Dental caries prevention

Preventive programs for children
Definition of Terms

Preventive dentistry:
- usage of all the means to achieve and maintain the optimal oral health
- prevention of dental caries, periodontal diseases, orthodontic anomalies, cancer and accidents

Broad implementation of prevention depends on a number of factors:
- exploring the causes and mechanisms of the disease
- availability of effective methods and means for implementing prev. measures
- adequate public education and motivation to cooperate, their beliefs about efficiency and benefits of prevention
Definition of Terms

- support for preventive orientations is needed from the State Department, insurance companies, municipalities, chambers of dentists and other institutions
- sufficient degree of education and training of all dental professionals, focus on prevention in their work and their understanding of the needs and interests of the patient
- dentist must be convinced that prevention in the field is possible and effective
- Prevention is described at three levels: primary, secondary and terciary
Definition of Terms

- Health promotion:
The process of enabling people to increase control over and improve their health

- Primary prevention:
Disease-specific protection of health.

- Secondary prevention
Early detection and prompt intervention to control the disease and minimize disability.

- Tertiary prevention
Reducing the impact of impairment, disability and handicap.
Definition of Terms

- **Primary caries prevention:**
  - is preventing new caries lesions from occurring

- **Secondary caries prevention**
  - is early detection and intervention to arrest early caries lesions

- **Tertiary caries prevention**
  - is restoration of cavitated lesions in order to prevent further destruction, eventually leading to the loss of the tooth
Goals for oral health acc. WHO 2010

<table>
<thead>
<tr>
<th></th>
<th>dental caries</th>
<th>periodontium</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6 years</td>
<td>90% children with no caries</td>
<td></td>
</tr>
<tr>
<td>12 years</td>
<td>Average index DMF 1</td>
<td></td>
</tr>
<tr>
<td>18 y.</td>
<td>100% individuals with all erupted teeth</td>
<td>90% of individuals with 5 healthy sextans (CPI 0 )</td>
</tr>
</tbody>
</table>
Prevention programs

The system of dental care (in SK) is determined by:

- Law 277 on health care
- Therapeutic policy, which sets out the principles in the treatment process of health care
- Dental care and assessments are listed in I. section at point X but mainly in III. the "Dentistry" where are the performances that can be reported for health insurance
Preventive operations

N 01 .................... Oral hygiene-profylactic training
N 02 .................... Training and practice of oral hygiene
N 03a .................... Dental calculus removal
N 03b .................... Dental plaque removal
N 11 .................... Local fluoridation
D 06 ..................... Preventive examination

Fissure sealing .............. cash payment (not covered by insurance)
Preventive examinations/checks in SK

Part IV also concerns "preventive care", where in paragraph 2 is stated that **preventive examinations** in the field of dentistry are performed:

- for children under 18 years twice a year
- policyholders over 18 years once a year
- pregnant women twice during pregnancy

- If a patient does not come for PE as required (children at least 1 a year) he can no longer claim insurance concerning treatment needs resulting from caries
Methodological guidelines valid since November 2009

- Prevention of dental caries in children and adolescents
- first examination of the child in an outpatient clinic at the one year of age
  - purpose: examination of erupted incisors (hygiene, plaque present, demineralisations)
- nutritional counseling
- advice on hygiene
- psychological meaning
The high incidence of dental caries and periodontal diseases means that an optimal level of oral health can positively change only by methods of primary prevention included in prevention programs.

Prevention programs may have general population, regional, group, individual character.

Compilation of prevention program must be based on knowledge of the epidemiological situation and knowledge of new scientific data and clinical experience in relation to dental caries and parodontopathies.
Stages in the development of preventive program

1. Information on the incidence and prevalence of caries, the target age group were 6, 12 and 18 years
2. Processing of the data
3. Setting objectives
4. Proper preventive program
   - Preventive examinations
   - survey of knowledge
   - survey of nutrition and hygiene
   - analysis of knowledge (content F)
Stages in the development of preventive program

- development of program for the target group (age, intensity, risk)
- preventive measures in the field of nutrition and sugar consumption, hygiene, fluoridation
- monitoring and analysis
- stabilization measures
Preventive programs for children 0-3 years

Basic preventive program

Children with dmf 0

1. Preventive examination
2. Information and motivation of parents
   A/ about proper nutrition
   B/ about proper oral hygiene
   C/ about implementation of fluoride prevention
3. Oral hygiene and fluoride prevention
   A/ fluoride supplements in regions with level of F in drinking water <0.3 mg/l
   B/ toothpaste with F (200-400 ppm F)
Preventive programs for children 0-3 years

Additional preventive program

Children with $\text{dmf} > 1$ and handicapped children

1. Basic preventive program
2. Local fluoridation (fluoride varnish)
   Difluena, Fluor protector, Duraphat 2 - 4 x year
3. Local fluoridation with Elmex fluid 4 x year (1 - 2 ml solution, 2 min spread onto all tooth surfaces, rinse lightly)
Preventive programs for children 3-6 years

Basic preventive program

$\text{dmf} < 5$

1. Preventive examination

2. Information and motivation of parents
   
   A/ about proper nutrition
   B/ about proper oral hygiene
   C/ about implementation of fluoride prevention
   D/ instructions focused on training and use of toothbrushes and paste in children
Preventive programs for children 3-6 years

3. Fluoride prevention and oral hygiene

A/ Elmex fluid application 2 x year during preventive examination

B/ tooth brushing with NaF 1% solution

C/ tooth brushing with F gelee under supervision

D/ tooth paste with F (Blendi gel, Colgate junior, Elmex, Lacalut, Reach junior)
Preventive programs for children 3-6 years

Additional preventive program

$dmf > 5$

1. Basic preventive program
2. F varnish application 2 - 4 x year
   A/ tooth brushing, tooth drying
   B/ F varnish application to all tooth surfaces
Preventive programs for children 6-14 years

Basic preventive program

Children with DMF 0 - 4

1. Preventive examination 2 x year

2. Information and motivation of children
   A/ about proper nutrition
   B/ about proper oral hygiene
   C/ about implementation of fluoride prevention

3. Fluoride prevention and oral hygiene
   A/ oral cavity irrigation with 0,2 - 0,5% NaF
Preventive programs for children 6-14 years

- oral hygiene is not necessary before application
- 5 - 10 ml of solution in plastic cup
- 1 min to irrigate in mouth and spit out
- 30 min no eating, no drinking

B/ application of F fluid 2 x year

C/ oral hygiene with F toothpaste (until 8th year of age under supervision of parents)
Preventive programs for children 6-14 years

Additional preventive program
Children with DMF 5 and more

1. Basic preventive program
2. F varnish application
3. F gelee application with trays

   2 ml of gelee in oral tray, time application 1 min, 30 min no eating, no drinking

4. Oral cavity irrigation with combined 0.5% NaF solution and 0.12% chlorhexidin at home
Preventive programs for children 6-14 years

- oral cavity irrigation no more than 3 weeks

Individual preventive program for children with high caries risk is necessary to supplement with dental floss, dental strip and frequent instruction.
Dental Caries

- Infectious disease requiring new preventive procedures

- Identify children who are at risk is very difficult, especially for multifactorial nature of the illness

- Risk of caries: the individual probability of a certain amount of carious lesions that reach a certain degree of progression over a specified period

  Identification of risk factors
  Identification of protective factors
<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Protective factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>mikroorganisms</td>
<td>regular oral hygiene</td>
</tr>
<tr>
<td>presence of a tooth. caries, plaque</td>
<td>optimal fluoridation</td>
</tr>
<tr>
<td>insuficient fluoridation</td>
<td>sufficient salivation</td>
</tr>
<tr>
<td>hyposalivation</td>
<td>regular preventive checks</td>
</tr>
<tr>
<td>excessive sugare intake</td>
<td>positive attitudes of parents towards prevention</td>
</tr>
<tr>
<td>systemic disease</td>
<td></td>
</tr>
<tr>
<td>low socioeconomic status</td>
<td></td>
</tr>
<tr>
<td>low dental awareness</td>
<td></td>
</tr>
</tbody>
</table>
## Protocol to determine the risk of tooth decay for 0-5 year olds

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Clinical Findings</th>
<th>Dietary Habits and Fluoride</th>
<th>Health Status</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Risk</strong></td>
<td>new dental caries in 12 months., visible plaque on the frontal teeth, enamel demineralization, enamel hypoplasia, high levels of SM</td>
<td>frequent intake of sugars (3 or more) between meals, baby bottle at night, breastfeeding at will, lack of systemic and topical fluoridation</td>
<td>overall disease pathology in formation and composition of saliva, long-term use of drugs cariogenic</td>
<td>does not visit dental office, mother has caries, low socioeconomic status</td>
</tr>
<tr>
<td><strong>Medium Risk</strong></td>
<td>new dental caries in 24 months, gingivitis, 1 enamel demineralization</td>
<td>occasional intake of sugars, only local fluoridation</td>
<td></td>
<td>irregular preventive examinations, medium socioeconomic status</td>
</tr>
<tr>
<td><strong>Low Risk</strong></td>
<td>No new carious lesion for 24 months without gingivitis, without plaque, without demineralization</td>
<td>sugare intake bound to main meal, optimal fluoridation</td>
<td></td>
<td>regular preventive examinations, high socioeconomic status</td>
</tr>
</tbody>
</table>
Strategy of primary prevention of dental caries in children aged 0-5 years

- reduce the amount of SM in the mother and siblings
- minimize the transmission of saliva from mother to child
- stop night breastfeeding after erruption of the first milky tooth
- do not put to sleep with a bottle of sweetened beverages (including juices)
- Dental hygiene must begin soon after eruption of the first milky tooth.
- By the first year of life, teach a child to drink from a cup.
- Reduced availability of sweets between meals.
- Take medication without sugar if possible.
- Dental hygiene:
  - 0-2 years
  - 2-5 years
- Examination twice a year.
Strategy of primary prevention of dental caries in children aged 0-5 years

Individual prevention for children at high risk of caries

- application of fluoride varnish with an interval of 3-6 months
- F tablets
- application of chlorhexidine is not recommended
- recall shall not exceed 12 months
- checks 4 times a year
# Protocol to determine the risk of tooth decay for 5 - 16 year olds

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Clinical Findings</th>
<th>Dietary Habits</th>
<th>Fluoride</th>
<th>Oral Hygiene</th>
<th>Overall Health Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Risk</strong></td>
<td>new caries in past 24 months, premature tooth loss, fillings in anterior segment, multiple fillings, not sealed teeth, fixed orthodontic appliance, space maintainers, dental caries in siblings, low dental awareness</td>
<td>frequent sugare intake</td>
<td>non F water, no F supplements, toothpastes without F</td>
<td>irregular insufficient</td>
<td>systemic disease, xerostomia, long term usage of cariogenic medications</td>
</tr>
<tr>
<td><strong>Medium Risk</strong></td>
<td>individuals between high and low risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low Risk</strong></td>
<td>no new lesions in 24 months, fissure sealants without orthodontic anomalies, no extractions due to caries, interested in prevention</td>
<td>irregular sugar intake</td>
<td>F toothpastes F supplements</td>
<td>sufficient</td>
<td>no systemic disease, no cariogenic medications</td>
</tr>
</tbody>
</table>
Strategy of primary prevention of dental caries in children aged 5-15 years

- usage of F toothpaste 2x daily
- small amount of toothpaste to 7 of age
- cleaning teeth under the supervision of an adult at least until 9 of age
- after brushing it is recommended to spit toothpaste and rinsing the mouth
- limited intake of sweets and snacks
- chewing gum with xylitol
- preferably foods and drinks with sugar substitute
Individual prevention for children at high risk of caries from 5 to 15 years

- sealing pits and fissures
- application of fluoride varnish with an interval of 3-6 months
- application of chlorhexidine is recommended as an alternative in the prevention of dental caries
- F tablets
- recall shall not exceed 12 months
Strategy in the use of fluoride solutions for the non F regions

**Children 1-7 years**
- not recommended for the possibility of ingestion

**Children 7 - 16 years**
- weekly rinses with 0.2% NaF
- number of washes per year at least 30
- rinsing time 2 min.
- 20 to 30 min. after do not eat, drink
Strategy in the use of topical fluoride preparations for fluoridated and non F areas

Children 1-7 years
- F varnish (22,600 ppm) for children with high risk
- application in three to six month intervals
- the possibility of using even in very young children
- F gels - not recommended for children until 7 of age

Children 7 to 16 years
- F varnish (22,600 ppm) for children with high risk
- application in three to six month intervals
- F gels application at 6 month intervals