

Preventive oral health services in dental practices of Hungary

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Summary:

Objectives. To examine the frequency of oral health screening examinations on children and adults in the years 2000-2002, to assess correlations with the population/dentist ratio, and to determine possible correlations with oral disease data according to different regions in Hungary.

Data collection and methods. Data of screening examinations of dentists -working with the National Health Insurance Fund Administration, with data contained in its financial database - were evaluated, concentrated on caries -, and oro-pharyngeal cancer epidemiologic data. The cancer mortality data were defined according to ICD codes C00-C14, deriving from the statistical database of the Hungarian Central Office for Statistics.

Results. Children under 18 year of age participated in less than 50 % at the screening examinations. The participation of adults at the – for dentists compulsory, for the population voluntary – screening examinations was extremely low, not reaching 10%.

Conclusion. High DMFT values in Hungary, and the leading in oro-pharyngeal cancer mortality among 46 countries might be due to the poor performance of systematic primary and secondary prevention, to social background conditions, as well as to the lack of oral health consciousness of the population.

Key words: preventive dentistry, community health services, community health planning, oral cancer, oral screening.

Introduction

Oral health of a country is characterised by accepted indicators of the corresponding diseases, which also define the need of preventive interventions.

Hungary, lying on the borderline of Central and Eastern Europe, with a population of about ten millions, gained in the last years a regrettably sad popularity for its outstanding values in the prevalence of oral and dental diseases.

Oral cavity cancer shows a dramatically high mortality and incidence in Hungary. Among 46 countries worldwide Hungary

ranked as first both in men and women (Landis et al.1998)[13].

More recent statistics (Ferlay et al., 2000) [5], including also the hitherto not registered Eastern-European countries still rank Hungary on the first place among 38 European countries (Tables 1 and 2). Mortality and incidence of oral cavity cancer (C00-C14 sites) exceed not only the European mean, showing a decreasing tendency in the last years, but also the significantly increasing values of the Eastern European countries (Eckhardt, 1999; Döbrössy, 2002) [3,4]. A more than five-fold

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increase in the prevalence of oral cancer from the 1960-s has been reported for Hungary, which is due mainly to the increase of tongue cancer in men (Dombi et al., 2001) [2].

Concerning other dental diseases, caries prevalence is also extremely high in Hungary. Based on reports (Marthaler et al.,

1996) [12] from 27 European countries, DMFT (the number of decayed, missing or filled permanent teeth per person) mean values of 12 years old are on the – nearly worst – 24th place. Latest surveys found 73 % of 5-6 year olds and 84.5 % of 12 years old affected by dental caries, the mean DMFT at age

Table 1. Mortality of oral cavity cancer (140-146 ICD-9), ASR (World) / 100.000 people, both sexes, all ages, first 10 of 38 European countries (Ferlay et al., 2000)[5]

Male			Female		
Rank	Country	ASR	Rank	Country	ASR
1.	Hungary	10.3	1.	Hungary	1.4
2.	Slovakia	8.9	2.	Denmark	1.0
3.	Croatia	6.9	3.	Finland	0.9
4.	Moldova	6.0	4.	Slovakia	0.8
5.	Ukraine	5.3	5.	Estonia	0.8
6.	Estonia	5.3	6.	Norway	0.8
7.	Russian Federation	5.0	7-17.	Poland	0.7
8.	Belarus	4.7		Rumania	
9.	Latvia	4.6		Russian Federation	
10.	Lithuania	4.5		Lithuania	
				United Kingdom	
				Slovenia	
				Austria	
				Belgium	
				France	
	European mean value	3.2		European mean value	0.7

*order of rank within site and sex group

Table 2. Incidence of oral cavity cancer (140-146 ICD-9), ASR (World)/ 100.000 people, both sexes, all ages, first 10 of 38 European countries (Ferlay et al., 2000)[5]

Male			Female		
Rank	Country	ASR	Rank	Country	ASR
1.	Hungary	16.6	1.	Hungary	5.3
2.	Croatia	15.4	2.	Luxembourg	4.5
3.	France	14.9	3.	Belgium	3.7
4.	Slovakia	14.1	4.	Iceland	3.4
5.	Spain	13.8	5.	Germany	3.3
6.	Germany	13.2	6.	Denmark	3.2
7.	Bosnia-Herzegovina	11.0	7.	The Netherlands	3.1
8.	Portugal	11.0	8.	Croatia	3.0
9.	Belgium	10.8	9.	Sweden	2.7
10.	Albania	10.8	10.	Austria	2.7
	European mean value	8.6		European mean value	2.2

*order of rank within site and sex group

5-6 being 4.5, and the mean DMFT at 12 years 3.8 (Szöke and Petersen, 2000) [15].

Due to the above dramatic epidemiologic situation early diagnosis of oral diseases became utmost important, and a policy of supporting screening examinations has been introduced by the government health system. In the Hungarian outpatient care a fee for service financing system is used. The dental/medical procedures are listed according to the ICPM (International Classification of Procedures in Medicine) code system of the WHO (World Health Organization). Each procedure has a point value. Thus, the National Health Insurance Fund Administration (NHIFA) at present has the following possibilities for performing and financing (through a point/score system) oral health promotion activities:

- oral hygiene motivation and information (0 – 20 points)
- pregnancy consultation and oral examinations (200 points)
- screening examinations of children under 18 years of age (120 points)
- screening examinations on adults, above 18 years (120 points)

The aim of the present study was:

1. to examine the prevalence and frequency of screening examinations on children and adults in the years 2000 and 2002, based on reports of dentists sent to the NHIFA,

2. to assess connections between the ratio of screening examinations and population and dentist ratios,

3. to establish possible correlations between the ratio of reported screening examinations and oral disease data according to the different regions in Hungary.

Data and methods

The mortality data derive from the statistical database of the Hungarian Central Office for Statistics. The mortality data were defined according to the International Classification of Diseases (further referred to here as ICD) with the codes C00-C14. The

number of dentists are taken from the Dental Section of the Hungarian Medical Chamber's database. The data of screening examinations and the number of dentists with health insurance financing derive from the financial database of the National Health Insurance Fund Administration. Data of screening examinations – performed by dentists in contract with the NHIFA within basic oral health care – were evaluated. Data of examinations of only privately working dentists were not available. Thus, by these routinely collected data for financial purposes – when considering the whole country – some bias might occur.

The data were evaluated for the whole country, as well as for the seven regions, into which Hungary has been recently divided according to the EU criteria (*Figure 1*).

Results

1. The frequency of oral health screening examinations of children and young adults under **18 years of age** is rather low, although an increasing tendency might be observed (*Table 3*). Mean values in 2000 were 40.2 %, in 2001 44.5 %, and in 2002 46.7 %. The lowest values of Central Hungary and the Western Transdanubian Region in 2000 show within two years a considerable improvement.

Table 3. Percent of population under the age 18 who had an oral screening examination in primary dental care (2000-2002, regional values)

Region	2000 (%)	2001 (%)	2002 (%)
Southern Transdanubia	51.3	54.3	58.9
Southern Greatplain	44.1	46.3	47.3
Northern Hungary	41.9	43.9	43.1
Central Transdanubia	39.4	42.7	44.6
Western Transdanubia	37.1	44.6	51.7
Northern Greatplain	39	42.2	44.3
Central Hungary	35.1	39.7	43.9
Average	40.2	44.5	46.7

The appearance of adults, above **18 years of age**, at the preventive screening examinations showed an extremely low mean frequency of 5.7 % in 2000, 6.2 % in 2001, and 7.7 % in 2002 (Table 4). In spite of some increasing trend, the values were and remained the lowest in Central Hungary and the Western Transdanubian Region.

Table 4. Percent of population over the age 18 who had an oral screening examination in primary dental care (2000-2002, regional values)

Region	2000	2001	2002
Southern Transdanubia	6.3	7.2	8.7
Southern Greatplain	4.7	5.1	7.1
Northern Hungary	6.7	6.9	8.5
Central Transdanubia	5	5.7	7.2
Western Transdanubia	4.1	4.6	6
Northern Greatplain	8	8	9.8
Central Hungary	4.5	4.9	6.4
Average	5.7	6.2	7.7

2. Considering the mean and regional distribution of the **dentist/population ratio**, the mean number of all practising dentists (private and NHIFA financed) is **5.6/10.000** inhabitants, with the highest ratio in Central Hungary (8.9/10.000) and Western Transdanubian

Region (6.9/10.000). However, the ratio of NHIFA contracted dentists to all dentists is only 39.5 % and 40.1 % respectively in these regions (Table 5). The country mean of NHIFA dentists / all dentists is 54.5 %.

The mean number of screening examinations/NHIFA dentist/year is found, accordingly, the lowest in the above two regions, lower than the country mean (477 examinations/dentist/year) (Table 5).

3. **The mortality of oral cavity cancer** in the seven regions of Hungary is shown on Figs 1 and 2 for males and females respectively. Large within country differences among the regions are striking both in males and females. In five regions out of seven the mortality of males and females show different pattern: higher male mortality is accompanied by lower female mortality. The mortality of males is highest in Northern Hungary, and that of females in Central Hungary.

Discussion

In the last decades in Hungary several attempts were initiated to introduce effective methods of primary and secondary prevention. However, changes in the situation of the country, and even more frequent changes in the view and budget of health leaders did not

Table 5. Characteristics of the Hungarian dental care (2001, regional values)

Region	total number of dentists per 10.000 population	number of NHIFA financed dentists per 10.000 population	ratio (%) of NHIFA financed dentists within all dentists	screening examinations per one dentist with NHIFA financial contract
Southern Transdanubia	4,3	3.1	71.7%	563
Southern Greatplain	4.7	3.0	64.8%	465
Northern Hungary	3.2	2.5	78.7%	614
Northern Greatplain	3.6	2.7	75.7%	601
Western Transdanubia	6.9	2.8	40.1%	470
Central Transdanubia	3.4	2.4	70.9%	582
Central Hungary	8.9	3.5	39.5 %	334
Average	5.6	3.0	54.5%	477

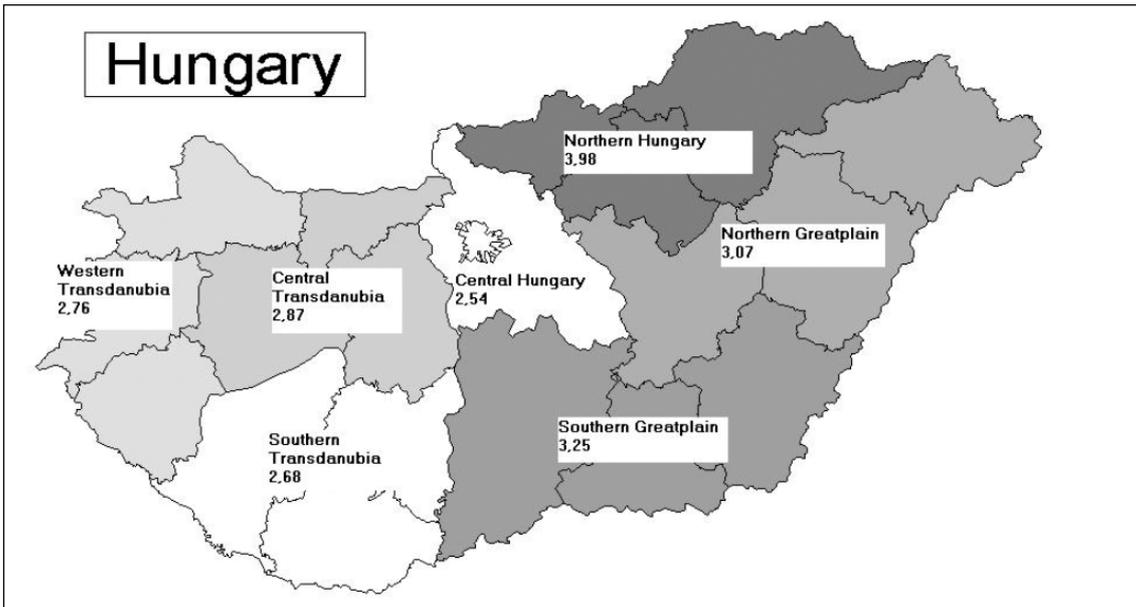


Figure 1. Mortality of oral cavity cancer in the Hungarian regions (deaths per 10.000, males, 2001)

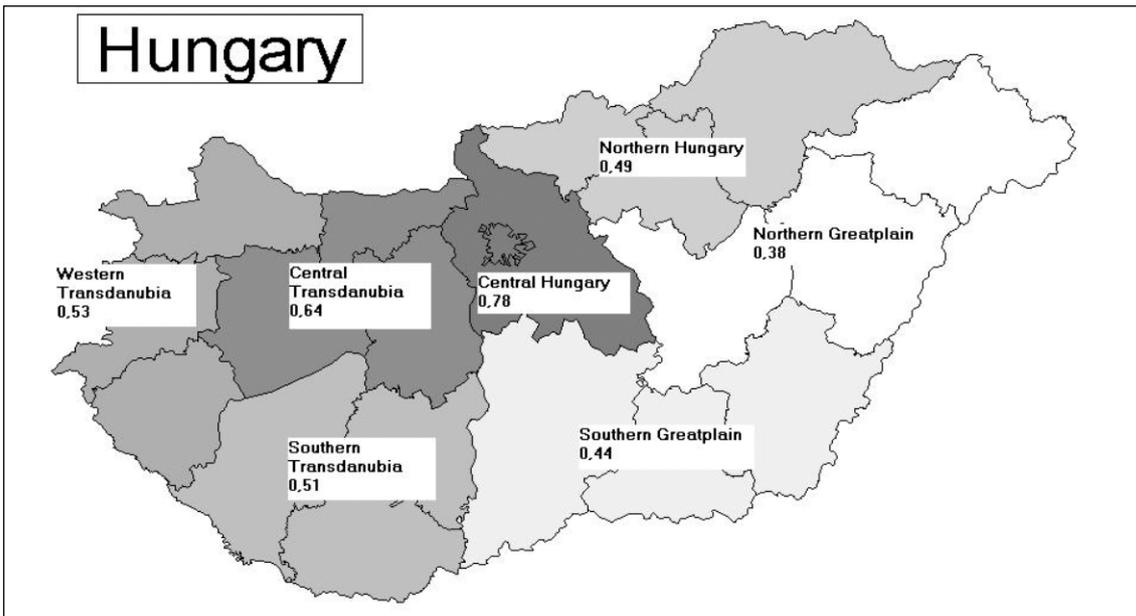


Figure 2. Mortality of oral cavity cancer in the Hungarian regions (deaths per 10.000, females, 2001)

bring favourable results yet. A new step for secondary prevention of oral diseases was a ministerial decree, issued by the Hungarian Ministry of Health and Welfare in 1997. This new law (48/0997(XII.17)NM) recommends in a mandatory way yearly screening examinations on patients, appearing in the dental

practices, in NHIFA practices financed from the state health insurance contingent. According to this rule, the dentist is obliged to perform on every patient presenting in his office a stomato-oncological examination documented in writing. – On the other hand an older law/rule prescribes and gives the

possibility of yearly two screening examinations for children under 18 years of age, financed also by the state.

However, no data are available on screening examinations performed by private dentists in this moment. Therefore, the analysis of the available data is limited to the 54,6 % of all practising dentists: the NHIFA contracted dentists (*Table 5*).

Concerning the screening frequency data on dental caries, in children and adolescents under 18 years of age, the participation at the yearly screening examinations - with a slightly increasing trend between 2000 and 2002 - does not reach the half of the population (*Table 3*). Although young children's cohorts, not yet participating in the organised screening examinations might mitigate these numbers, however, the yearly screening frequency, even when considering the possibility of visiting private dentists is far from being satisfactory.

The prevalence of dental caries in Hungary, according to a recent WHO Pathfinder Survey (Szöke and Petersen, 2000) [15] has not reached the goals set by WHO for the year 2000. Considering the distribution according to regions, the lowest ratio of caries-free children, and the highest DMFT values were found in the Western Transdanubian region. This is in contrast with the generally experienced east/vs/ west decrease of dental caries prevalence in Europe (Künzel, 2001) [11], which corresponds to the lower screening frequency in these Western regions, perhaps due to a lower number of NHIFA financed dentists, and to the greater number of private dentists (working mainly for patients from the neighbouring Austria and interested in curative - not in preventive - interventions). Missing of regular check-ups and treatment in these regions might have lead to this neglected situation.

The frequency of screening examinations, performed on adults, above 18 years of age, between 5.7-7.7% shows an extremely low

level (*Table 4*), and might be considered being only as of *opportunistic* character. Although examinations performed by private dentists, and not registered officially, might modify these numbers into an upward direction, and show indirect beneficial effects in the long run in the population sample of the private dentist's sphere. Unfortunately due to the lack of oral health consciousness of the population, voluntary appearance at the screening examinations - although gratuite - is very rare. Between 10-to 90% of the Hungarian population is visiting the dentist only in case of pain, - in rural areas more rarely than in urban sites (Dombi et al., 2001) [2].

Concerning the regional distribution of oral cancer mortality, the recently observed highest values of Northern Hungary correspond to the previously registered highest mortality rates of Central Europe in western Czechoslovakia and northern Hungary (Zatonski et al., 1996) [16].

This situation is very unfavourable. Oral cancer mortality is still steeply increasing in some countries, where other cancer forms seem to reach their peak and gain a steady level. This is especially true for Hungary, where increase in lung cancer mortality in men has stopped around 1994, however oral and colorectal cancer is increasing (Gaudy and Kásler, 2002; Józán, 2003; Ottó, 2003) [6,8,14]. For oro-pharyngeal cancer projected rates indicate large increases with potentially the most serious situation in Hungary (Bray et al., 2000)[1].

In conclusion screening examinations for the early detection of oral diseases are of imperative necessity. The best site for these examinations - according to suggestions of the international literature - are the dental practices. The detection of oro-pharyngeal cancer is most likely performed in the course of non-symptom driven examinations in a dental office, and an association with a lower stage at diagnosis has been reported by these (Holmes et al., 2003) [10]. Data gained in a central European population point also to the impor-

tance of dentists' oral cancer screening at each patient visit. Patients at risk should undergo more intense surveillance (Gellrich et al., 2003) [7]. In order to raise the dentists' awareness several publications containing informative material are certainly a necessity.

Frequent check-ups are also important for the early recognition and care of non-lethal oral diseases as dental caries. In some countries it is recommended that the check-ups should be adjusted to caries indices and patients' need (Helminen and Vehkalahti, 2002) [9], however in countries with high

caries indices like Hungary, regularly performed check-ups are the most advisable method.

Hungary is in its 15th year of the political transition and at the beginning of a new National Program for the Decade of Health (Ottó, 2003)[14]. Hopefully, the improvement of social background conditions and an increase in oral health consciousness of dentists and of the population will bring some improvement in primary and secondary prevention in the coming years.

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