

## ANALYSIS OF MEDICO-ECONOMIC EFFICIENCY OF DENTAL CARE PROVIDED BY HEALTH INSURANCE PROGRAM

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### *The aim*

of this work is to study the feasibility of measures to reduce economic losses in pediatric dentistry and to evaluate the effectiveness of various options for prevention of dental diseases.

In this study we used the method of clinical-economic analysis.

Analyzing the problem of a high level of dental morbidity in children, we can single out the following factors:

- a low level of primary prevention and low availability of secondary prevention of dental diseases;
- ageing of dental equipment in healthcare facilities,
- a low level of personal responsibility for oral cavity hygiene among children and parents.

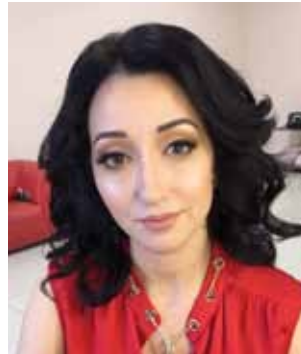
The practical implementation of the primary prevention of dental diseases of the population is possible as the development of population, group and individual prevention and implies individual responsibility for hygienic condition of the oral cavity, systemic and local use of sodium fluoride, limiting the intake of sucrose, systematic oral hygiene from an early age.

The main role of the dentist is to train medical and non-medical personnel in methods of prevention, monitoring the effectiveness of interventions.

Professional primary prevention of dental diseases involves such procedures as the removal of dental deposits, sealing fissures on the tooth surface with a material of light rejection, covering the teeth with varnish containing fluoride, monitoring the quality of individual hygiene and diagnosing the early stages of dental and periodontal diseases.

Secondary prevention of dental diseases, especially in children, is carried out by dentists as part of systematic planned treatment of dental caries and periodontal diseases at all stages of the disease.

Summarizing the results of the proposed work on prevention in general, based on the results of the



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study, a set of measures to reduce economic losses of a regional pediatric clinical dental center was scientifically analysed.

We also worked out a course of professional prevention of dental diseases enabling to increase the profitability of the pediatric dental center and comprises the following aspects:

- diagnosis of the disease;
- professional hygiene of the oral cavity;
- sealing the fissures of the chewing group of teeth;
- coating 20 teeth with varnish containing fluoride.

Such courses of professional prevention with mild caries should be carried out at least twice a year, and with pronounced dental caries — at least five times a year.

- The planned results of this approach can be:
- prevention and treatment of dental diseases in accordance with modern technologies

- reduction of the intensity of tooth lesions in children covered by the program activities;
- raising awareness of prevention and treatment of dental diseases in parents, children and health professionals;
- motivation in children to prevent dental diseases

To increase the profitability of pediatric dentistry, we propose to carry out a preventive program for the promotion of healthy nutrition (the use of fluorinated milk) and information on the use of various tooth-pastes, including fluoride-containing.

The studies included an assessment of the caries intensity based on the CPR index determined before and after the use of fluorinated milk in two age groups of children: 6 years (380 children in total) and 12 years (403 children in total).

Dental examinations of children were performed with the involvement of specialists from the Astrakhan regional pediatric dental center. The examinations were organized according to a uniform methodology based on WHO recommendations. Dynamic observations of the preventive and control group of children aged 6 years found that the increase in the index of CPR in the preventive group for temporary teeth was 0.17, constant 0.03, while in the control — 0.64 and 0.05, respectively.

Thus, the effectiveness of the use of fluorinated milk in the nutrition of preschool children is evident, especially in terms of CPR for primary teeth. As for the fact that the increase in the intensity of caries on permanent teeth is not very different in children of preventive and control groups, this is due to the fact that the physiological process of changing primary teeth to permanent teeth at this age is only completed, and caries on them have not yet had time to appear. The results of the determination of the index CPR before and after the experiment in the age group of 12 years are shown in Table. 1.

Analysis of the data shows that both in preventive and control groups caries-intensity rates in permanent teeth have increased. CPR index in the preventive group changed from  $3.85 \pm 0.39$  to  $4.08 \pm 0.22$ ; in the control group, without intake of fluorinated milk, from  $3.97 \pm 0.42$  to  $5.42 \pm 0.30$ . Our attention was drawn to the most evident differences in the indicators of preventive and control groups in the number of teeth sealed ( $1.05 \pm 0.05$  and  $2.16 \pm 0.25$ , respectively).

At the same time, the increase in caries in the preventive group, characterized by the index of CPR, is much lower (0.23 against 1.45 in the control), which can confirm the effectiveness of our preventive program performed in the pediatric dental center.

**Table 1.** The intensity of permanent dental caries in children of preventive and control groups

Indicator	Preventive group	Control group
The initial examination of children under the age of 12		
C (cariou tooth)	$2.7 \pm 0.28$	$2.68 \pm 0.31$
P (pulped tooth)	$1.00 \pm 0.25$	$1.25 \pm 0.15$
R (removed tooth)	$0.08 \pm 0.01$	$0.04 \pm 0.01$
CPR	$3.85 \pm 0.39$	$3.97 \pm 0.42$
Re-inspection after the preventive measures		
C (cariou tooth)	$2.94 \pm 0.17$	$3.08 \pm 0.18$
P (pulped tooth)	$1.05 \pm 0.12$	$2.16 \pm 0.25$
R (removed tooth)	$0.09 \pm 0.02$	$0.18 \pm 0.01$
CPR	$4.08 \pm 0.22$	$5.42 \pm 0.30$
Growth		
C (cariou tooth)	0.17	0.40
P (pulped tooth)	0.05	0.91
R (removed tooth)	0.01	0.14
CPR	0.23	1.45

The performed researches enable to develop and introduce methods to influence the causes of dental diseases. This will lead to reduction of workload on orthodontists and improvement in profitability of the pediatric dentistry alongside with increasing the rate of cured teeth. The developed approach offers a balanced diet for calcium and fluoride, the use of fluoride-containing toothpastes, combined with regular information and educational work among children and parents. Besides, we have offered improvement in organizing and carrying out preventive dental checks with a planned preventive sanitation of the oral cavity. Thus, the feasibility and accessibility of the proposed methods of practical dental care, predominantly by means of healthy nutrition and rational oral hygiene are shown.

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