

ECONOMIC EVALUATION OF DENTAL CARE PREVENTION PROGRAMS: COST-EFFICIENCY ANALYSIS

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Abstract: Few economic studies on the costs of health programs have been published to date, most providing information that cannot allow valid comparisons of the cost-effectiveness of various dental restorative materials. **Material and method:** The study group was represented by 92 children aged 6-16 years. We calculated the cost-effectiveness ratio for two preventive programme: sealings and fluoridation. **Results and discussions:** The total cost of a sealing for the children studied was RON 4.697,4854. The total cost of fluoridation in the children studied was RON 1,575.1398. Total sealing time was 53 hours and total fluoridation time was 39 hours. **Conclusion:** Economic evaluation is a component rarely used in the assessment of oral public health. The impact of the health economy is felt not only from an economic point of view, but also from a medical point of view.

The health economy is a sector of the economy that evaluates the efficiency, effectiveness, cost and behavior in the production and consumption of medical services. In general terms, health economists study the functioning of the healthcare system and vicious behaviors on individual health (2, 15).

The economic analysis of health programs in general investigates the issue of health economics as an applicative subcategory of economics, starting from the exploration of four major areas: health and its relationship with welfare (with interdisciplinary studies by economists, epidemiologists, psychologists, sociologists, anthropologists), determinants

of health (genetic and environmental, human capital, with the study of the interaction between the function of health production and health demand), the demand for health services (demand derived from health demand, analysis of the tensions between "need" and "demand"), supply of health services (hospitals, labor market, institutional relations, industry regulations) (4, 12).

In recent years, economic analysts have paid special attention to the clearer definition of the social determinants of health and the intervention on them, focusing on : improving living conditions (in which people are born, grow, work and age), solving inequitable distribution of

power, finance and resources (global, national and regional), implementation of public policies - analysis of problems, evaluation of actions, development of the expertise base, training of specialists in the field of social determinants of health and raising public awareness of these dimensions (2, 3, 7).

The limitation of economic resources and the increase in the costs of health care have determined the need to calculate health expenditures so that the balance between expenditure and efficiency is optimal.

When working under limited budgetary conditions, it is important to determine which intervention (or combination of interventions) maximizes oral health outcomes based on available resources. Comparable information on cost-effectiveness is important to allow an objective assessment of the relative return on investment in various dental caries prevention treatments (8, 18, 24).

Given the public resources allocated to oral health care, the economic assessments that generate these findings should highlight that preventive dental interventions at the community level can improve the oral health of the population and be a viable economic area for investment.

Although there are various methods of prevention, dental caries continues to be the most common oral condition in childhood (25). About half of the children between the ages of five and six have caries, and the percentage is rising to over 90% in some low- and middle -income countries; this indicates that this condition is a public health crisis. Poor oral health or untreated dental caries affect the normal diet and have a negative impact on self-esteem, speech, socialization, school attendance and quality

of life, which can lead to general deterioration in health (6, 22).

Timely intervention has the potential to reduce the overhead costs associated with dental treatment, as untreated dental caries increases in severity, requiring more extensive and expensive treatment. However, global oral health problems continue to be among the most costly health problems, leading to high direct and indirect costs for individuals, families and governments.

According to 2015 data, the overall value of dental treatment for one year amounted to \$ 442 billion, including both direct and indirect costs of treatment due to absenteeism from school and work (21, 22).

In Romania, prevention does not attract too much attention, although it is known that the benefits would be great if more were invested in this component. The system is focused on "treating" and not on "preventing", which has major effects on the health of the population. Health prevention campaigns exist only in an exceedingly small number, unfortunately the allocation of 4% of the gross domestic product for health does not offer many perspectives in this respect, the funding being allocated mainly for curative purposes. The field of oral health is no exception to this rule for the allocation of public funding to health (9).

On the other hand, the lack of prevention programs in the field of oral health, the reduced allocation of GDP and the low involvement of dentists prevention and in the clear explanation of all aspects of hygiene to their own patients, corroborated with the lack of school dentists, lead to weak health education and, implicitly, the transfer of these tasks to the family (13).

Despite the need for more economic assessments, there is truly little information available in dental practice on the cost-effectiveness of various materials and dental restoration treatments. Few economic studies on the costs of health programs have been published to date, most providing information that cannot allow valid comparisons of the cost-effectiveness of various dental restorative materials.

For this reason, the general purpose of this retrospective study was to evaluate caries prevention measures from an economic perspective.

MATERIAL AND METHOD

The study group was represented by 92 children aged 6-16 years, selected from private practice (from rural areas) who were grouped according to sex, age and background. The children were chosen to include families with different socio-economic statuses. The data was collected from the existing observation sheets in the dental office. 53 children were selected for performing sealings, and for the remaining 39, local fluoridation was performed as a preventive treatment. The study took place between 2016-2018.

For *fluoridation*, the product used was CK Fluor Defender Mini varnish containing 0.1% Fluor silane, HEMA, enamel

protective fluoride varnish for children with the price of RON 46.83.

The presentation is in the form of three ampoules of 1 ml each and a set of applicator brushes. One ampoule of product is indicated for 2-3 patients with complete dentition, the applicator being used only once; does not require light curing.

The materials used to carry out the *sealing process* were acid etch and pits and fissures sealant, with the following characteristics:

✓ Acid etch Meta, 3-gram syringe, containing demineralizing acid with 36% phosphoric acid. Price: 16 RON

✓ Embrace Wet Bond dimmer sealant, 1.2 ml syringe, self-adhesive resin sealant for pits and fissures with optimal results even on wet dental surfaces. Based on the "wet-bonding" technology, it ensures perfect marginal sealing and encompasses fewer clinical steps, less time lost and more money saved. Embrace resins integrate at the level of the dental structure in a unique way, resulting in an exceptionally low contact angle, much better adapted to the dental anatomy. Embrace has successfully passed tests for micro infiltration and marginal sealing, without being used in combination with primers or bonding agents. **Price: 85 RON**

Table I presents other consumables used to perform a correct operation:

Table I. Consumable materials used.

MATERIAL	AMOUNT	PRICE
Cleanic 2 grams / dose	10 pieces / set	19.86 RON
Larident brush professional nylon brush	1 piece	2.7 RON
Sterile non-woven compresses 5/5	100 pieces / pack	8.58 RON
Poka disposable white plastic cups	100 pieces / set	13.68 RON
DM Liliac saliva ejectors	100 pieces / bag	10.27 RON

DM cotton balls no. 2, 3 grams / box	100 Pieces/ box	11.29 RON
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For the economic evaluation, all the direct and indirect resources that contribute to the realization of a correct dental treatment are considered. Thus, directly involved in the treatment in the private dental clinic are the dentist and the nurse, they represent the "direct distributors of dental care".

Other activities not related to healthcare (cleaning, washing, disinfection and sterilization of instruments) are quantified separately. Other resources used are added, respectively: labor force (other workers: cleaning staff, accountant); capital (rent of buildings and equipment); materials and consumables; services (telephone, post office, staff education).

The starting point of the economic evaluation was the analysis of the medical practice in the dental office, the emphasis being on resources (costs) used for the prevention of dental caries. The most important part of the work schedule (65%) was dedicated to adults, while only 35% of the clinic time was spent with children and adolescents.

The study placed special emphasis on the following aspects: the distribution of time spent in various activities in the clinic and costs based on the treatment time allocated to prevent the occurrence of dental caries in children and adolescents. When investigating the distribution of treatment time spent in different activities, all the services provided at the clinic were taken into account. To determine it, the average was made for 1 week, and the value was set as a landmark mark for the investigated year. Service time (e.g: time available for

dental service) was calculated based on information collected from the physician.

The cost analysis assumed that the provision of dental services in a clinic is designed to provide a range of services aimed at promoting oral health through preventive measures. The total time allocated to prevention was calculated using notes on prophylactic treatments from the patient's records, as well as time used for treatment.

We calculated the cost-effectiveness ratio using the formula:

$$\frac{[(\text{Costs } (C1 + C2) \text{ sealing program}) - (\text{Costs } (C1 + C2) \text{ fluoridation program})] - \text{Costs necessary for the treatment of dental caries } (S1 + S2)}{(\text{E sealing program} - \text{E fluoridation program})}$$

where C1 = total cost of the programs,
C2 = patient and family costs and

Costs saved by avoiding the occurrence of tooth decay where

S1 = cost of dental caries treatment,

S2 = costs incurred by patients / family

Effects where E = final effects or measures assessed by saved costs for caries treatment.

RESULTS AND DISCUSSIONS

The results obtained after the clinical examination allowed the application of preventive treatments, sealing or fluoridation. The cost of these treatments was initially calculated on one tooth and then the result obtained was multiplied by the number of sealed or fluoridated teeth.

In the case of a professional sealing / molar, we used quantities of the materials presented above corresponding to the sealing surface, we calculated their costs

and we arrived at a final result much lower than the initial price. The obtained costs were calculated on one tooth, but the sealing is performed on the lateral teeth, and / or the front surcingle one. The data collected from the patient records indicate that all molars have been sealed, so the result obtained will be multiplied by 8.

✓ *Meta etching acid*, 3-gram syringe, containing demineralizing acid with 36% phosphoric acid. Price: 16 RON

For a single tooth sealing we will apply a quantity of 0.05 grams of Meta etching acid, **the final price being 0.26 RON.**

3 grams / syringe... ..16 RON / syringe

0.05 grams (1 application)... ..X RON
 $X = (0.05 \text{ grams} \times 16 \text{ RON}) / 3 \text{ grams} \Rightarrow X = 0.26 \text{ RON} \times 8 = \mathbf{2.08 \text{ RON}}$

✓ *Embrace WetBond dimmer sealant*, 1.2 ml syringe, self-adhesive resin sealant for pits and fissures with optimal results even on wet dental surfaces (no adhesive / primer / bonding required). Price: 85 RON

For a single tooth sealing we will apply a quantity of 0.12 grams of Embrace WetBond dimmer sealant, **the final price being 68 RON.**

1.2 ml / syringe 85 RON / syringe
 0.12 ml (1 application) X RON
 $X = (0.12 \text{ ml} \times 85 \text{ RON}) / 1.2 \text{ ml} \Rightarrow X = 8.5 \text{ RON} \times 8 = 68 \text{ RON}$

✓ *Cleanic 2 grams / dose-10 pieces / set*, universal prophylactic paste with differentiated polishing system, through which efficient cleaning is performed in the first phase, followed by high quality polishing. Price: 19.86 RON

For a sealing we will apply a 2 gram capsule Cleanic universal prophylactic paste, **the final price being 1.986 RON.**

10 pieces / set 19.86 RON

1 piece X RON

$X = (1 \text{ piece} \times \text{RON } 19.86) / 10 \text{ pieces} \Rightarrow X = \text{RON } 1,986$

✓ *Larident*, professional nylon brushing brush, 1 piece. **Price: 2.7 RON**

For a sealing we will use a single Larident professional brush with the price of 2.7 RON.

✓ *Sterile compresses*, non-woven material 5/5, 100 pieces / blister. Price: 8.58 RON

For a sealing we will use 6 sterile non-woven compresses, with **a final price of 0.5148 RON.**

Price 1 sterile compresses = 0.0858 RON

Price 6 sterile compresses = 0.0858 RON x 6 pieces \Rightarrow Price 6 sterile compresses = 0.5148 RON

✓ *Poka Disposable white plastic cups*, 100 pieces / set. Price: 13.68 RON

For a sealing, a single plastic cup with the **final price of 0.1388 RON is used.**

Price 1 disposable white plastic cup = 0.1388 RON

✓ *DM Liliac saliva ejectors* 100 pieces / bag. Price: 10.27 RON

Price 1 Liliac saliva ejector = 0.1027 RON

For a sealing, a single Liliac ejector is used with a **final price of 0.1027 RON.**

✓ *DM Cotton balls no. 2, 3 grams / box*, 100 bullets. Price: 11.29 RON

Price 1 cotton ball no. 2 = 0.1129 RON

For a sealing, 10 cotton ball no. 2 is used with the price of **RON 1,129.**

The gross salary of a nurse who works 8 hours / day, 160 hours / month in a dental office is 2250 RON. In case of a professional brushing and sealing, he / she allocates 60 minutes of the activity time, so

the cost he / she collects is **RON 2,3437** and results from the following calculations:

2250 RON / 160 hours = 14.0625
RON / hour

(RON 14.0625 / 60 minutes) x 60
minutes = **RON 14,0625**

The total cost of sealing per 1 child is **88,6318 RON. The total cost of a sealing for the children studied was RON 4.697,4854.**

Regarding the second method of prevention, namely *professional fluoridation*, 1 ampoule of fluoride-based product is used in 2 patients. For fluoridation in a single patient, a quantity of 0.5 ml is used, reaching a **final price of RON 23,415.**

1 ml / syringe 46.83 RON / syringe

0.5 ml (1 application) X RON

$X = (0.5 \text{ ml} \times 46.83 \text{ RON}) / 1\text{ml} \Rightarrow X = \mathbf{23.415 \text{ RON}}$

✓ *Cleanic 2 grams / dose-10 pieces / set*, universal prophylactic paste with differentiated polishing system, through which efficient cleaning is performed in the first phase, followed by high quality polishing. Price: 19.86 RON

For fluoridation in a single patient we will apply a capsule of 2 grams Cleanic universal prophylactic paste, **the final price being 1,986 RON.**

10 pieces / set 19.86 RON

1 piece X RON

$x = (1 \text{ piece} \times \text{RON } 19.86) / 10 \text{ pieces}$
 $\Rightarrow X = \mathbf{RON 1,986}$

✓ *Larident*, professional nylon brushing brush, 1 piece. **Price: 2.7 RON**

For fluoridation in a single patient we will use a single Larident professional brush with the price of **2.7 RON**.

✓ *Sterile compresses*, non-woven material 5/5, 100 pieces / blister. Price: 8.58 RON

For fluoridation in a single patient we will use 6 sterile nonwoven compresses, with the **final price 1,5444 RON**.

Price 1 sterile compresses = 0.0858
RON

Price 3 sterile compresses = 0.0858
RON x 3 pieces \Rightarrow Price 6 sterile
compresses = **1.5444 RON**

✓ *Poka Disposable white plastic cups*, 100 pieces / set. Price: 13.68 RON

For fluoridation in a single patient, a single plastic cup with a **final price of 0.1388 RON is used.**

Price 1 disposable white plastic cup =
0.1388 RON

✓ *DM Liliac saliva ejectors* 100 pieces / bag. Price: 10.27 RON

Price 1 Liliac saliva ejector = 0.1027
RON

For fluoridation in a single patient, a single Liliac saliva ejector with the **final price is used 0.1027 RON**.

✓ **DM Cotton balls no. 2**, 3 grams / box, 100 bullets. Price: 11.29 RON

Price 1 cotton ball no. 2 = 0.1129
RON

For fluoridation in a single patient, 10 cotton balls no. 2 are used with the price of **RON 1,129.**

The gross salary of a nurse who works 8 hours / day, 160 hours / month in a dental office is 2250 RON. In case of a professional brushing and a professional fluoridation, he / she allocates 90 minutes of the activity time, so the cost he / she collects is **RON 2,3437** and results from the following calculations:

2250 RON / 160 hours = 14.0625
RON / hour

(RON 14.0625 / 60 minutes) x 90 minutes = **RON 9.375**

The total cost of fluoridation for 1 child is 40.3882 RON. **The total cost of fluoridation** in the children studied was **RON 1,575.1398**.

In addition to the cost of materials used and the salary of the nurse, both in the case of sealing and in the case of fluoridation, are added the costs of water and electricity consumption, as well as the doctor's salary.

The hourly cost for the prevention dental service was **68.18**.

Total sealing cost + Total fluoridation cost = RON 4,697.4854 + RON 1,575,1398 = RON 6272.6252 / 92 hours = RON 68.18 / hour

If on-demand prevention methods were applied, the price at the office would be completely different. For the same material used, the cost of a sealing would be on average 80 RON / tooth sealed. So

The types of costs related to the two programs are presented in Table II.

sealing a child would be about 320 RON. So, the total cost of sealing would be 16,960 RON, of which the patient / family bears 25%. So, from the final cost the patient would pay 4240 RON, and the office would bear the difference through the funds settled by CNAS.

In the case of the fluoridation program, the cost of a fluoridation / arch would be 75 RON, so 150 RON / patient. The total cost of fluoridation would be about 5850 RON, of which the patient would bear 25%, respectively, 1462.5 RON. The difference will be borne by the dental office.

The hourly cost for the prevention dental service was 42.39 RON.

Total sealing cost + Total fluoridation cost = 16960 RON + 5850 RON = 22810 RON / 92 hours = 99.173 RON / hour. It is noted that the cost of medical service for the same period of time is much higher than if a prevention program was applied.

Table II. Types of costs

TYPES OF COSTS	DEFINITION	EXAMPLES	SEALING	fluoridation
DIRECT	Cost attributed to the dental service in full	Purchase of materials	RON 7116.96	RON 6575.26
INDIRECT	Costs attributed to several dental services	Rent of the building, repairs, utilities	6590 RON	6590 RON
AVERAGE	Cost / treatment / patient	Cost / patient in a screening program for diagnosis a disease	88.6318 RON	40,3882 RON

In order to determine the cost-effectiveness ratio in the case of the 2 prevention programs, we must determine

their effects (whether other dental caries appear) by determining the DMFT index. Thus, the children were re-evaluated every

6 months, when they came at the dental office either to check the integrity of the sealant or for periodic checks. Table III shows the average DMF indicator for children whose molars have been sealed. Out of the total of the 53 children to whom the sealing method was applied, only 8 new

cases of caries appeared, the average DMFT index being 0.14. Given that the filling for an average cavity is 120 RON, the final costs would have been 960, of which at least 25% would have been borne by the patient (240 RON).

Table III. Variation of the CAD indicator in the group with children for which the sealing method was used

Sealing	DMFT average	Average-95%	95%	Dev.std	Er.std
Initial	0.67	0.61	0.56	1.92	0.05
> 6 months	0.14	0.21	0.10	1.48	0.02

Table IV shows variations in the DMFT index in the group of children who used fluoridation methods. When the children came at the office for checkup, it was discovered that 10 new cases of dental

caries appeared. The DMFT index has an average of 0.23. The costs related to the treatment of dental caries were 1200 RON, of which the patient paid only 300 RON.

Table IV. Variation of the DMFT index in the group with children in which the fluoridation method was used

LOT I (caod \geq 1)	Average DMFT	Average -95%	-95%	Dev.std
Initial	1.71	1.87	1.54	1.88
> 6 months	0.23	0.61	0.62	0.09

If we apply the formula for calculating the cost-effectiveness ratio:

[[Costs (C1 + C2) sealing program] - [Cost (C1 + C2) fluoridation program]] - costs necessary for the treatment of dental caries (S1 + S2) / (E sealing program - E fluoridation program) x 100

where C1 = total cost of the programs,
C2 = patient and family costs and

Costs saved by avoiding the occurrence of tooth decay where

S1 = cost of dental caries treatment,

S2 = costs incurred by patients / family

Effects where E = final effects or measures assessed by saved costs for caries treatment.

We get:

[Sealing program costs (12720 + 4240) - Fluoridation program costs (4387.5 + 1462.5)] - Caries treatment costs (11040) / Caries treatment costs saved (8,280) = 0.0845 x 100 = 8.4%

In conclusion, we can say that the sealing program, although it involves higher costs, is more efficient than the fluoridation program.

Regarding the distribution of time spent in various activities in the private practice, it was determined that approximately 24% of the total time was used for preventive treatments. About 39% was used for coronary restoration treatments and 24% for diagnosis. The remaining time (13%) was used for emergency treatments or administrative work; added time lost due to non-compliance with schedules.

A total time of 92 hours was allocated to preventive treatment for the 92 children and adolescents during the study year. It was calculated by adding the total time required for sealing in the 53 subjects with the time required for professional fluoridation in the 39 subjects.

Total sealing time = 60 minutes (required for sealing) x 53 = 3180 minutes = 53 hours

Total fluoridation time = 90 minutes (required for fluoridation) x 39 = 3510 minutes = 39 hours

The health status of the population is dependent on socio-economic factors, health being an essential component in the multidimensional approach to human capital meant to contribute to the reduction of poverty and social exclusion. Access to oral health services as well as inadequate oral hygiene are some of the main causes of oral health problems among the population at risk of poverty and social exclusion (7, 8, 11, 12, 20).

In terms of oral health, the concept of "two Romania" emerges, meaning "one Romania" of those with a higher level of education and income, and the Romania of those in poverty, with very limited or non-existent resources, they do not have access to the health infrastructure or to the correct

and comprehensible information related to oral hygiene (11).

In the literature there are studies on the effectiveness of sealing materials, but there are few results on the economic aspects of health programs. The financial impact of oral conditions is the easiest to quantify in terms of direct costs / patient (1, 4, 10).

The economic evaluation of prevention programs in dentistry is still in the development stages. Although this sector of public dental health care may not yet be ready for the immediate implementation of an economic assessment, there is no reason not to start this process that would contribute to the further development of appropriate programs. There is little data in the literature on the costs of oral health programs, based largely on estimates of the costs of dental caries prevention treatments in different regions of the world (13, 15, 16, 17).

Dipayan Datta and collaborators elaborated in 2017 a synthesis of health economics results corresponding to the period they studied, highlighting the fact that the impact of health economics is felt not only economically, but also medically. He considers that oral health will not be improved by spending more and that an understanding of health economics is essential for the correct implementation of health economic policies (5).

Fraihat Nadine et al. included in their research in 2019 health economics studies from various countries: United Kingdom (6 = 31.6%), Australia (5 = 26%), United States (3 = 16%), Finland (1 = 5%), Japan (1 = 5%), Nigeria (n 1 = 5%), Singapore (1 = 5%) and Ireland (1 = 5%) (7).

Kowash's study provides strong evidence for reducing the costs of dental

caries by initiating preventative programs. The author considers that a health education program offers a much better cost-effectiveness ratio than any other preventive program (13).

So does Pukallus, who estimated that health education led to a saving of USD 108,406.92 in 2012 (21).

Guinonez tracked the costs of fluoridation by applying fluoride varnishes in 2006. In addition to the fact that the application of fluoride varnish reduces the frequency of cavities, the cost of treatment was \$ 181.66 in 2003 and \$ 170.73 the following year. Therefore, the cost of treatment decreased to USD 10.93 compared to 2003 (10).

Takeuchi's study in Japan of a group of 12-year-old children showed that sealing reduced the cost of medical services by \$ 2432.52 in 2006 (26).

Ran *et al.* in 2016 showed that the economic benefit of drinking fluoridated water at a community level exceeds the value of the cost of treatment and the value of the cost-benefit ratio increases with the size of the community population (22).

Leverett *et al.* have shown that, over a period of 60 months, sealings should be reapplied 5 times to prevent caries (13, 14).

While sealings would be much more cost-effective if they could only be performed on those teeth that are more likely to develop caries, there is no high-precision diagnostic predictor of caries in dentistry (19, 23).

Mitchell and Murray have shown that sealing is not economically feasible if it is applied on teeth that are unlikely to develop caries. He demonstrates that the selection of the teeth to be sealed is especially important, but also that the maximum benefits can be obtained if they are used

together with other preventive measures (16, 18).

In order to estimate the indirect costs, the World Health Organization's Macroeconomics and Health Committee has considered the values of gross domestic product per capita, values provided by the International Monetary Fund. Indirectly, the indirect costs of dental treatment have been estimated at around \$ 298 billion annually, representing an average of 4.6% of global health spending. Indirect costs due to preventive dental treatments worldwide was \$ 144 billion annually (27, 28).

The direct costs of global dental prevention treatments are estimated at \$ 297.67 billion; 82% of estimated expenditures (\$ 244.40 billion) were recorded in high-income countries (North America: \$ 120.08 billion; Western Europe: \$ 91.05 billion; Australia: \$ 7.03 billion; Latin: \$ 2.93). Latin America and the Caribbean accounted for \$ 14.06 billion (tropical Latin America: \$ 6.92 billion; Central Latin America: \$ 5.79 billion; Caribbean: \$ 0.59 billion). \$ 12.84 billion was recorded in South Asia, Eastern Europe: \$ 6.12 billion, Central Europe \$ 2.75 billion and Central Asia (\$ 0.45 billion). North Africa and the Middle East contributed \$ 8.33 billion. The region comprising East Asia (\$ 5.02 billion), Southeast Asia (\$ 0.75 billion) and Oceania (\$ 0.02 billion) accounted for \$ 5.79 billion. Eastern Europe (\$ 6.12 billion), Central Europe (\$ 2.75 billion) and Central Asia (\$ 0.45 billion) contributed \$ 9.32 billion (27, 28).

However, economic assessment is an underused component of oral public health assessment. If, as health professionals, we are to make efficient use of financial resources in health, we must be prepared to

apply the basic principles of economic evaluation (6, 24).

Prevention / education activities will play a key role in ensuring proper oral health of the population and will have to address issues such as oral hygiene, access to services and the effects of adopting undesirable behaviors (smoking, poor nutrition, alcohol consumption, etc.) on the oral cavity. They must be carried out regularly and from an early age to ensure the adoption of desirable behaviors among the population.

CONCLUSIONS

Economic evaluation is a component rarely used in the assessment of oral public health. The impact of the health economy is felt not only from an economic point of view, but also from a medical point of view. As the health of the population will not improve only by spending more money, understanding the health economy is essential for the correct implementation of economic policies for health. If we consider the economic impact of the treatment of

dental caries on medical systems, then more information would be needed to properly manage the allocation of financial resources for prevention, which, however, are quite limited.

Moreover, dentists seem to prefer the restorative approach. In order to apply preventive measures, it is necessary to overcome many obstacles depending on the doctor, the patient and the costs. As health professionals, it is necessary for doctors to choose the best method that provides benefits to the population, but also to consider the basic principles of economic evaluation. This, in turn, will provide important information that will be accessible to the general public, decision makers, researchers, practitioners and even community leaders. Improving prevention methods is not just about increasing their effectiveness. The cost of resources used and the value and importance of the prevention method applied are basic elements in the success of any treatment.

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