Dental Public Health Status of Hungary

At the turn of the third millennium...

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Introduction

- Severity and ratio of oral diseases show a wide variety in distribution
- Social and behavioral influencing factors
  - Poor living conditions, unhealthy way of living
  - Uneasy gateway to preventive facilities
- Quality of life (food intake, speech, esthetics, mental health) is vitally influenced by craniofacial disorders and oral diseases

Petersen P. E. in Cynthia P. and Harris R. Community Oral Health. Quintessence Publishing Co. 2007. London. p:V.

Definitions

- **Health: WHO 1946**
  - A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity
  - M Lalonde report (1974) was accepted as Program of the WHO in 1977. Determinants of Health:
    - Biological factors, Health care organization,
    - Personalizaed behavior forms, Environment
- **Public health: Acheson report 1998**
  - The science and art of preventing disease, prolonging life and promoting health through the organized efforts of society
- **Dental public health: Downer et al 1994, Gallagher 2005**
  - The science and art preventing oral disease, promoting **oral health** and improving the quality of life through the organized

History of Public Health from the 19-th to the 21-st Century

- First phase (1840-1900)
- John Snow 1854. mapped the location of the deaths during a cholera epidemic in London
  - Rapid urbanization
  - Overcrowding, poor housing and desperate living conditions for poor people
  - Key factor in the improvement was the development of the living conditions and providing access to clean water
- Second phase (1880-1930)
  - Developments in microbiology and virology, immunisation
- Third phase (1930-1974)
  - Focus on medical service and service delivery in the hospitals
- Fourth phase (1974-) Lalonde report (Canada): WHO accepted as a program for helath prevention
  - identified that in case of the chronic diseases considering etiological factors related to life style or environmental conditions, incongruously, most of the health care costs went into treatment rather than prevention.
- 2004. Wanless:
  - Effective control of the chronic conditions and promotes the maintenance of good health

History of Public Health in Hungary

- **József Fodor 1843-1901,**
- honorary member of the Cambridge Academy of Sciences
- Organized the first curriculum on public health in the Medical Faculty of Budapest and the work of the Public Health Institute of the University
- Organized the school physician network in Hungary
- He was founder of the Hungarian Public Health Association in 1885
- He actively supported the modern establishment of the drinking water and the sewerage system of Budapest

”the apostel of our public health”

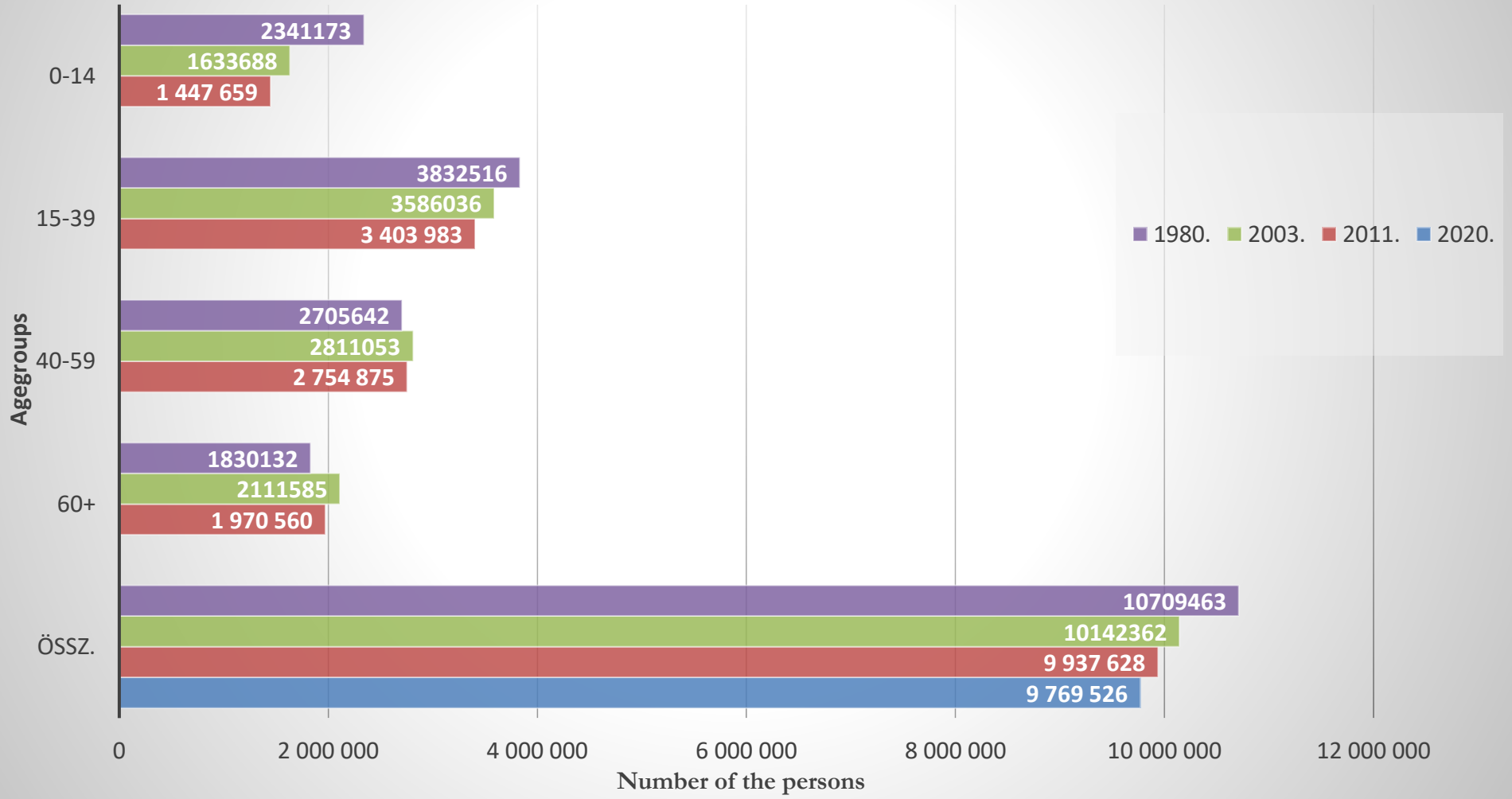
Recent Public Health Approach

Modification of the preventive aspect means the determination and elimination of the risk factors

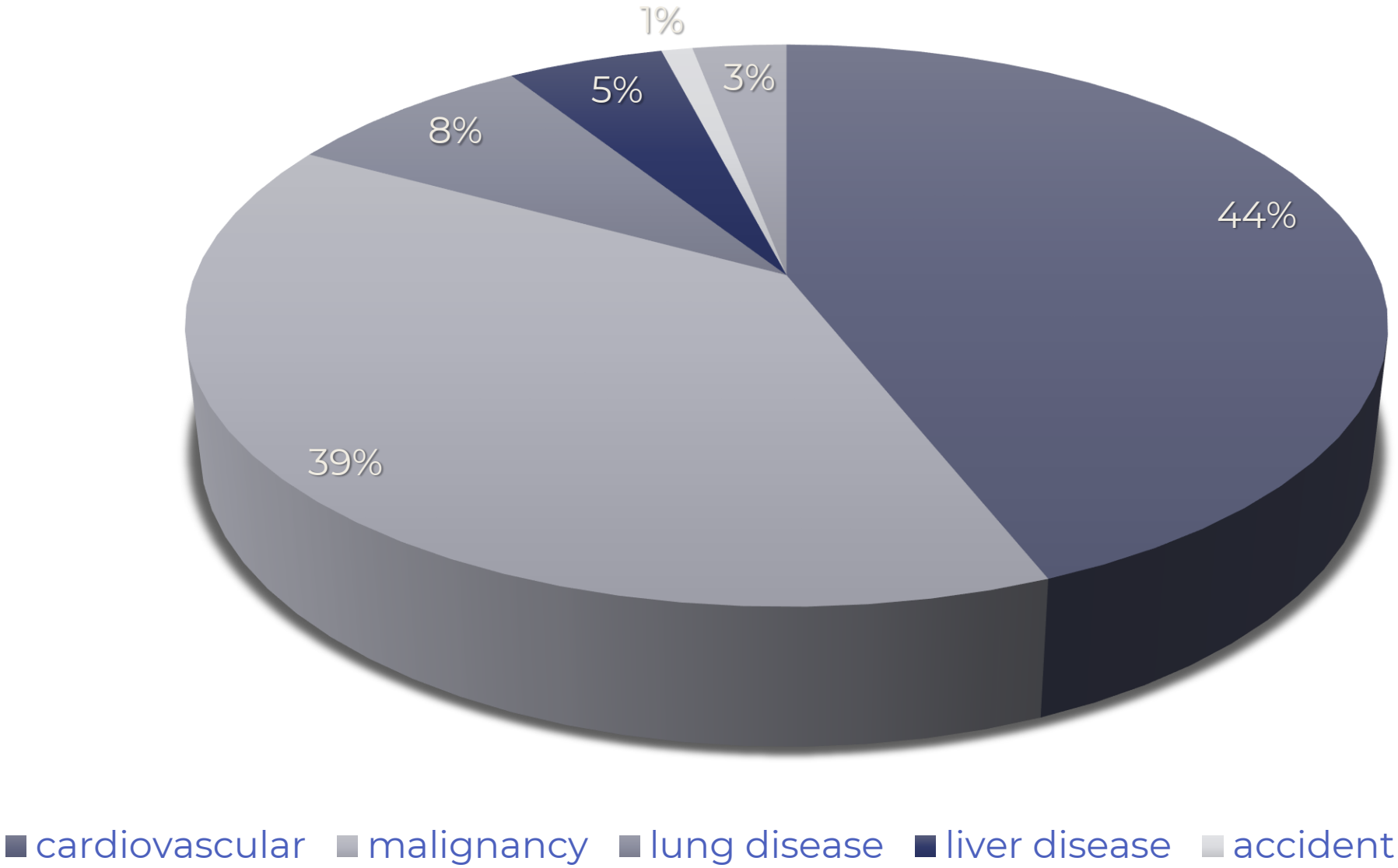
Preventive Strategies in Dentistry

- Prevention of oral (oro-pharyngeal) cancer
- Caries prevention
- Prevention of periodontal disease

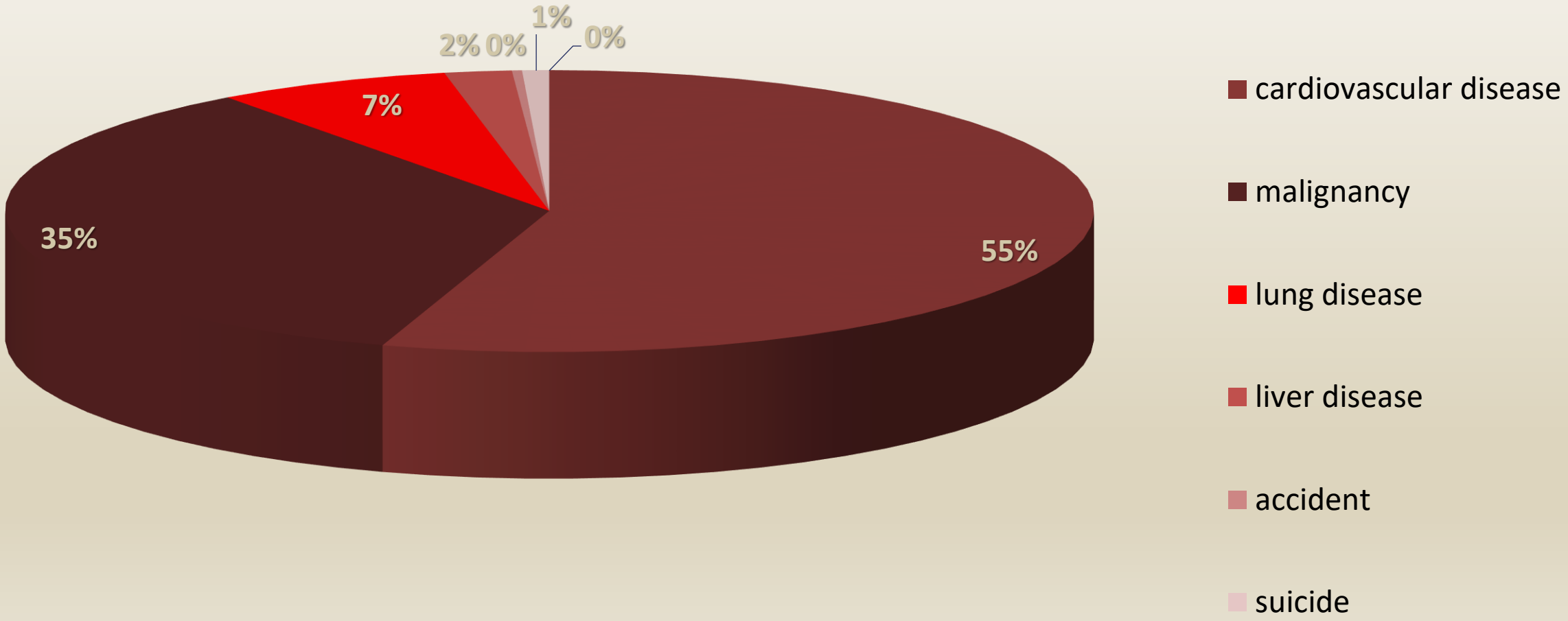
Age distribution of the Hungarian Population in 1980, 2003, 2011 and 2020 (KSH 2020)



Causes of death in Hungary in male (2020, n=65037)



Causes of death in Hungary in female in 2020 n=66760

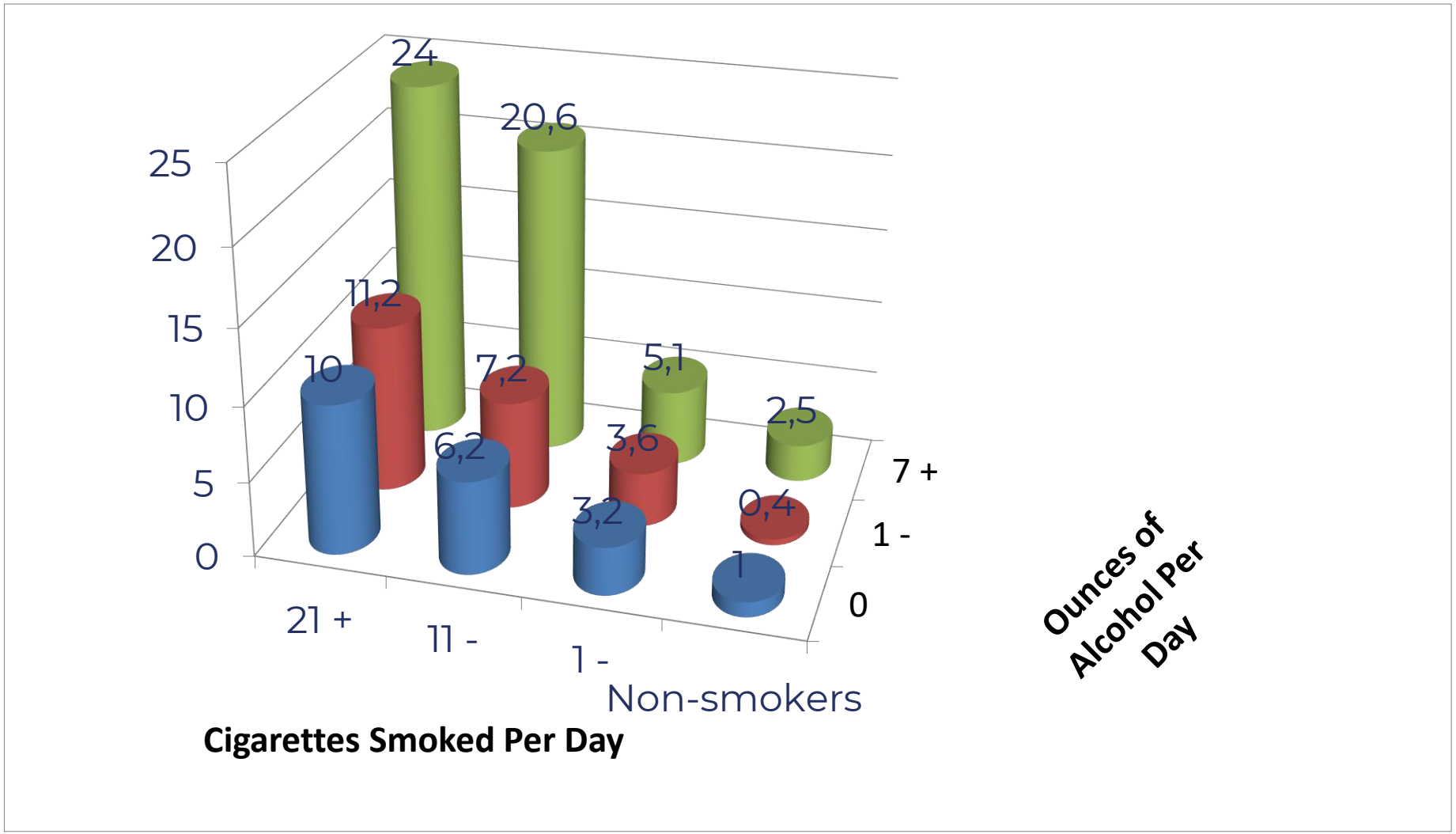


Age adjusted death rates (per 100000 population) for cancer of the oral cavity and pharynx-top five of 46 countries worldwide

Country	Male (rank)	Female (rank)
Hungary	18,5 (1)	2,4 (1)
France	12,0 (2)	1,3 (7)
Croatia	11,7 (3)	1,1 (17)
Slovenia	11,2 (4)	0,9 (3-4)
Romania	11,1 (5)	1,0 (24)

(Landis et al. 1998)

RELATIVE RISKS OF ORAL CAVITY CANCER BY DAILY CONSUMPTION OF ALCOHOL AND CIGARETTES: MALES



Blot et al. 1998

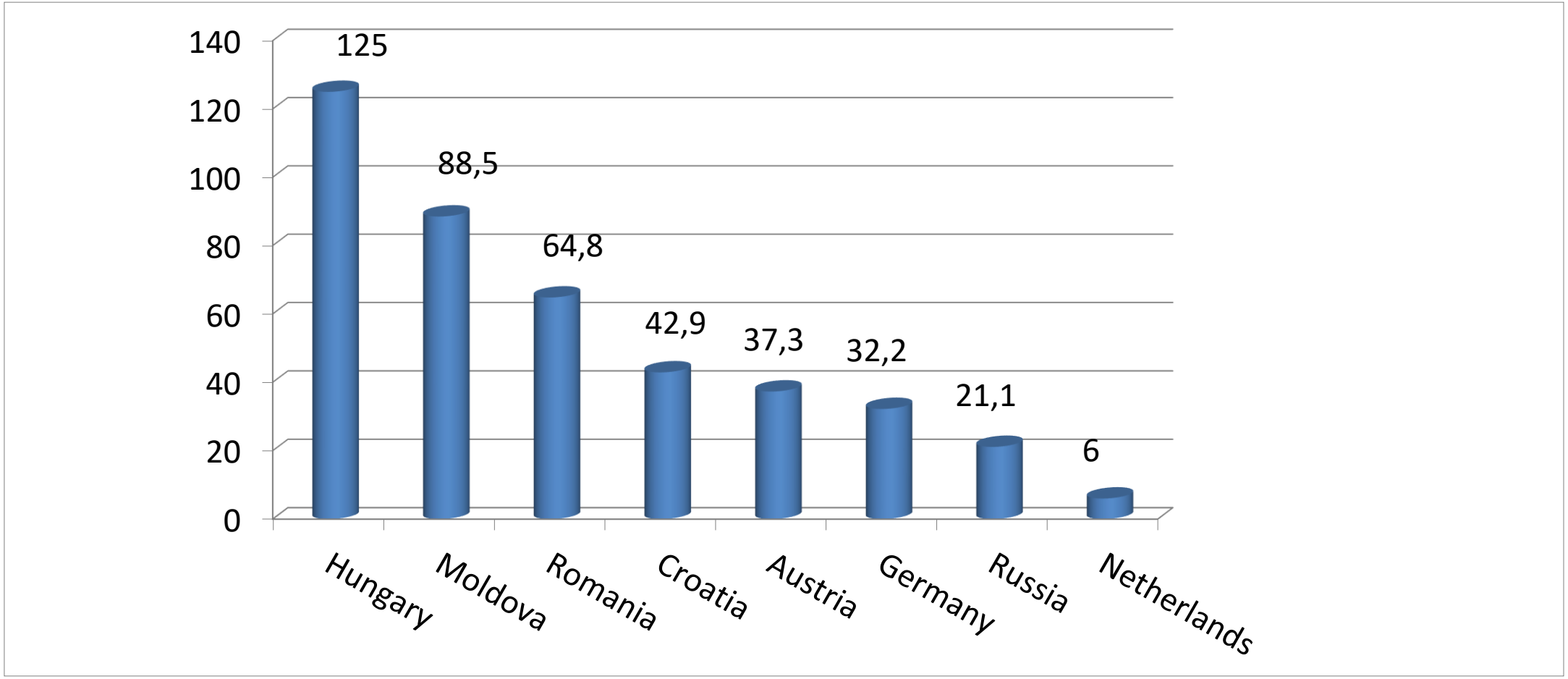
Per capita cigarette consumption-top five consuming countries (1990-1992) among 111 countries

	1970-72	1980-82	1990-92	Rank
Poland	3.010	3.400	3.620	1
Greece	2.640	3.440	3.590	2
Hungary	2.940	3.320	3.260	3
Japan	2.950	3.430	3.240	4
Korea, Rep.	2.370	2.750	3.010	5

WHO 1998

Highest mortality rates of liver cirrhosis in Europe

Men / 100 000

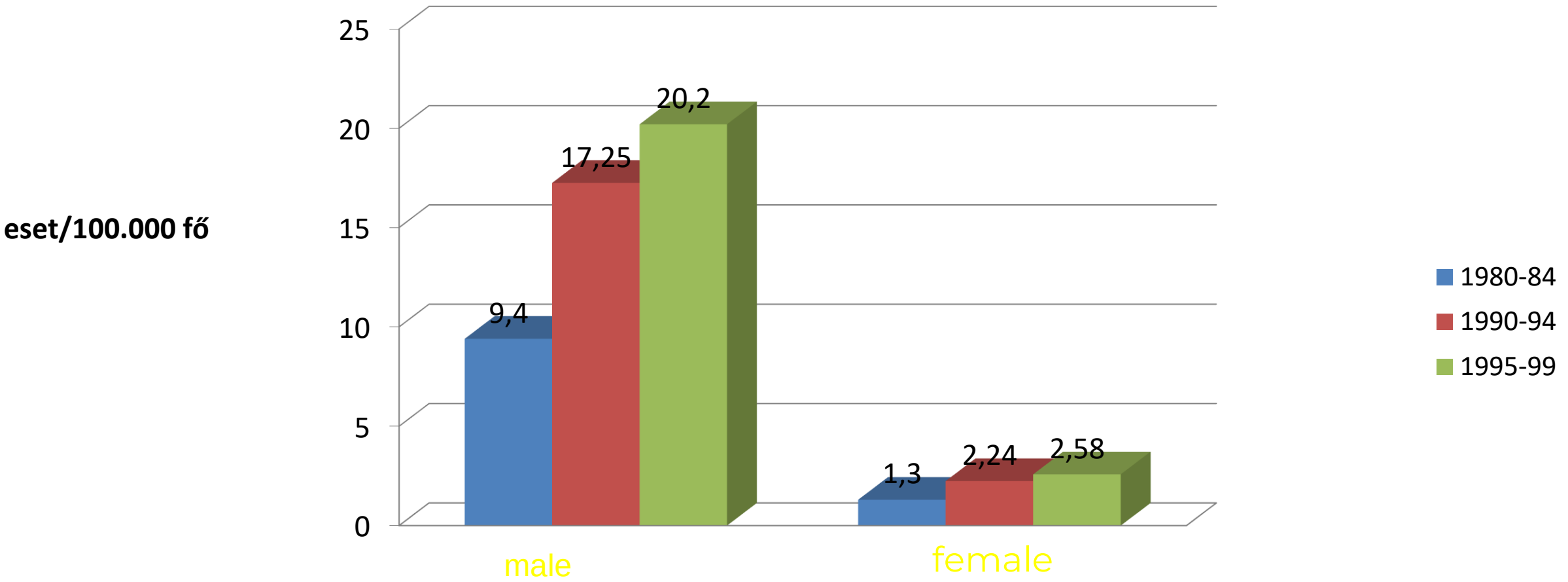


Kopp and Csoboth 2001

Conclusions

- Oral cancer is tobacco-(and/or alcohol) induced-, and associated condition
- Epidemiologic patterns of tobacco habits, mainly of cigarette smoking show a steep increase in the Central-European countries
- In these countries the incidence and mortality from oro-pharyngeal cancer ranks the highest both in men and women

Death rate because of oral cancer in Hungary



The death rate of oral cancer became doubled between the years of 1980 and 1999. in both genders in Hungary. According to the data, Hungary is still the first in the Europe

Ratio of oral cancer in Europe in 2000/ by 100000 people

Country	No of Cases	No of new cases	No of dies	Death rate
EasternEurope	14084	7.80	8578	4.77
Belarus	586	10.08	271	4.67
Bulgaria	257	4.30	156	2.65
CzechRepublic	454	6.61	272	3.97
Hungary	1081	16.60	668	10.27
Moldova	216	9.71	133	6.01
Poland	1270	5.53	775	3.40
Romania	902	6.21	551	3.83
RussianFederation	6278	7.73	3861	4.76
Slovakia	432	14.11	272	8.93
Ukraine	2607	8.53	1617	5.30
NorthernEurope	3511	5.04	1358	1.91
Denmark	306	7.66	110	2.62
Estonia	80	9.50	46	5.34
Finland	245	6.47	55	1.46
Iceland	9	4.81	2	1.21
Ireland	136	5.90	75	3.26
Latvia	93	6.58	64	4.64
Lithuania	162	7.56	95	4.54
Norway	189	5.77	74	2.10
Sweden	348	4.52	88	1.14
United Kingdom	1933	4.40	746	1.63
Southern Europe	9654	9.17	3244	2.98
Albania	144	10.77	56	4.25
BosniaHerzegovina	251	11.05	101	4.39
Croatia	474	15.37	214	6.87
Greece	257	3.02	83	0.92
Italy	3046	6.74	1292	2.70
Macedonia	36	3.05	21	1.74
Malta	16	6.53	3	1.49
Portugal	730	11.01	227	3.35
Slovenia	114	8.62	45	3.25
Spain	3922	13.77	959	3.30
Yugoslavia	652	9.17	239	3.32
Western Europe	16037	12.55	4169	3.14
Austria	555	10.39	185	3.35
Belgium	751	10.78	198	2.70
France	5910	14.94	1702	4.10
Germany	7840	13.19	1821	2.99
Luxembourg	32	10.43	5	1.92
The Netherlands	637	5.79	137	1.19
Switzerland	308	5.81	121	2.17

Examination of oral health

- Dental status
  - DMF-T or DMF-S mean values (WHO 1997)
- Periodontal status
  - CPITN index, maximum CPI-score (*Ainamo J, Barmes D, et al. Development of the World Health Organization (WHO) Community Periodontal Index of Treatment Needs (CPITN). International Dental Journal. 1982; 32: 281-291*
- State of the mucosa
  - Determination and classification of mucosal lesions (WHO)
- Malocclusion
  - Grade of malocclusion

DMFT and DMFS

- **Describe the amount - the prevalence - of dental caries in an individual.**
- DMFT and DMFS are means to numerically express the caries prevalence and are obtained by calculating the number ofDecayed (D)Missing (M)Filled (F)teeth (T) or surfaces (S). It is thus used to get an estimation illustrating how much the dentition until the day of examination has become affected by dental caries. It is either calculated for 28 (permanent) teeth, excluding 18, 28, 38 and 48 (the "wisdom" teeth) or for 32 teeth (The Third edition of "Oral Health Surveys - Basic methods", Geneva 1987, recommends 32 teeth).
- Thus
  - **How many teeth have caries lesions (incipient caries not included)?**
  - **How many teeth have been extracted?**
  - **How many teeth have fillings or crowns?**
- **The sum of the three figures forms the DMFT-value.**
- For example: DMFT of 4-3-9=16 means that 4 teeth are decayed, 3 teeth are missing and 9 teeth have fillings. It also means that 12 teeth are intact.Note: If a tooth has both a caries lesion and a filling it is calculated as D only. A DMFT of 28 (or 32, if "wisdom" teeth included) is maximum, meaning that all teeth are affected.

DMF-S and primary dentition

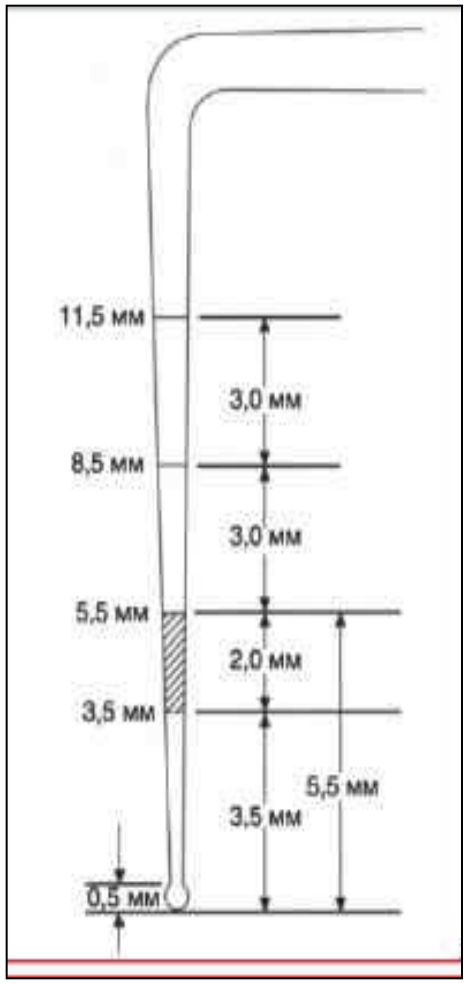
- **A more detailed index is DMF calculated per tooth surface, DMFS. Molars and premolars are considered having 5 surfaces, front teeth 4 surfaces. Again, a surface with both caries and filling is scored as D. Maximum value for DMFS comes to 128 for 28 teeth.**

- **For the primary dention, consisting of maximum 20 teeth, the corresponding designations are "deft" or "defs", where "e" indicates "extracted tooth".**

Community Periodontal Index of Treatment Needs (CPITN)

Indicators. Three indicators of periodontal status are used for this assessment:
presence or absence of gingival bleeding
supra- or subgingival calculus
periodontal pockets-subdivided into shallow (4-5mm) and deep (6mm or more).

A specially designed lightweight probe



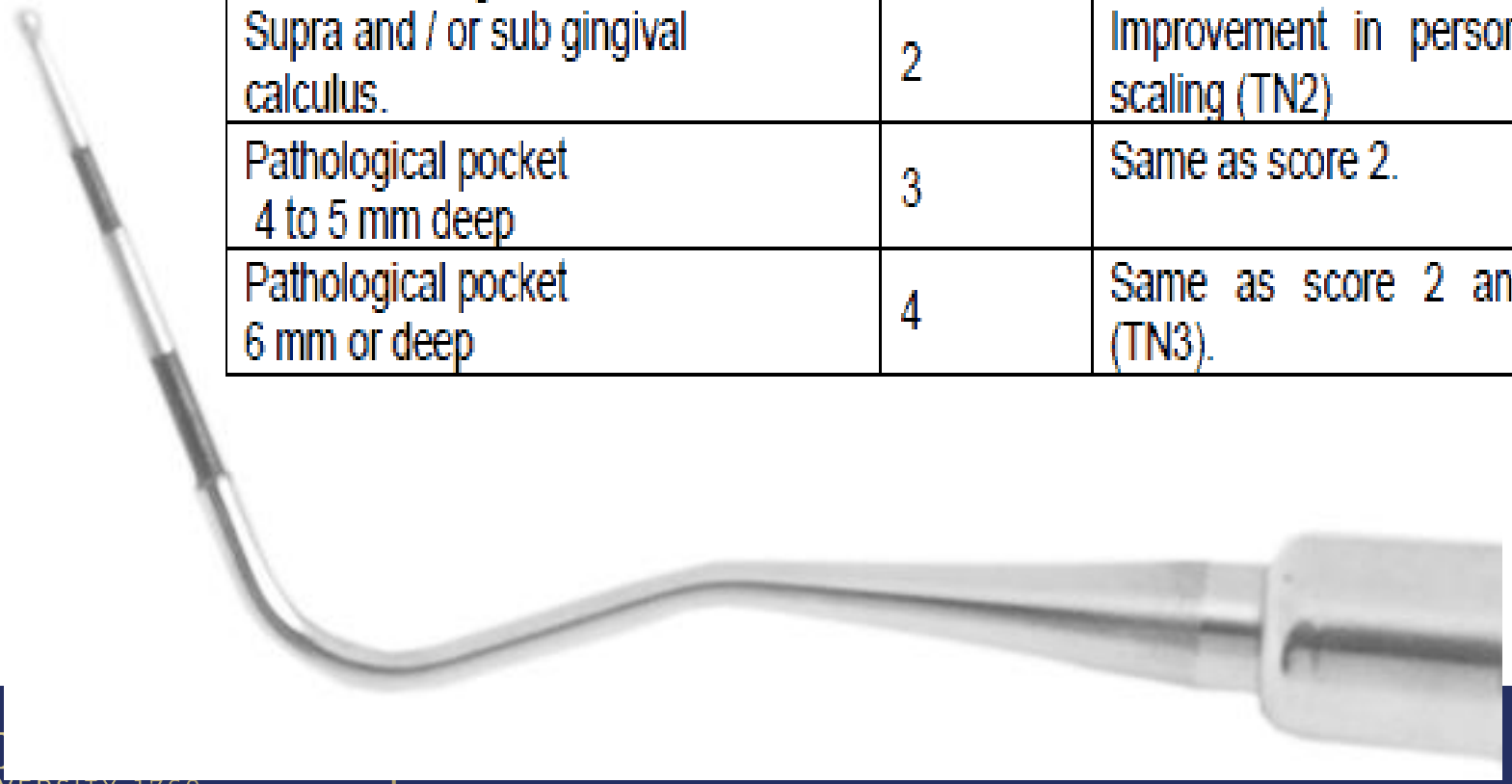
CPITN (Community periodontal index for treetment needs)

- ***Sextants.***
  - *The mouth is divided into sextants defined by teeth numbers 18-14, 13-23 24-28, 38-34, 33-43, and 44-48.*
- ***A sextant should be examined only if there are two or more teeth present and not indicated for extration. When only one tooth remains in a sextant, it should be included in the adjacent sextant***
- **Index teeth.**
  - For adults aged 20 years and over, the teeth to be examined are:

Maxillary:	17	16	11	26	27
Mandibular:	47	46	31	36	37

CPITN-scores and treatment needs

Clinical condition	Score	Treatment Needs (TN)
No sign of disease	0	No Treatment
Gingival bleeding After Gentle Probing	1	Improvement in personal oral hygiene(TN1).
Supra and / or sub gingival calculus.	2	Improvement in personal oral hygiene and scaling (TN2)
Pathological pocket 4 to 5 mm deep	3	Same as score 2.
Pathological pocket 6 mm or deep	4	Same as score 2 and complex treatment (TN3).



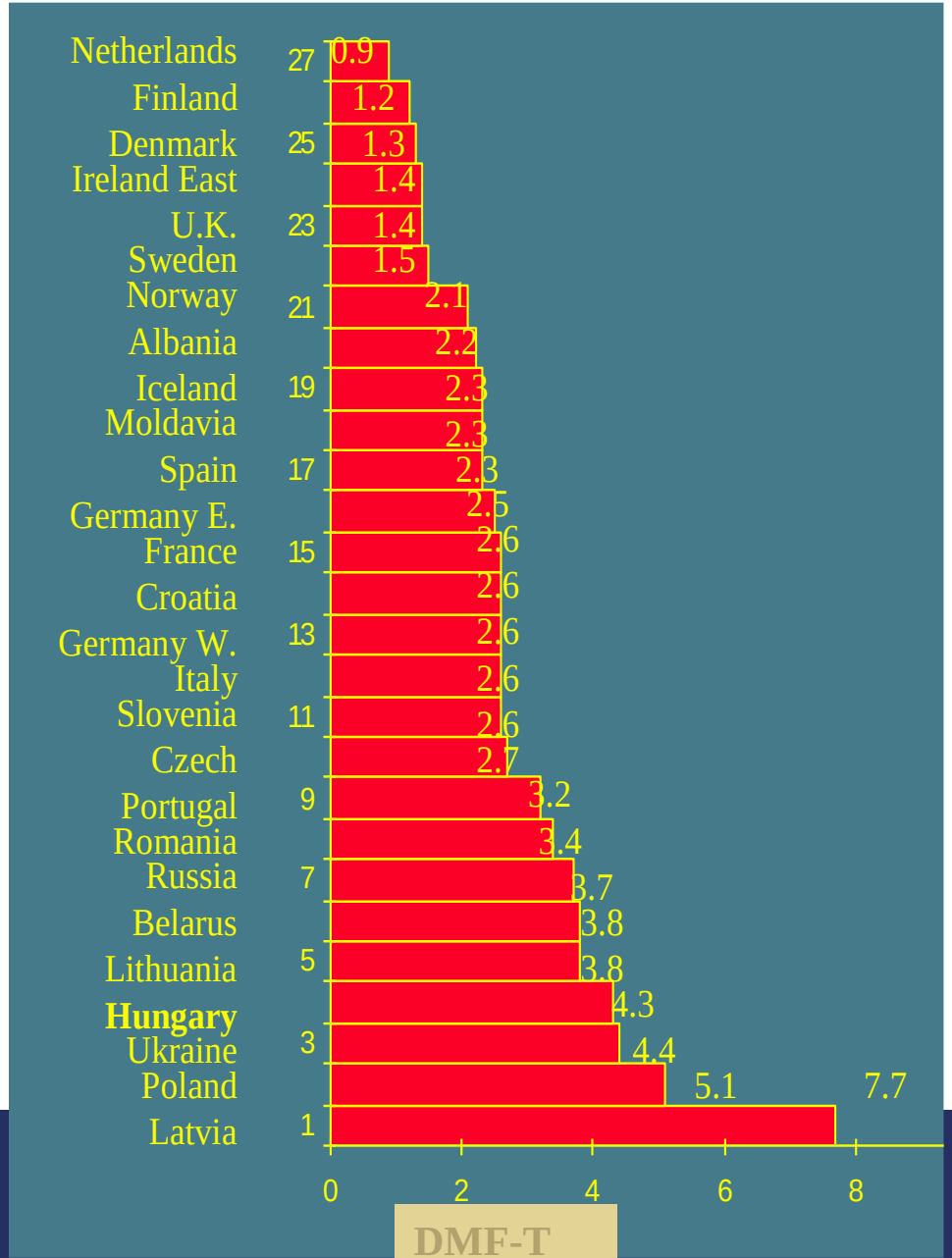
Global Goals for the Year 2000 (WHO and FDI 1981)

50% of 5-6-year-olds will be caries free.

- The global average will be no more than 3 DMF teeth at 12 years of age.
- 85% of the population should retain all their teeth at the age of 18 years.
- A 50% reduction in present levels of edentulousness at the age of 35-44 years
- A 25% reduction in present levels of edentulousness at the age of 65 years and over

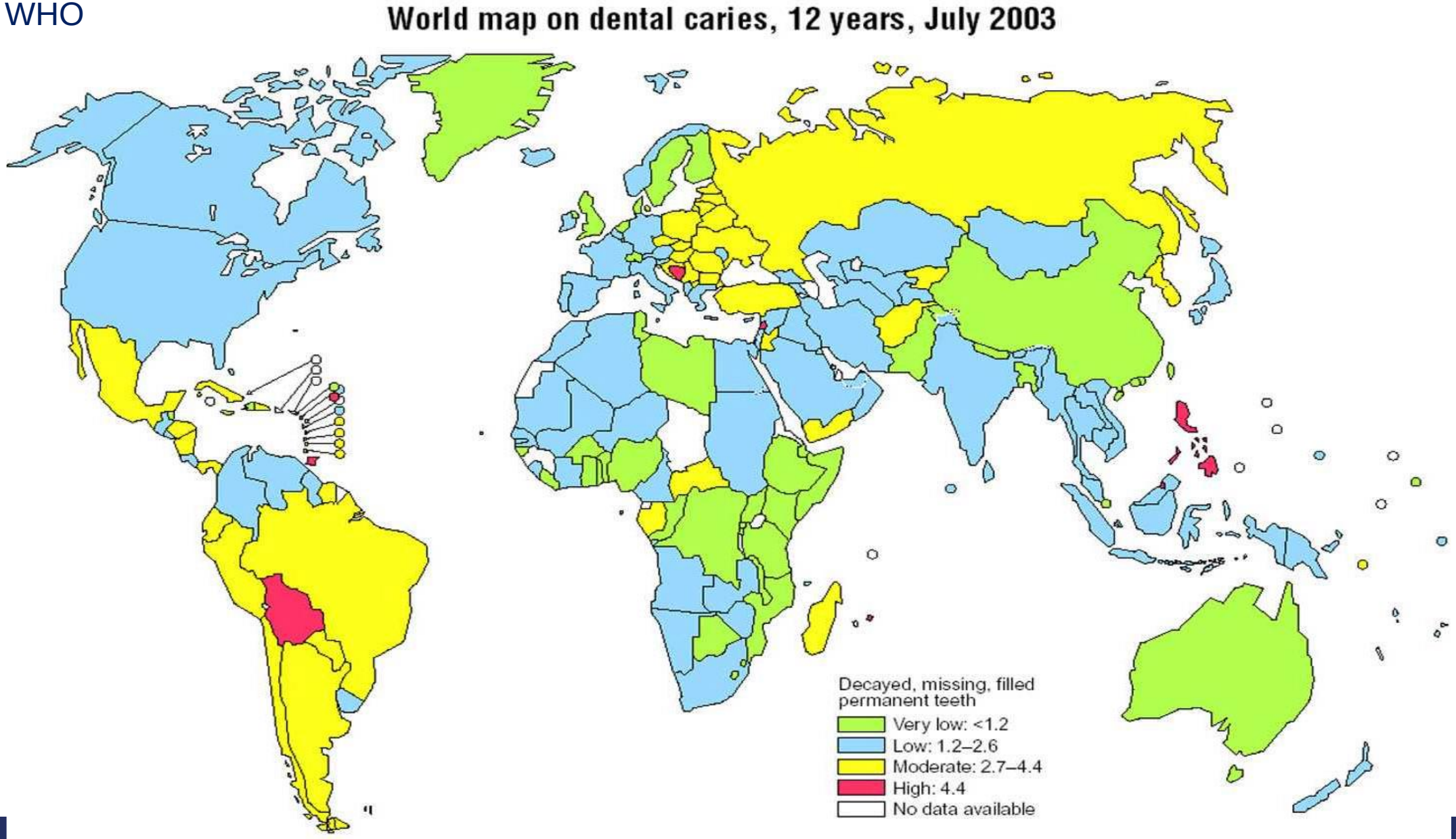
Global goals for oral health in the year 2000. FDI . Int Dent J 1982 ; 32: 74-77.

DMF-T at the age of 12 between 1991 and 1994 in Europe

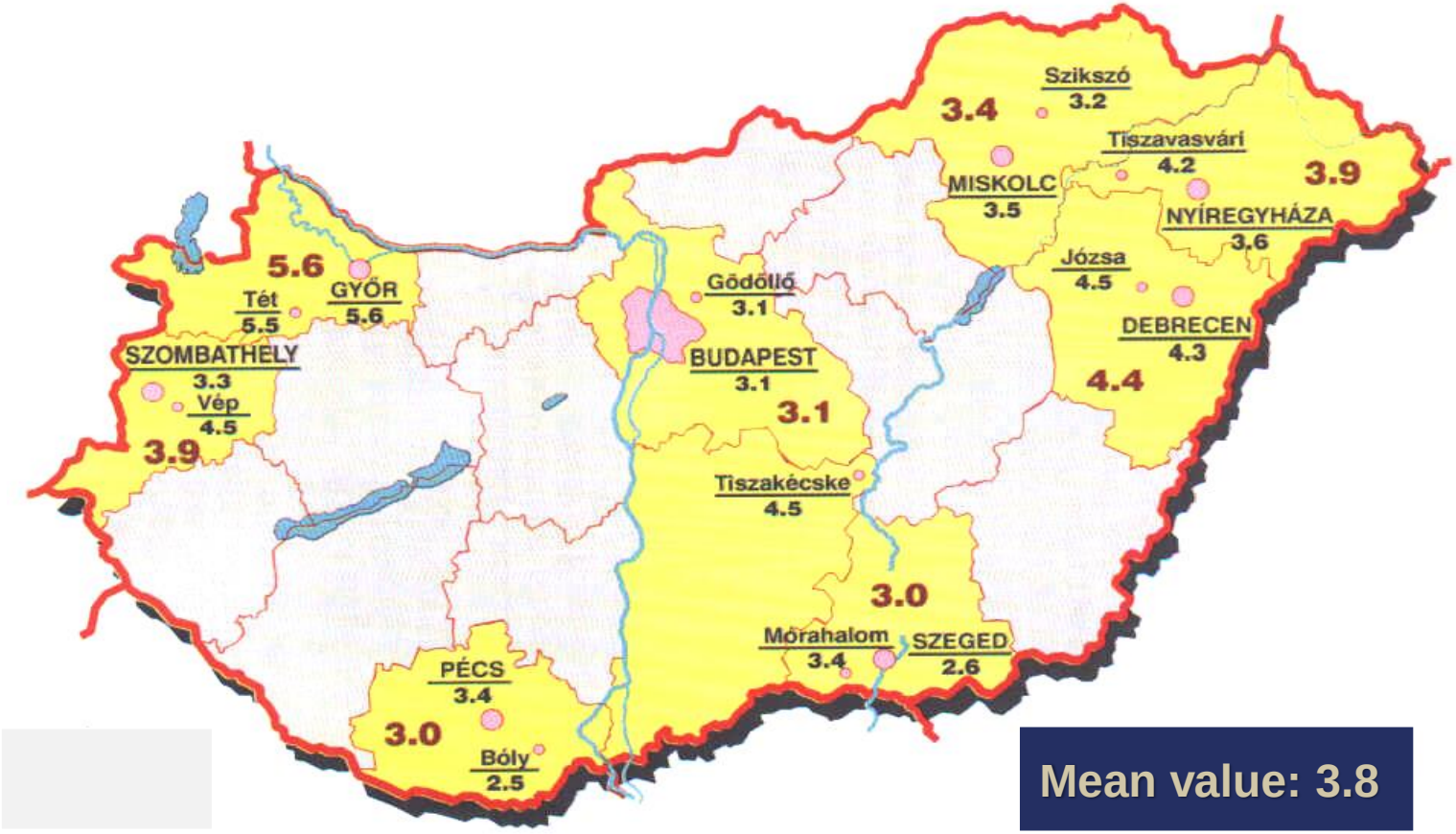


(*Marthaler et al. 1996*)

Dr. Poul Erik Petersen
WHO

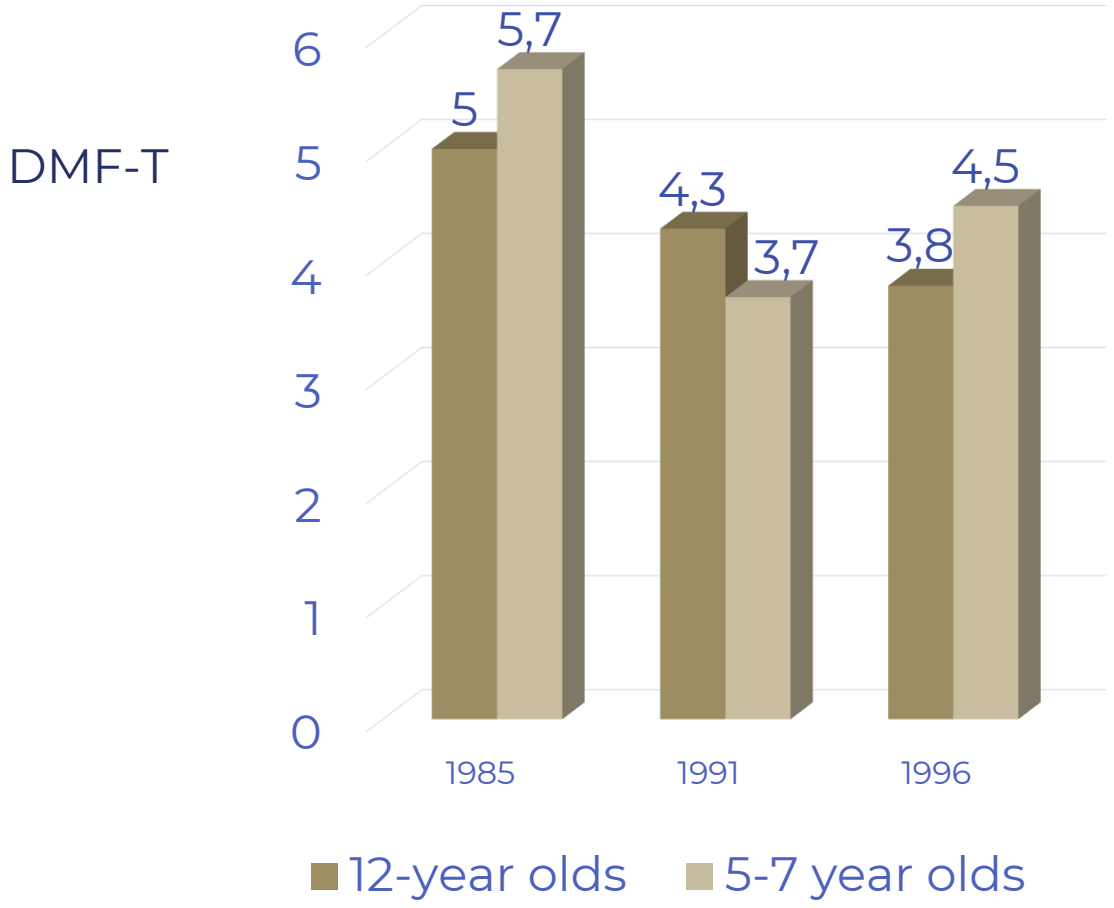


DMF-T mean values at the age of 12 in Hungary (Szőke and Petersen 2000)

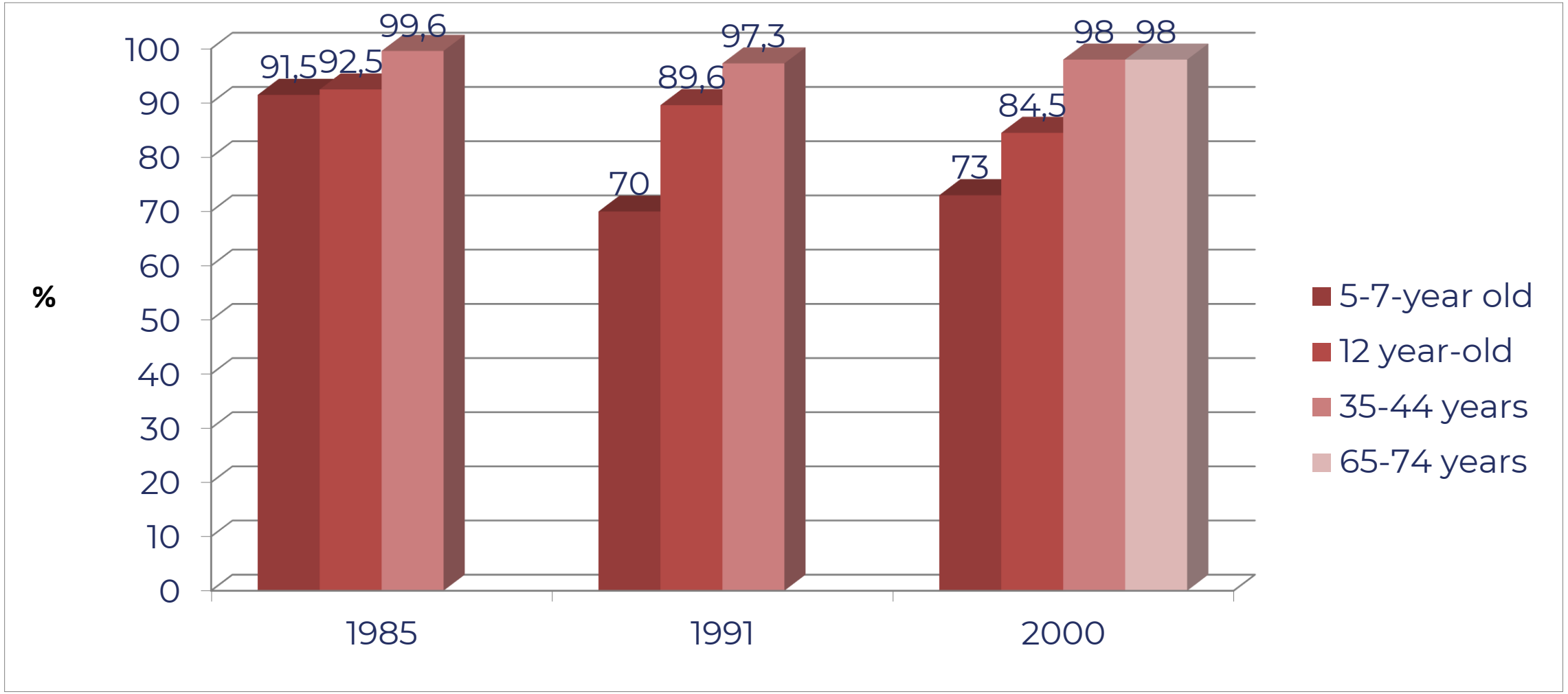


Mean value: 3.8

Reduction of the DMF-T mean values in 12-year olds in Hungary (*Szöke and Petersen 2000*)

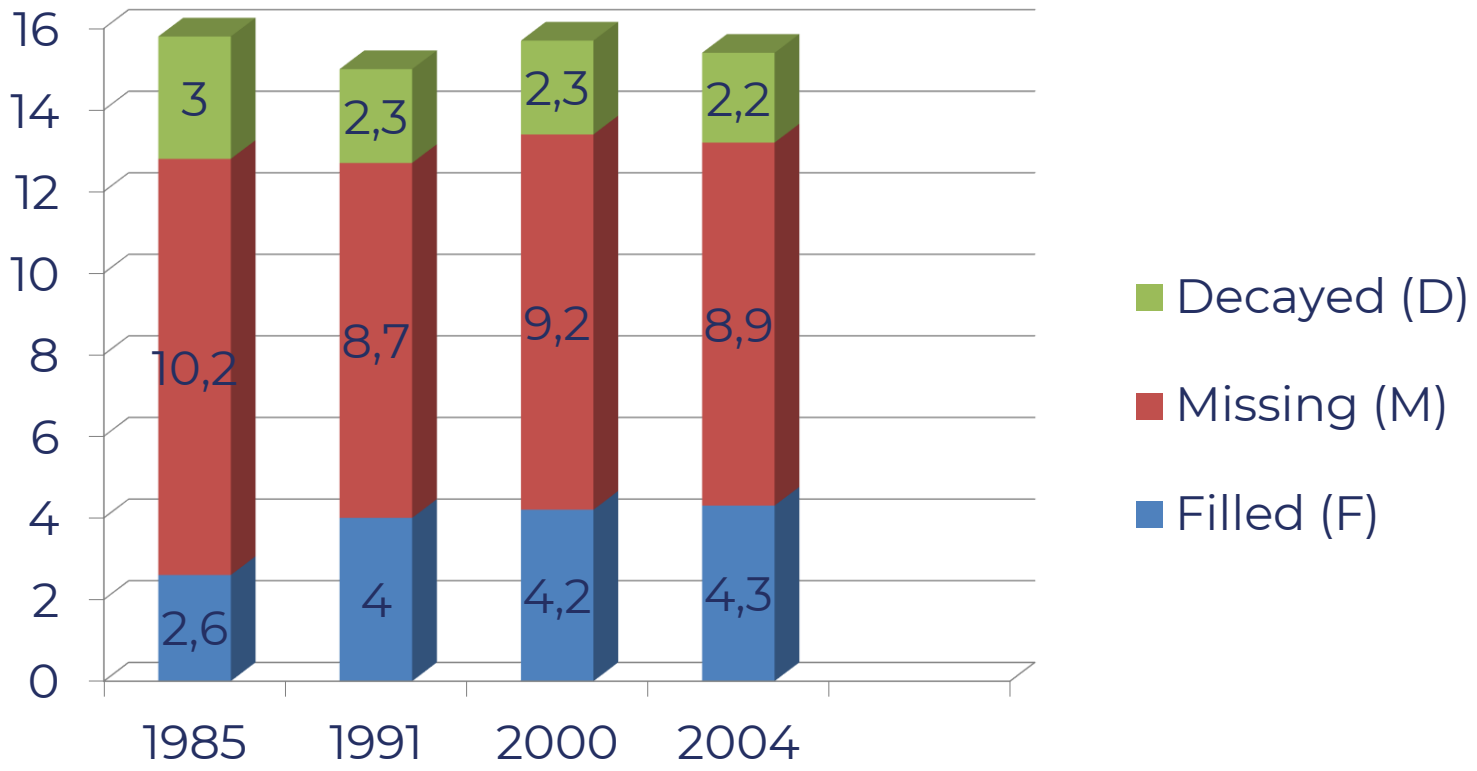


Caries prevalence proportion rates in Hungarians (*Szöke and Petersen 2000*)

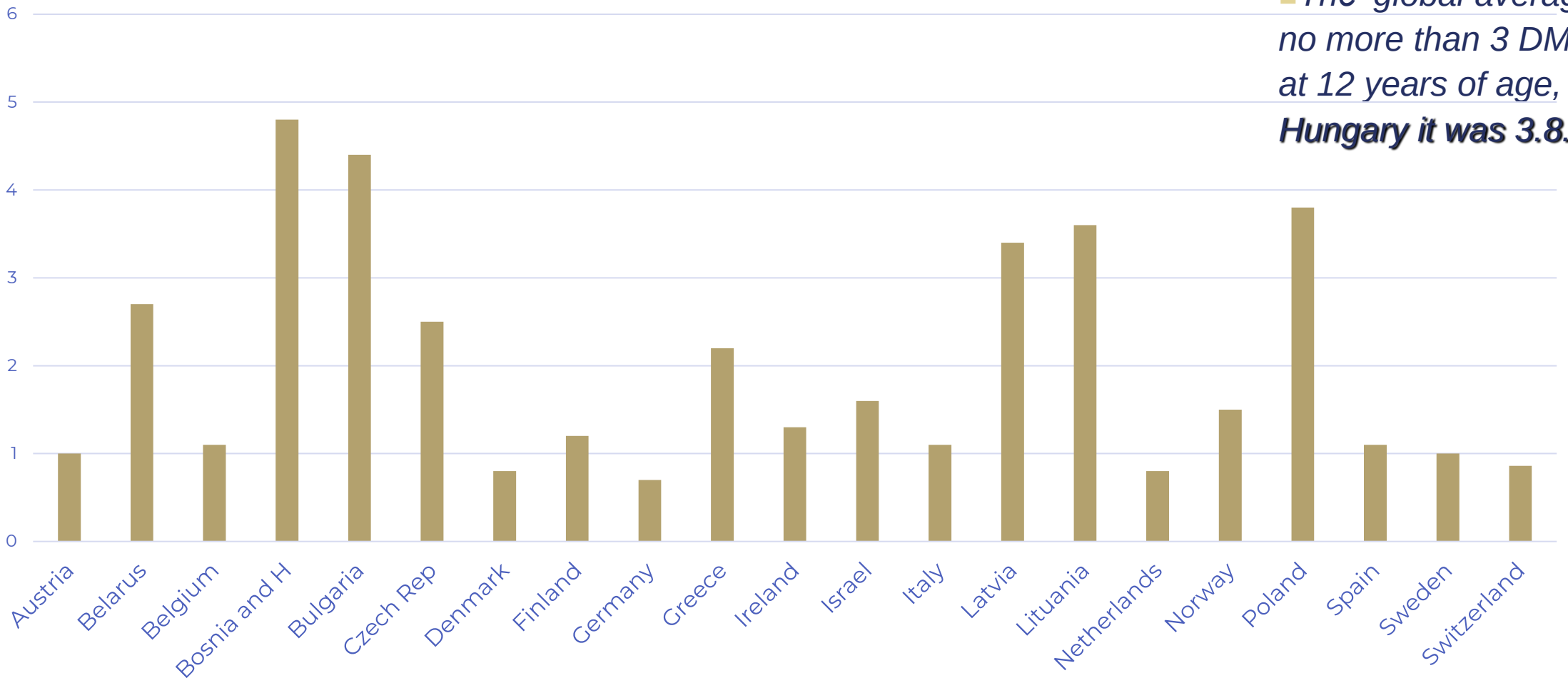


Number of decayed (D) missing (M) and filled (F) teeth in Hungary at the age group of 35-44 years in Hungary between 1985 and 2004.

DMF-T



DMF-T mean values of the 12-year old children in Europe between 2000 and 2005 according to the WHO Database



The 'global average' was no more than 3 DMF teeth at 12 years of age, ***in Hungary it was 3.8.***

Number of remaining teeth in the different age groups in Hungary (in the percantage of the examined patients)

No of teeth in %	*≤19*	*20–34*	*35–44*	*45–64*	*65–74*	*75≤*
21 or more teeth	95.0%	86.3%	73.1%	43.9%	22.6%	9.7%
Less than 21 teeth	0.6%	7.9%	18.1%	23.8%	17.9%	13.7%
Less than15 teeth	4.4%	5.2%	6.9%	*26.1%*	*39.7%*	37.9%
Edentulous	0.0%	0.6%	1.9%	*6.2%*	*19.8%*	38.7%

Ratio of the last two categories have been increased significantly in the recent years in the 35-55 year-old age group

Global Goals for the Year 2020 (FDI, WHO and IADR)

This document containing proposals for new Global Oral Health Goals, Objectives and Targets, useful as a framework for health planners at regional, national and local levels and are **not intended to be prescriptive**.

Hobdell M, Petersen PE, Clarkson J, Johnson N. Global goals for oral health 2020. Int Dent J. 2003; 53: 285-8.

Goals

- To minimise the impact
  - **of diseases of oral and craniofacial origin on health** and psychosocial development, giving emphasis to promoting oral health and reducing oral disease amongst populations with the greatest burden of such conditions and diseases.
  - **of oral and craniofacial manifestations of systemic diseases** on individuals and society, and to use these manifestations for early diagnosis, prevention and effective management of systemic diseases.

Targets by the year 2020

Dental caries

To increase the proportion of caries free 6-year-olds

To reduce the DMFT particularly the D component at age 12 years

To reduce the number of teeth extracted due to dental caries

Periodontal diseases

- To reduce the number of teeth lost due to periodontal diseases
- To reduce the prevalence of necrotising forms of periodontal diseases
- To reduce the prevalence of active periodontal infection
- To increase the proportion of people in all ages with healthy periodontium

Tooth loss

- To reduce the number of edentulous persons
- To increase the number of teeth present
- To increase the number of individuals with functional dentitions (21 or more natural teeth)

Maximum CPI scores in % of the Hungarian population in 1985, 1991 and 2000. (WHO pathfinder studies)

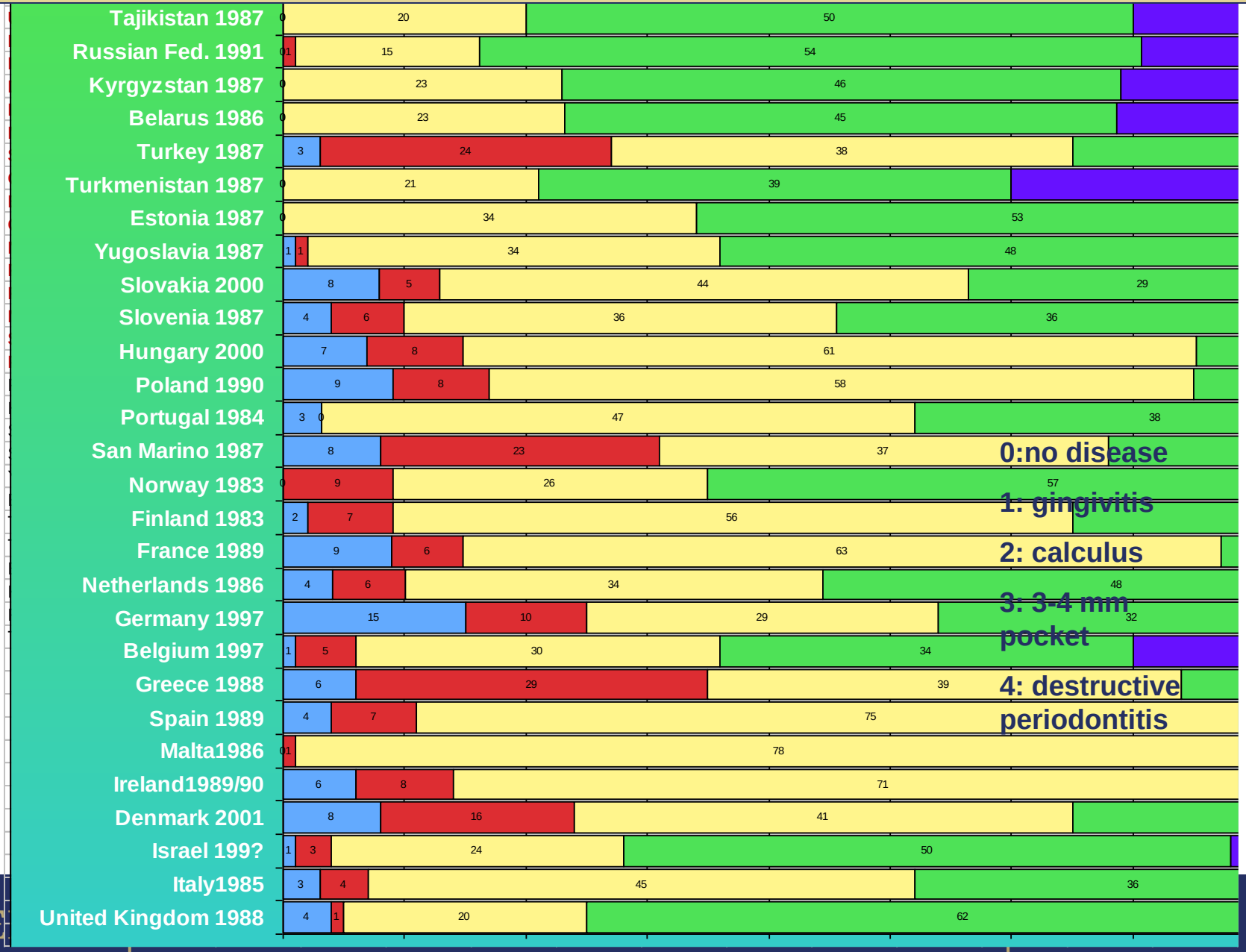
CPITN score	12-year old	12 -year old	12-year old	35-44-year old	35-44-year old	35-44-year old
%	1985	1991	1996	1985	1991	2000
Deep pocket (CPITN 4)	0.1	0	0	8	2.3	3
3-5 mm pocket (CPITN 3)	4.1	0	0	26.4	15.4	22.3
Calculus (CPITN 2)	30.9	30.1	32.3	50.8	71.3	61.7
Initial gingivitis (CPITN 1)	38.5	30.8	39.7	7.6	6.8	8.5
Healthy (CPITN 0)	26.2	39.1	28	5	4.3	4.5

Czukor J. National Oral Health Pathfinder surveys in Hungary in the years 1985 and 1991. Fogorv. Szle 1994; 87:223-235

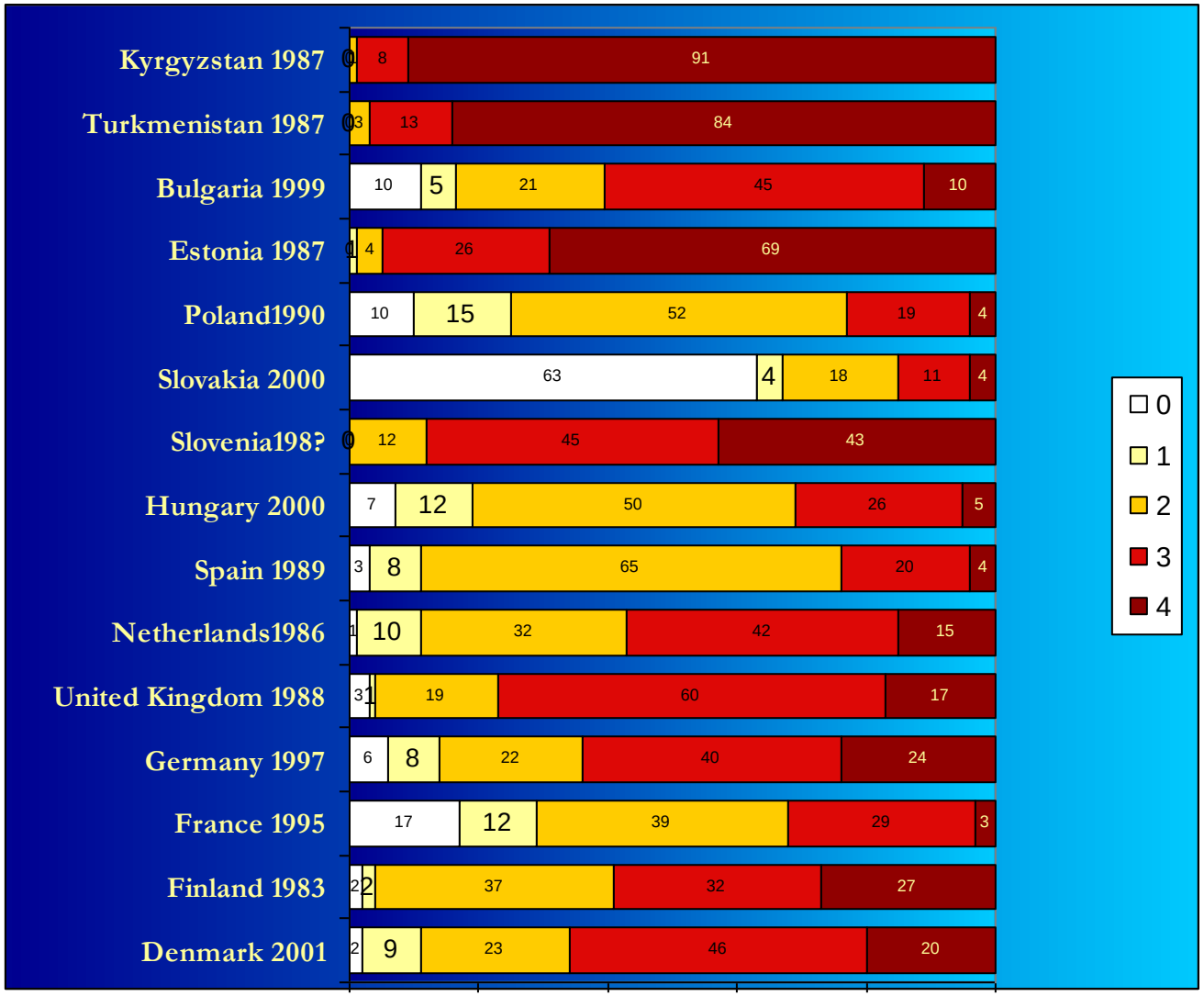
Szőke J, Petersen PE. Oral health of children- National situation based on the recent epidemiological surveys Fogorv. Szle 1998; 91:305-314.

Szőke J, Petersen PE. Oral health status of adults and the elderly in Hungary. Fogorv. Szle 2004; 97:219-229

Maximum CPI-scores in the 35-44 year old population in the European countries



Maximum CPI-scores in the 65-74 year old population in the European countries according to the WHO databank



0:no disease

1: gingivitis

2: calculus

3: 3-4 mm pocket

4: destructive periodontitis

Periodontal status of Hungary in different age groups in 2004.

Agegroup (years)	N	Highest CPI scores in the percentage (%) of the examined patients				
		CPI-0 healthy periodontium	CPI-1 gingivitis	CPI-2 calculus	CPI-3 3-4 mm pocket	CPI-4 deep pocket
<20	151	36.4	18.5	35.1	9.9	0.0
20–34	982	22.2	10.2	51.1	15.3	1.2
35–44	**743**	10.6	5.3	**56.7**	**21.9**	**5.5**
45–64	1753	6.9	6.9	47.2	27.7	11.3
65–74	408	6.9	10.1	45.8	26.2	11.0
>=75	116	10.3	10.3	37.1	32.8	9.5

(Oral) health-awareness

Population level:

-Awareness of the causative factors for (oral) diseases, the attitudes, oral health-related habits and behaviors play vital role in determining the oral health status

-Necessary for successful optimizing delivery of oral health

Knowing behaviour :

self-formation of practices and behaviours that are related to the maintenance of (oral) care

Individual level:

-Plays an important role in the health behavior of the patient for

- Tooth decay, advanced gum disease and tooth loss are **preventable conditions**.

- Dental treatments: repair of the damage caused by the disease
- Promotion of a **preventive** rather than restorative **oral health care system**

Oral health awareness and behavioural characteristics of Hungarian patients.
Data analysis of a European study

Hungarian patients showed a significantly lower level of awareness regarding funding of their actual dental treatment, periodontal and cariological examinations, but their knowledge was on a higher level of oral mucosal cancer screening compared to the other 5 Europeans' average.

Considering preferable oral health behaviour (tooth brushing frequency, use of fluoride tooth paste, interdental cleaning) and smoking Hungary was on a lower level, but in case of alcohol consumption on a better level and in sugar intake at similar level compared to the 5 other European countries' average.

(ADVOCATE study 2019)

Conclusions

Results show that some factors in health awareness like diagnostic methods and funding sources are less known among the Hungarian patients and less reviewed by the dentists to them, but aware health behaviour is close to or at the same level and some factors show to be better than the EU average.

According to oral health parameter results and health awareness results health-education and health-behavior of dental patients needs more support and attention in Hungary..

Thank you for your attention!

Please evaluate the lecture and me!

Number of Different Oral Health Professionals in Hungary in 2016.

Category	Total Number	No./Inhabitants
Dentists	5 420 (4400 active)	1:1 737
Dental Hygienists	600	n.a.
Chiarside Assistants	3 815	n.a.
Dental Laboratory Technicians	2 200	n.a.

3670 dentists have a partnership agreement with the National Health

Education of Dentists

University	Total number - 2014		Graduated in 2014	
	Hungarian	Foreign	Hungarian	Foreign
Budapest	501	339	86	62
		english: 272 german: 67		english: 50 german: 12
	Total number		Graduated in 2014.	
	Hungarian	Foreign	Hungarian	Foreign
Debrecen	295	376	42	33
		english: 376		english: 33
	Total number - 2014/2015 fall semeser		Graduated in 2014.	
	Hungarian	Foreign	Hungarian	Foreign
Pécs	189	207	28	18
				english: 14 german: 4
	Total number - 2014		Graduated in 2014	
	Hungarian	Foreign	Hungarian	Foreign
Szeged	230	137	36	13
		english: 137		english: 13
	Total number - 2014		Graduated in 2014	
	Hungarian	Foreign	Hungarian	Foreign
Total:	***1215***	***1059***	***192***	***126***

Ratio of Students from different nations in the Dental Faculty of the Semmelweis University in 2014.

- Hungarian speaking course: 501 students
- English speaking course: 272 students
- German speaking course:67 students

Health Insurance System in Hungary

In Hungary, the National Health Insurance Budget provides oral health care for most of the population.

All employees and employers are obliged to pay into this insurance budget.

Healthcare is free in general, except prosthetic and orthodontic appliances between the ages of 18-62 years

Children, pregnants, retired, cancer patients do not have to pay

Oral Health Insurance System

Clinical treatment costs	Children (0-18)	Orthodontic (0-18)	Adults (18-62)	Elderly (62+)
Free of charge	Every treatment	if begun before the age of 16	Oral screening, emergency treatment, fillings, root canal treatment, perio treatment and oral surgery excl. implants	every treatment
Full clinical price			Fixed and removable prosthetic and orthodontic appliances, every other treatment	
Full laboratory price			Fixed and removable appliances	Fixed prosthesis
Proportion of laboratory price		25% of the fixed and removable appliances		50% of the removable prosthesis

International Connections

European Association of Dental Public Health (EADPH)

- An international and independent science-based forum for professionals having a special interest in dental public health and community dentistry.
- Official journal: ”Community

Council of European Chief Dental Officers (CECDO)

- A forum affecting the European Union (EU) and European Economic Area (EEA) member countries.
- It exists to offer advice to National Governments on matters affecting European

Thank you for your kind attention