per capita22 by providing both topical and systemic routes of fluoride. Fluoridated tap water use should be encouraged instead of bottled water use, which may not contain fluoride and may be more acidic than previously anticipated, thus promoting demineralization of tooth structure.
* 1st defluoridation project was taken up by NEERI at Nagpur in 1961.
* Nalgonda technique was given by WG Nawalakhe in 1974. It involves addition of 3 readily available chemicals i.e. sodium aluminate, bleaching powder and filter alum in same sequence.
 |
| 17 | Vital Pulp Therapy | * Indirect pulp treatment is recommended as the most appropriate procedure for treating primary teeth with deep caries and reversible pulp inflammation provided that the tooth has been sealed with a leakage free restoration.
* Direct pulp capping of a carious pulp exposure in a primary tooth is not recommended as treatment failure might result in internal resorption or acute dentoalveolar abscess. In primary teeth after direct pulp capping or pulpotomy with MTA (Mineral Trioxide Aggregate) and concluded that MTA might be a favourable material for pulp capping and pulpotomy in primary teeth.
* Pulpotomy and partial pulpectomy techniques for devitalized primary teeth have been developed to preclude an almost impossible obturation problem. Pulpotomy is still the most common treatment for cariously exposed pulp in symptom free primary molars
* Formocresol was introduced by Buckley in 1904 its composition is cresol-35%, gresol-15%, formaldehyde-19% and water-31%.
 |
| 18 | Pulp Treatment (non-vital pulp therapy) | * PulpectomyNon-vital primary teeth may be retained successfully when pulpectomy procedure is employed. A single visit or two- visit pulpectomy may be undertaken. Primary molar roots are severely curved and the pulps are flat and tortuous with numerous branches and interconnections.
* Apexification and apexogenesis : When providing treatment for patients with mixed and young permanent dentitions, certain clinical scenarios may require interdisciplinary consultation and intervention such as following traumatic injuries and whenever permanent teeth require endodontic therapy. Young pulps in immature permanent teeth are larger than at a more mature stage. Immature permanent teeth have funnel shaped apical foramina which are commonly called “blunderbuss.”
 |
| 19 | Preventive Orthodontics | * Preventive orthodontics is that part of orthodontic practice which is concerned with patients and parents education, supervision of the growth and development of the dentition and cranio-facial structures.
* Interceptive orthodontics is defined as that phase of science and art of orthodontics employed to recognised and eliminate potential irregularities and malpositioned in developing dentofacial complex.
* Kjellgren (1929) Sweden coined the term serial extraction.
* Nance is father of serial extraction.
* Space maintainer is device used to maintain the space created by loss of deciduous tooth.
* Commonly use space regainer are Gerber space reagainer, jack screw, cantilever spring.
 |
| 20 | Space Management | * Space maintenance was coined by JC Brauer in 1941.
* Management of space problems associated with the transitional stages from primary to permanent dentition is a routine component of Pedodontic practice and a complex phenomenon with a variety of physiological adaptations of occlusion. Problems in the dental arches involve lack of space, space loss, maleruption, malposition, and malalignment of teeth. All such problems relate to the following modes of treatment: space maintenance, space gaining and guidance in alignment and occlusion.
* Space Maintenance in Anterior Segment 1) Removable partial denture -This can be given for young children who show a degree of cooperation and interest. It is not advisable to give a removable space maintainer in children with uncontrolled dental caries or who cannot maintain a proper oral hygiene to reduce the caries activity.2) Fixed Appliances - If a fixed appliance is required, one approach is to attach the anterior replacement teeth to a 0.040 or 0.045 inch stainless steel wire frame work retained with bands or crowns on the second primary molar.
* Space Maintenance in Buccal Segment 1) Removable appliances - Acrylic partial denture is indicated when there has been bilateral loss of more than a single tooth.9 2) Fixed Space Maintainers - Band and loop appliances - It is usually used for preserving space created by premature loss of single primary molar. 13 It consists of a band cemented commonly to the tooth posterior to the edentulous space and a loop of wire across the edentulous space abutting the anterior tooth. 17The loop should be fabricated wide enough so that the succedaneous tooth can erupt into it. 18 The crown and loop is a variation of the band and loop appliance, and is used where stainless steel crown therapy is necessary on the abutment teeth.
* Nance palatal arch appliance8 - This is a maxillary custom-made fixed appliance developed by H.N. Nance in 1947, consisting of a heavy gauge stainless steel wire soldered to the palatal aspect of the first permanent molar bands. The wire is directed from the molars anteriorly and is attached to an acrylic button, about 0.5 inches in diameter. 13 Transpalatal arch8 - Originally described by Robert Goshgarian in 1972, the transpalatal arch is a maxillary fixed appliance consisting of a heavy gauge stainless steel wire that extends from one maxillary first permanent molar, along the contour of the palate, to the contralateral first molar. It is adapted to the curvature of the palatal vault, so that it lies 2-3 mm away from the palatal mucosa, and an omega loop is usually incorporated midway across the span. The original design included a straight bar extending across the palate. It is referred as transpalatal bar.
 |
| 21 | Child Abuse and Neglect | * First documented and reported case of CA/CN occurred in 1874 with a child named Mary Ellen.
* Physical Abuse Craniofacial, head, face, and neck injuries occur in more than half of child abuse cases. All suspected victims of abuse or neglect, including children in state custody or foster care, should be examined carefully by the appropriate provider at some point during the course of the evaluation for signs of oral trauma, caries, gingivitis, and other oral health problems, which are more prevalent in maltreated children than in the general pediatric population.
* Sexual Abuse Although the oral cavity is a frequent site of sexual abuse in children,16 visible oral injuries or infections are rare. When oralgenital contact is suspected, referral to specialized clinical settings equipped to conduct comprehensive examinations is recommende
* Bite Marks Acute or healed bite marks may indicate abuse. Dentists trained as forensic odontologists can assist health care providers in the detection and evaluation of bite marks related to physical and sexual abuse.‍ Bite marks found on human skin are challenging to interpret because of the distortion presented and the time elapsed between the injury and the analysis.‍
* Bullying Thirty percent of children in the sixth to 10th grades report having been bullied and/or having bullied others. Children with orofacial or dental abnormalities (including malocclusion) are frequently subjected to bullying.
* Dental Neglect Dental neglect, as defined by the American Academy of Pediatric Dentistry, is the “wilful failure of parent or guardian, despite adequate access to care, to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection.”Dental caries, periodontal diseases, and other oral conditions can lead to pain, infection, loss of function, and worse if left untreated.

Dentists are at an advantage when it comes to identifying child abuse. As most of the characteristic signs can be visualized in the craniofacial and oral regions |
| 22 | Crowns in Paediatric Dentistry | * PRE-FORMED METAL CROWN Preformed metal crown (PMCs) for primary molar teeth were first described in 1950 by Engel followed by Dr. William Humphrey(1950). They were made of stainless steel and were referred to by an acronym of SSC.
* Preveneered stainless steel crowns (PVSCCs) offer a potential esthetic and durable restoration for grossly decayed primary teeth, as these crowns allegedly combine the durability of conventional SSC with the esthetic appeal of composite resin.These crowns are available with a variety of facing materials such as composite resin or thermoplastic resin bonded to the stainless steel crown. Esthetic veneers are retained on the stainless steel crowns using a variety of mechanical and chemical bonding approaches.
* STRIP CROWN Among the most esthetic and popular restorations for carious primary anterior incisors are composite resin strip crowns. Resin composite strip crowns (SCs) have been utilized for over 2 decades to restore carious primary teeth
* POLYCARBONATE CROWN Conventional Class III carious lesions in primary teeth are usually treated with composite resins or amalgam. However, more severely decayed teeth require stainless steel crowns, composite crowns or polycarbonate crowns.

ZIRCONIA PAEDIATRIC CROWN: These are crowns made of zirconia for the primary dentition that contain no metal. Zirconia restorations are not new to the dental world and are one of the dominant types of ceramics used for a variety of computer aided design /computer aided manufacturing restorations, including framework/hand veneer, framework/milled veneer, full-contour fixed prosthodontics, implant abutments, and large im |
| 23 | Presurgical Nasoalveolar Molding in Management of Cleft Lip and Palate | * Cleft lip and cleft palate (CLCP) is the most common congenital craniofacial anomaly caused by abnormal facial development during gestation.
* The severity and form of cleft lip and palate can vary considerably among the patients.
* The unilateral cleft deformity is characterized by a wide nostril base and separated lip segments on the cleft side.
* Nasolabial deformity is seen in all the CLCP cases and is more significant in wider and extensive cleft cases.
* Presurgical nasoalveolar molding (PNAM) helps to achieve this principal objective by reducing the severity of the initial cleft deformity, thereby enabling the surgeon and the patient to enjoy the benefits equivalent to the repair of a minimal cleft deformity.
* The objective of PNAM is to reduce the severity of the initial cleft deformity, thereby enabling the surgeon and the patient to have esthetically better correction of the CLCP.
* The favorable time to start PNAM procedure is immediately after the birth and very much within the first 6 weeks of birth.  Impression should be made while the patient is in inverted position.
* A small opening measuring 6–8 mm in diameter should be mandatorily made at about 5 mm anterior to the posterior most border of the molding plate to provide an airway in the event that the plate drops down posteriorly.
* Alveolar and nasal molding can be either started simultaneously or nasal molding can be delayed for few weeks, the decision of which is made depending on the age of the patient.
* Appliance activation is based on the principle of “Negative sculpturing and Passive molding”.
* Recall and follow up plays an important role in the success of PNAM.
* Prognosis of PNAM procedure is highly dependent on the age at which it was started and the parent and patient compliance
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| 24 | Conscious Sedation | * Children, occasionally present with behavioral considerations that require more advanced techniques. These children often cannot cooperate due to lack of psychological or emotional maturity and/or mental, physical, or medical disability.
* The advanced behavior guidance techniques commonly used include protective stabilization and sedation. Current understanding of pediatric oral health includes absence of dental fear and anxiety as well as healthy oral structures with the aim of forming the basis for good oral health throughout life.
* .Use of sedation is advocated in children lacking cooperation for the short duration periods.
* Conscious sedation is defined as a minimally depressed level of consciousness that retains the patient’s ability to independently and continuously maintain an airway and respond appropriately to physical stimulation or verbal command and that is produced by a pharmacological or nonpharmacological method or a combination thereof.
* Objectives of conscious sedation are to reduce or eliminate anxiety, reduce untoward movement and reaction to dental treatment, enhance communication and patient cooperation, raise the pain reaction threshold, aid in treatment of the mentally/physically disabled or medically compromised patient.
* Indications of conscious sedation are lack of psychological or emotional maturity, medical, physical, cognitive disability, fearful, highly anxious or obstreperous patient, a patient whose gag reflex interferes with dental care, a patient for whom profound local anesthesia cannot be obtained.
* There is only one inhalation agent that meets the requirement of conscious sedation and that is nitrous oxide ideal concentration for nitrous oxide sedation is 30% N2 O and 70% O2 .
* Diffusion hypoxia may occur as the nitrous oxide sedation is reversed; this can be checked by administrating oxygen for 3–5 minutes.
* Reversal agents used for benzodiazepines sedation are flumazanil and that for opioids sedation is naloxone.
*  Midazolam is the best drug of choice for sedation in children with oral route being most preferred and intranasal most effective.
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| 25 | General Anesthesia in Pediatric Dentistry | * Most children and adolescents can receive effective dental care by traditional methods through the successful use of behavioral management techniques in the dental clinic.
* But, pediatric dentists routinely treating children do come across patients whose behavior cannot be managed adequately even with the use of non-pharmacological behavior management techniques.
* When the procedure cannot be done in the dental clinic, hospitalization for dental treatment under general anesthesia (GA) can and should be considered.
* Active involvement in hospital-based dentistry has added a rewarding component to the practice of many pediatric dentists
* The most important indication for GA is patients who cannot co-operate due to lack of physiological maturity or any disability.
* The advantage of GS is that all treatment can be finished in one appointment with minimal patient compliance.
* The increased rate of complexity and care and various complications are the obvious disadvantage.
* Factors that affect GA decision making are age, cooperation, risk assessment
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