How to prevent dental decay among low-caries populations of children and adolescents

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Overview

- A brief look at the DMFT scores for 12-year-olds and at the ways that have been used to control dental caries among Finnish children and adolescents
- The current distribution of caries burden and the possibilities of identifying the high-risk individuals before their problems have materialized
- Possibilities of helping the high-risk susceptible individuals
- Recent Current Care Guideline for controlling dental caries in Finland

Mean DMFT score for 12-year-olds in selected European countries

Mean DMFT score for 12-year-olds in Finland between 1975 and 2000

The main approaches to address dental caries in the Finnish Public Dental Clinics in the late 1900’s

- 1970’s
  - Health education
  - Fluoride tablets (preschool children)
  - Fortnightly fluoride rinses (schoolchildren)
- 1980’s
  - Fluoride varnish applications
  - Sealants
- 1990’s
  - Sharp decline in the investment for preventing dental decay among children and adolescents

Mean number of sealants and fluoride varnish applications and mean DMFS score among 12-year-olds in Jyväskylä
Mean number of sealants and fluoride varnish applications and mean DMFS score among 12-year-olds in Kuopio.


Percentage distribution of 12-year-olds according to DMFS in Kuopio (n=161) and in Jyväskylä (n=154) in 1998.


Lorenz curves describing the distributions of 12-year-olds in Kuopio (n=161) and in Jyväskylä (n=154) in 1998.


ROC-curves for selected predictors of approximal DMFS increment (>1 approximal surfaces in 2 years).

The design of the Vantaa caries prevention trial

Mean numbers and their standard deviations for sealants and fluoride varnish applications performed during the follow-up

Mean numbers and their standard deviations for oral hygiene and dietary counseling sessions during the follow-up

Mean DMFS-increment in 3 years

Application of the high-risk strategy to control dental caries

Mean DMSF-increment in 3 years

Noninvasive Control of Dental Caries in Children with Active Initial Lesions

A Randomized Clinical Trial


Franziska Hausen, Sari Kärkkäinen and Sanna Seppä


Two recent steps for enhancing the control of dental caries in Finland

- Current Care Guideline for Controlling Dental Caries (2009)
- Decree on welfare clinic services, school and student health services, and preventive oral health services for children and youth (2009, coming into full force in 2011)

CCG for Controlling Dental Caries - starting points

- Far too many caries lesions progress to frank cavities in Finland even though most decay could be easily prevented by people themselves in their everyday life
- At the dental offices caries lesions are too often treated by filling rather than by arresting them in cooperation with the patient

Current Care Guideline (CCG) for Controlling Dental Caries – an overview

- Controlling caries in everyday life among the whole population
  - Healthy environments
  - High level of health literacy and self-efficacy among the population

Arresting active initial caries lesions

Filling
Controlling caries in everyday life – current issues in Finland

- Oral hygiene
- Diet
- Use of fluoride products

The percentage of Finnish boys brushing their teeth at least twice a day according to the WHO Health Behavior in School-aged Children (HBSC) study 2001/2002

The percentage of Finnish girls brushing their teeth at least twice a day according to the WHO Health Behavior in School-aged Children (HBSC) study 2001/2002

The percentage of adult Finns (30+) who brushed their teeth at least twice a day according to the national Health 2000 survey


CCG for Controlling Dental Caries - target groups

- Oral health professionals and their patients
- Personnel at the maternal and child and school health services
- The parents and other caretakers of children
- People contributing to the care of groups with special health needs
- Decision makers who have the powers of developing the healthiness of our surroundings
  - Soda and candy free day care centers and schools
  - Ball game teams not using sport drinks
  - Etc.

CCG for Controlling Dental Caries - the perspective of an individual with no special health needs

- Dental decay should primarily be prevented by means of self-care
  - Observing proper oral hygiene
  - Using fluoridated toothpaste at least twice a day
  - Eating planned meals only
  - Using water for quenching thirst
- Caries control based on self-care is cost-effective
CCG for controlling dental caries - the perspective of oral health professionals

• In the dental clinics, the main issues of caries control include
  – detecting the early signs of initial caries lesions
  – assessing their activity and
  – developing with the patient a partnership that is necessary for arresting the observed active lesions and preventing new lesions from occurring

CCG for controlling dental caries - professional chair side measures for non-invasive caries treatment

• Addressing residual plaque in a serious manner
  – Showing sites
  – Explaining harmful effects
  – Showing and supervising ways of removal
• Cleaning teeth professionally and applying fluoride topically
• Sealing the occlusal surfaces of molars if deemed necessary
• Measuring salivary flow rate and buffer capacity if there is reason to believe that the patient’s caries problem might have to do with salivary deficiencies

CCG for controlling dental caries – self-care for a patient who has active caries lesions

• Oral hygiene
  – Special efforts to keep clean the surfaces of the active lesions (in addition to customary toothbrushing)
• Diet
  – Planned meals only
  – Water for quenching thirst
  – Xylitol chewing gum or lozenges after meals and possible snacking events
• Use of fluoride products
  – Additional fluoride measures may be considered on top of fluoridated toothpaste

CCG for controlling dental caries - how can one know that caries is under control?

• The control of dental caries is successful, when the patient observes all measures of self-care that are necessary for maintaining his/her dental health
• Clinically this manifests as
  – No active caries lesions
  – No residual plaque on caries-prone tooth surfaces

CCG for controlling dental caries - when are fillings needed?

• The non-invasive treatment of caries lesions should be complemented by operative treatment, if
  – the lesion has been progressed deep into the dentine
  – it is not possible to keep the surface of the lesion clean
  – restorative treatment is necessary for esthetic or functional reasons
• Restorative treatment may also be necessary, if we fail to establish proper cooperation with the patient, which is a necessary precondition for successful non-invasive treatment of caries lesions

CCG for controlling dental caries – a concluding remark

• The effect of clinical treatment procedures performed by a dental professional is usually temporary
• In the long term, dental caries cannot be controlled successfully without the contribution by the patient
Thank you for your attention