

## Primary Prevention for Pediatric Patients

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### Abstract

**Background:** Caries is a progressive disease. One of the best foretelling for future dental caries is proof of previously caries trials or the presence of current caries. Dental caries is usually treated by both surgical and nonsurgical methods. However, the nonsurgical method is considered much better as it is minimally invasive. The American Academy of Pediatric Dentistry (AAPD) advise that kids start a brush tooth in home by first tooth exposed from first to 6 months.

**Materials and Methods:** Online search in English language has been done through scientific website such as PubMed, google scholar and dental medical books at the last 20 years (1999 - 2019) to get the determined current subject. For a literature review search keywords were used: Primary caries, fluoride application, children caries management, and Nd:YAG laser.

**Results:** The study identified 206 articles from initial search criteria. After reading and evaluating the abstracts, the researchers discarded articles unrelated to the inclusion criteria. Finally, 39 studies were included.

**Conclusion:** Sealant materials have the ability to be retained in the occlusal surfaces of teeth of children and adolescents, showing a potential effectiveness for caries prevention, their application having deep effects on the dental caries of all tooth surfaces.

**Keywords:** Primary Caries; Fluoride Application; Children Caries Management; Effect of Nd:YAG Laser on Caries Protection; Tooth Re-Mineralization

### Introduction

#### What the advice of (AAPD) in pediatric dentistry?

The American Academy of Pediatric Dentistry (AAPD) advise that kids start a brush tooth in home by first tooth exposed from first to 6 months [1]. A home brushing of tooth is the continuous relationship between the dentist and patient, overall of all care of oral health. Father, mother or member caregivers may be careless of this advice or feel that meeting the dentist in the life should only starting in first teeth grow "early stage," in spite of many searches that encourage early care of dentation and urges to see tooth every six months [2,3]. The goals of the age of the first visit to the dentist is to do all examination and caries risk assessment, know and distinguish early signs of tooth decay, fluoride application and tell the parents/caregivers how to brush the child teeth and other oral hygiene. The advice

that primary care of dentist produce is the importance of writing a dietary supplement fluoride to kids more than of 6 months age whose primary water source is deficient in fluoride (B recommendation) [4]. This recommendation was based on fair evidence that in young children with low fluoride exposure, prescription of dietary fluoride supplements by primary care clinicians is associated with reduced risk of dental caries that outweighs potential harms of enamel fluorosis, which in the United States is primarily manifested as mild cosmetic discoloration of teeth [5]. An updated approach and tools practical for pediatric tooth decay by management risk assessment make hard work to establish wonderful adoption of babies oral care programs by professional dentists and start early of homes care for tooth of young kids. A 2007 publication by the Centers for Control of lesion and Prevention reported that although teeth decay prevalence had diminished between the school-aged children since the 1970s, decay average in children aged 2 - 5 years had become more affected [6-8]. Many researches have shown that protection the outset of ECC is more effective and cost-saving when compared to advanced treating of tooth decay. The price needed for oral care visits for kids are extremely less than of comprehensive treatment ex. Restoration or room emergency treatment requiring treatment under general anesthesia or requiring sedation [9,10]. Early identification of jeopardy signal and application of preventive practice of oral health at kids can minimize or eschew destruction of caries [11]. Early treatment minimizes sprouting and evolution premature tooth loss and speech disorders with its reduplication of compromised chewing and will be harm to the permanent dentition and may lead to loss of self-esteem. The grave consequences without tooth caries treatment were brought to light cause there is young boy died after abscessed tooth spread to his brain of bacteria [12]. Early childhood caries (ECC) is the existence single or multiple caries (non-cavitated or cavitated lesions) missed tooth (cause destruction by decay) or kids fill his or her tooth surface at aged 6 years or younger [13]. Irish kids worry of extent of caries experienced high percentage of 5 - 12 and 12 years old especially in tooth does not applied on its fluoride have experienced caries more than 5 or less which show high than experience for each age group of average caries. There is considerable different geographic of board level health former measure it in the rate of kids with high level of decay and difference in decay levels across smaller area of geographic has been in Ireland recorded dental caries in kids concern for many reason:

- 1) It is painful for the child, disturbs eating and sleeping patterns and is distressing for both child and parent;
- 2) Treatment is challenging and often requires secondary and specialist care under conscious sedation or general anaesthesia;
- 3) It may impact on the developing permanent dentition, self-esteem and aesthetics;
- 4) It highlights that an opportunity has been missed to prevent what should have been preventable.

All of these factors are of even more concern if the child has special care needs. Caries levels in Irish children with special care needs tend to be similar or lower than those of children attending mainstream schools and the level of untreated decay also tends to be lower. However, considerable variation in caries experience has been found between groups with different types of disabilities [21,22]. The prevention of caries is of particular importance for children with disabilities, and yet fewer children with special care needs have fissure sealants on their teeth compared to children in mainstream schools [21,22] with special care needs had already undergone general anaesthesia for dental treatment. Three out of the four oral health goals for 5- and 12-year-old children set by the Department of Health in the first national health strategy in 1994 [18] were not achieved by 2002 [23] strategy in 1994 [18] were not achieved by 2000 [24].

### What the risk factors for dental caries?

There are interfere factors by wide range to consider evaluating single degree of risk from disease multifactorial the jeopardy factors were specified from the methodical check undertaken on selection criteria for dental radiography for the Faculty of General Dental Practitioners guidelines [9] extra prove for significance of jeopardy factors in following section is cited:

1. **Past disease:** Previous decay experience most predictor single powerful future of increment of caries in kids 6<sup>th</sup> years old so decay in primary teeth is better standard than decay in 1<sup>st</sup> molar of permanent toot [10].

2. **Diet containing sugars:** Play most important major of our daily diet when see child around 7 them food per day and 11 to 13 they take food rich by sugars also many reason cause jeopardy factors for tooth decay the local impact of sugar dietary has essential role in the disease The 1945 - 1953 Vipeholm study [14] is the biggest individual search investigating the relation among sugars intake and tooth decay it concluded take a lot of sugary drink and food both among lunch, dinner and at meals is related increase big decay, this study has never been repeated but the conclusions have been ratified by more recent national reports [15,16] cause ethical reasons

Many dietary factors are related with decay incidence: between of consumed berserk carbohydrate sugar concentration of food physical form of carbohydrate oral retentiveness (length of time teeth are exposed to decreased plaque pH) recurrence of eating snacks or meals length of period among eating sequence of food consumption. However, the key observation is that increasing the frequency of sugar intake increases the odds of developing dental caries, whilst lowering sugar intake can reduce it [11-19].

3. **Social factors:** Research have been pretend that tooth decay is most widespread in child school from low socio-economic status families so we see high decay prevalence; fewer caries-free teeth, fewer sealants and more untreated lesions [20,21].
4. **Fluoride uses:** Consideration of fluoridation water as public health measure is beyond the scope of this guideline which seek to make recommendations for those introducing in practice of dentistry. However, there is power prove for its effectiveness and safety from research prevalence over many years [22] and fluoridation has been seen to have especially useful influence on high decay risk forbade kids [20].

A rigorous systematic review has recently been published by the NHS Centre for Reviews and Dissemination. The use of fluoride in tooth protection.

5. **Plaque control of plaque:** When bacteria plaque is removed is major factor to decrease the one of reason factor of caries Health benefits are; however' mostly due to the blend of fluoride into most toothpastes.
6. **Saliva fulfils:** Which is play role protective against dental caries a mini group of kids in this age group may have decrease salivary flow-usually as a result of their medical history and related drug therapy-and are high risk of dental caries.
7. **Medical history and disability:** May be associated with increased caries risk A range of factors in a child's medical history.

### The way of behaviour modification in high caries risk children

**Dental health education:** The aim learn how to maintain of dental health to make good oral hygiene and dietary habits. The dental and confederate professions. Have to tell child parent to how to prevent the disease and risk requires long-lasting motivation for foundation need oral hygiene habits a feeling of individual responsibility based on self-diagnosis and behavioural principles. The most important motivational factor [26]. A systematic review has demonstrated carried out by a professional at the chairside is more often effective than other types of oral health promotion interventions in dental health education. However, oral health promotion per se has not been shown to be effective for caries prevention unless fluoride is utilised in the intervention [27].

**Oral hygiene:** The regular topical application of fluoride lies with toothbrushing in caries prevention. Shown effective in preventing dental caries in children aged between six and 16 years [30,31] cause Toothpastes containing fluoride at 1000 - 2800 parts per million (ppm). Children who brush more than one time better than less brushing. In addition, reduces the efficacy by rinsing the mouth with a beaker of water after brushing fluoride toothpaste in the prevention of caries and recurrent caries compared with less diluting methods of clearing the mouth [32,33]. The report of the dental public health consultants in Scotland recommends should [34] brush teeth twice a day using

toothpaste containing at least 1000 ppm fluoride used by adults and children over seven years to confirm all surfaces clean then spit out the toothpaste and avoid rinsing out with water. Age the report recommends the use of only a smear or small pea-sized by aged very young to seven years of age so the quantity of paste encourages children to spit out toothpaste after brushing. And paste swallowing should tell to kids that's harm to their health like active rinsing out after brushing. The Health Education Authority makes si.

### Diet and sugar consumption

When we decrease intake of sugars its reduce of caries in children incidence [11-19]. A Brazilian study has shown that can be reduced by diet and oral hygiene training in lesions in 12 year olds [36] is also widely recommended control to ingestion of refined carbohydrate to meal times [37].

**Xylitol:** A series of studies in Finland have demonstrated little prove of non-sugar sweeteners of anti-caries effects of xylitol substitution diet in sugar become in much lower caries increments [38].

**Sugar-free chewing gum:** Some substance have anti-caries properties through salivary stimulation which contain xylitol and sorbitol it has antibacterial properties; Xylitol is more effective than sorbitol in caries reduction [39] should used; sugar-free chewing gum especially xylitol containing is acceptable.

**Sugar-free medicines:** Until recently; medicines prepared for kids sweetened more than normal level to make it accepted for kids to take it; so after that they notice risk of tooth decay cause sweetened medicines; so worry over iatrogenic damage to kids tooth result make medicine free sugar alternatives for most paediatric medications [40-43].

### Tooth protection in children at high caries risk

**Sealants:** To prevent tooth of caries by barrier method in pits and fissures we used resin pit and fissure sealants over wide range of studies in recent decades. Dental materials its improved to increase their retention and make technique better than before sensitivity in high caries risk patients [44].

It should be applied Sealants and keep it in pits/fissures of high caries-risk children application of sealant is based on the risk of caries should selection of patients who will benefit most from kids [45].

Something should be considered include medical history and previous caries experience. For the majority of "at risk" individuals sealing permanent molars is sufficient. However, in high risk patients all pits and fissures should be sealed [45].

**Fluoride tablets:** Fluoride tablets (1 mg F daily) for daily sucking should be considered for children at high risk of decay. No longer recommended routinely for caries prevention in children living in areas with little fluoride in water; considered for children with intractable caries risks.

**Topical varnishes:** Fluoride toothpaste and tablets is deemed to be insufficient in home, professional application of a fluoride varnish; professional application of a fluoride varnish may help to prevent dental caries.

**Chlorhexidine:** Chlorhexidine varnish should be considered as an option for preventing caries. Its liquid used as rinse.

### The use of lasers

Using a ruby laser in 1972 as caries prevention, have been carried out and laser irradiation has been proposed as an adjunct to conventional caries prevention therapies:

- (1) The effect of Nd:YAG laser on the ultrastructure of enamel and its ability to reduce acid demineralization is still controversial. While some authors indicated that human enamel irradiated with the Nd:YAG laser enhance resistance to artificial caries-like.
- (2) Other have reported that the Nd:YAG laser did not increase acid resistance of subsurface enamel.

### Conclusion

Sealant materials have the ability to be retained in the occlusal surfaces of teeth of children and adolescents, showing a potential effectiveness for caries prevention, their application having deep effects on the dental caries of all tooth surfaces.

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