



Pediatric Dental Care Is the Main-Stay of Future Oral Health among Infants and Toddlers- A Review

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Abstract

The continuing prevalence of dental caries, malocclusion and gingival problems among children still holds a positive significance of negligence among Indian population in both rural and urban culture. Dental negligence has played a major role not only in natal stage but also post-natal. Dental caries either nursing bottle type and rampant caries type still holds major role in pediatric dentistry as caries if treated results in compromised form and function of tooth and if un-treated results in compromising the oral health and flora of oral cavity. There are several myths of undergoing treatment pre-natal such as in some rural areas brushing is stopped during the time of pregnancy as it affects expecting mother's hygiene and also certain myths like oral hygiene of the child will also suffer leads to lack of brushing. This paper emphasizes on the fact that prenatal and post-natal dental care is important in the development of oral health and tissues of the infant and also on the benefit of early treatment among infants.

Keywords: Nursing bottle caries, Rampant caries, Integrated Child Developmental Services (ICDS), National Rural Health Mission (NRHM), Dental home care, Professional dental care

INTRODUCTION

Dental hygiene negligence has been the mainstay till date among pediatric patients. Though in recent years dental awareness has grown tremendously among urban population but in rural population it still lacks considerably. The social norms and pressure by several grades of population results in retro gradation of professional dental treatment among children. The social dependency of young children on parent and society plays a key role on the professional dental treatment care.

Early childhood is marked by facial and physical development i.e., development of face, mouth and dentition all of which require professional dental care. Among the more common oral conditions of early childhood are dental caries, malocclusion, developmental disturbances associated with tooth formation, cleft lip and palate and various mucosal infections. Additional questionnaire is requested by parents frequently on additional concerns including sucking habits, malocclusion, timing and order of tooth eruption and tooth coloration.

Risk Associated with Young's

There are several risk factors associated with young's both socially and physically which primarily include family income, parental employment status and their level of education and racial and ethnic status. Additional factors include geographic and their living conditions sex and age. Homeless children are more vulnerable and susceptible to oral and health conditions than children with better economic status. Oral health and dental care are major key

factors for effective functioning of eating, chewing, speech development and development of self-confidence among young. Professional dental care is important along with parental dental care.

Dental Caries

Among these conditions dental caries still holds a preliminary position due to extensive literature and prevalence. In the National Health and Nutrition Examination survey III (NHANES III), caries was visually evident in 30% of 2-5-year-old children in poverty, 24% of near poor young children and only 6% of young children from families with incomes at least 3 times the poverty level. Children of poverty also experience more extensive dental disease than their higher-income peers. Children living in households below 2 times the poverty level have 3.5 times more decayed teeth than young children from more affluent families. The percentages of young children of various income levels who have experienced dental repair are far more consistent across income groups. In fact, 79% of the decayed teeth of poor 2- to 5-year-old children were unfilled while 45% of decayed teeth in the highest income group were unfilled. This finding

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suggests both that high-income child do not access dental treatment sufficient to meet their needs and that low-income children suffer from significant disparities in dental care. Similar statistics are reported across a wide variety of state surveys [1]. Early childhood caries is a complex disease that involves the maxillary primary incisors within a month of eruption followed by other primary teeth. In 2003, the American academy of Pediatric Dentistry (AAPD) defined ECC as the presence of one or more decayed (Non-cavitated or cavitated), missing (due to caries), or filled tooth surfaces in any primary tooth in a child up to 71 months of age or younger [2]. Earlier studies have shown that dental care is the least treatment need in children [3]. Children with low economic status are seen to have more untreated dental disease coz of their less affluence and inability to reach for the corresponding treatment. Biologically, if tooth decay is left untreated it results in severe pain and destruction. NHANES III, the most recent national survey, found that nearly 80 percent of the decayed teeth of poor two- to five-year-old and 40-50 percent of the decayed permanent and primary teeth in 6-14-year-old were unfilled (untreated) [4].

CONTEMPORARY DENTAL CARE IN CHILDREN EARLY INITIATION OF ORAL HEALTH CARE

Early Initiation of Oral Health Care

Early literature has provided that tooth decay is an infectious, transmissible tooth disease caused by acid-forming bacteria acquired by toddlers from their mother after the eruption of their first teeth (generally around six months of age). In its early stages, the effects of dental caries are largely reversible through existing interventions (e.g., fluorides) that promote replacement of lost minerals from the outer layer of the tooth (enamel). These findings, combined with epidemiological data on the occurrence of tooth decay in infants and young children, suggest that true primary prevention must begin in the first to second year of life.

Infant Oral Health Care

Prenatal oral health counselling of parents plays a major role in understanding the requisite oral health care needs by the infants. Infant oral health care focuses on relevant history taking, clinical examination of oral structures, risk assessment, counselling, anticipatory guidance and follow up interventions before the development of oral diseases.

First Dental Visit

Despite extensive growth in pediatric dental care, a discrepancy exists between dental and public health organizations versus the American Academy of Pediatrics' recommended age for a first dental visit. American Academy of Pediatric Dentistry (AAPD) policy, as reflected in its "Periodicity of Examination, Preventive Dental Services, and Oral Treatment for Children," has recommended (see Appendix A) that children must be seen by a dentist

following the eruption of the first tooth, but not later than 12 months of age [5]. In contrast, the American Academy of Pediatrics (AAP) recommends that every child should begin to receive oral health risk assessments by 6 months of age from a pediatrician or a qualified pediatric health care professional, and that infants identified as having significant risk of caries or being in a high-risk group should be entered into an aggressive anticipatory guidance and intervention program provided by a dentist between 6 and 12 months of age [6].

Pediatric Dental Care at Home

Primary pediatric oral health care is best delivered in a "dental home" where competent oral health care practitioners provide continuous and comprehensive services. Ideally a dental home should be established at a young age (i.e., by 12 months of age in most high-risk populations) while caries and other disease processes can be effectively managed with minimal or no restorative or surgical treatment. An adequate dental home should be expected to provide children and their parents with:

1. An accurate examination and risk assessment for dental diseases,
2. An individualized preventive dental health program based upon the examination and risk assessment,
3. Anticipatory guidance about growth and developmental issues (e.g., teething, thumb or pacifier habits),
4. Advice for injury prevention and a plan for dealing with dental emergencies,
5. Information about proper care of the child's teeth and supporting structures
6. Information about proper diet and nutrition practices,
7. Pit and fissure sealants,
8. A continuing care provider that accomplishes restorative and surgical dental care when necessary, in a manner consistent with the parents' and child's psychological needs
9. Interceptive orthodontic care for children with developing malocclusions,
10. A place for the child and parent to establish a positive attitude about dental health,
11. Referrals to dental specialists such as Endodontists, oral surgeons, orthodontists, pediatric dentists [7] and periodontist when care cannot be directly provided within the dental home,
12. Coordination of care with the infant/child's primary care medical provider.

PREVENTIVE SERVICES

Successful preventive strategies have played a key role in implementing oral health in children over the past several decades. National Institutes of health have made certain important guidelines that are as noted: [7,8].

Dietary and oral hygiene counselling

The NIH conference indicates that current data provide some support for the efficacy of office-based interventions to modify behaviors, but did not comment specifically on the effectiveness of dietary or oral hygiene counselling. However, a Canadian Task Force on Preventive Health Care noted that although evidence of the effectiveness of dental counselling for inducing positive dietary changes is poor, counselling is recommended for patients at high risk for dental caries. Similarly, although the evidence for effectiveness in preventing tooth decay of daily plaque removal by tooth-brushing alone is poor, tooth-brushing is essential for self-application of fluoride toothpaste - which is highly recommended for preventing dental caries - and also helps to control gingival (gum) disease.

Dietary fluoride supplements

The Canadian Task Force found good evidence of reductions in the incidence of dental caries (tooth decay) if the proper dosage schedule is carefully followed.

Professional topical fluoride applications

Acidulated phosphate fluoride (APF) gels have consistent evidence of effectiveness when applied 1-2 times per year in a manner consistent with protocols under which they have been studied. Evidence for the benefit of fluoride varnish application to permanent teeth (which begin to erupt around 6 years of age) also is generally positive. The NIH consensus conference concluded that the evidence for effectiveness of fluoride varnish applied to primary teeth was incomplete and inconsistent at the time of the conference, generally reflecting a lack of well-controlled studies in younger - e.g., preschool - children. The problem of early childhood caries merits ongoing review of this preventive modality as additional evidence becomes available.

Pit and fissure sealants

Dental sealants (plastic coatings that are applied to the grooves and fissures of primary and permanent teeth) have been demonstrated to be effective in the primary prevention of caries, and their effectiveness remains strong as long as they are maintained (i.e., through periodic evaluation and reapplication, if necessary).

Topical antimicrobial agents

Evidence for the use of chlorhexidine gel is moderately strong (although many studies demonstrating its effectiveness used concomitant preventive measures). Concentrated (professional-strength) fluorides also have antibacterial properties.

Combination interventions for primary caries prevention or for reversing or arresting the progression of carious lesions

Evidence concerning combinations of chlorhexidine and fluoride and/or sealants suggests they are effective.

Space maintenance and habit discontinuation appliances:

Space maintainers are removable or fixed passive appliances designed to prevent tooth movement and generally are placed following the extraction of teeth or in cases of congenitally missing teeth. Habit discontinuation appliances are used to eliminate habits that can adversely affect the development of anatomical structures or functions such as speech (e.g., thumb sucking or oral finger habits). Because they do not directly relate to dental caries, neither review process commented on these devices.

Protective mouth and face guards for children engaged in sports activities: Many such devices have been tested and found to be effective in reducing the incidence and severity of sports injuries.

TREATMENT SERVICES

Oral diseases are progressive and cumulative and, if left untreated, become more complex and difficult to manage over time. Medicaid statute and the SMM state that dental therapeutic services must include dental care, at as early an age as necessary, needed for relief of pain and infections, restoration of teeth, and maintenance of dental health. A partial list of dental treatment services specified in the SMM includes:

- Pulp therapy for permanent and primary teeth - e.g., root canal treatments;
- Restoration of carious (decayed) permanent and primary teeth with materials and techniques that meet current accepted practices - e.g., plastic and metal fillings and stainless-steel crowns;
- Scaling to control gingival and periodontal diseases;
- Maintenance of space for missing posterior primary and permanent teeth to prevent or minimize problems in eruption of permanent teeth - e.g., fixed and removable space maintainers;
- Provision of removable prosthesis (partial and complete dentures) when masticator (chewing) function is impaired, when an existing prosthesis is unserviceable or when the condition interferes with employment training or social development;
- Orthodontic treatment when medically necessary to correct handicapping and other malocclusions.

EMERGENCY SERVICES

Emergency dental services include:

- procedures necessary to control bleeding, relieve pain, or eliminate acute infection - e.g., starting root canal treatment on infected teeth, draining abscesses and infected areas, treating soft tissue swellings associated with erupting teeth, palliative care for oral soft tissue infections such as herpes;
 - procedures that are required to prevent “pulpal death” (infection of the nerves and blood vessels inside the tooth) and the imminent loss of teeth - e.g., decay removal, application of medications, temporary fillings;
 - treatment of injuries to the teeth or supporting structures (bone or soft tissues that surround the teeth) - e.g., temporary fillings for fractured teeth, stabilizing loose teeth and supporting bone, cleaning and suturing traumatic wounds; and palliative therapy for pericoronitis (swollen, inflamed tissues associated with impacted or erupting teeth) - e.g., irrigation of swellings, removing debris from infected areas, relieving trauma caused by opposing teeth.
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CONCLUSION

Hence it is important to build a proper model of dental care among children and parents counselling whether prenatal or post-natal plays an important role in the overall development of oral-dental tissues in children and infants.

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