

# Systems for the Provision of Oral Health Care in the Black Sea Countries

## Part 10: Greece

Popie Damaskinos<sup>1</sup>, Charalampos Economou<sup>2</sup>

<sup>1</sup> MSc, DDS. Director Dental Services, General Hospital Evaggelismos, Athens, Greece. PhD Candidate, University College London, United Kingdom. <sup>2</sup>PhD, MSc, BSc. Assistant Professor, Panteion University of Social and Political Sciences, Department of Sociology, Athens, Greece.

### Abstract

This paper describes the complex Greek health insurance system in 2011 and how it funds some aspects of oral health care for the population. It explains how different aspects of oral health care for different groups in Greek society are funded by insurance schemes or the national health system (ESY) or purely by direct (out-of-pocket) payments from patients to dentists. It then describes the Greek oral health care workforce and explains that relative to the population there are more dentists than in any other European country. However, few work with chair-side assistance from dental nurses and there are no dental hygienists. There are two dental schools, whose intake may well be reduced in the near future. There are also only two recognised dental specialties (orthodontics and oral surgery). Some epidemiological data and costs are then presented. The paper finishes with a consideration of problems in oral health care in Greece and suggests how some may be overcome.

*Key Words: Oral Health, Greece, Dentists, Dental Costs, Epidemiology*

### Introduction

This paper is the tenth in a series that describes the systems for the provision of oral health care in the countries that surround the Black Sea and the Eastern Mediterranean Sea. The information contained herein and most of the data quoted in this paper were provided by the Hellenic Statistical Authority (EL.STAT) [1], the Hellenic Ministry of Health and Social Solidarity [2], the Hellenic Dental Federation (HDF, personal communication, 6th December 2011), the Hellenic Federation of Dental Technicians (HFDT) (personal communication, 6th December 2011), the government's *National Plan and Action for Oral Health 2008-2012* [3], and the Greek Health System Review published by the European Observatory on Health Systems and Policies [4]. All of the data relate to dental workforce in Greece up to 14th December 2011.

### The Country and Its Health Insurance System

According to the most recent census (May 2011), the population of Greece is 10,787,690 of whom 49.2% are males and 50.8% female. More than six

million (60%) live in urban areas and just under four million (40%) in rural areas. Greece has land borders with Albania to the northwest, Bulgaria and the Former Yugoslavia Republic of Macedonia (FYROM) to the north, and Turkey to the east. The Aegean Sea lies to the east of mainland Greece, the Ionian Sea to the west, and the Mediterranean Sea to the south. Greece has a vast number of islands (approximately 1400), including Crete, the Dodecanese Islands, the Cyclades, and the Ionian Islands, among others. Greece consists of 13 administrative regions subdivided into a total of 325 municipalities. The capital of the country is Athens in Attica, where the majority of the population lives [1].

The Greek health care system comprises elements from both the public and private sectors. In relation to the public sector, elements of the Bismarckian [4] and the Beveridgean [5] models coexist. Before the establishment of the national health system (ESY) in 1983, the provision of health care in Greece followed the Bismarckian [4] model of compulsory social health insurance. Social insurance funds continue to play a significant role in the provision and financing of health

care, especially ambulatory services, and follow two patterns. The first includes funds that have their own medical facilities and that cover all the primary health care needs of their insured population. Under this arrangement, medical professionals are paid a salary. The second pattern of provision concerns funds that do not own any medical facilities directly but enter into contracts with medical practitioners, who are compensated via a defined fee-for-service on a retrospective basis. A variation of this pattern occurs where insured persons choose whatever professional they wish to consult and pay the current market price for the service received. They are then reimbursed a prescribed amount from their sickness fund.

The social insurance system in Greece comprises a large number of funds and a wide variety of schemes and assignment to one of them depends on the occupation of the insured. Until recently, there were about 30 different social insurance organisations providing cover against the risk of illness. Most were administered as public entities and operated under state control. Each insurance institution was subject to different legislation and in many cases there were also differences in contribution rates, coverage, benefits, and the conditions for granting these benefits, resulting in inequalities in access and financing of services. In 2011, the four biggest health social insurance organisations, which covered more than 95% of the Greek population (Social Insurance Organisation for Blue Collars, Agricultural Insurance Organisation, Civil Servants Health Insurance Fund, and Social Insurance Organisation for Self-Employed Professionals), were merged in one fund in order to simplify the system.

The ESY is financed by the state budget via direct and indirect tax revenues, and it provides for emergency pre-hospital, primary, and in-patient health care delivered through rural surgeries, health centres and public hospitals, which is reimbursed on a *per diem* basis. Doctors working in public hospitals and health centres are full-time employees, are not allowed to engage in private practice, and are paid a salary.

The private sector includes for-profit hospitals, diagnostic centres and independent practices, financed mainly from patients' out-of-pocket payments and, to a lesser extent, by private health insurance. Besides indemnity insurance for health professionals, the latter can take the form of either preferred provider networks or integrated insurers'

and providers' schemes. A large part of the private sector, as mentioned above, contracts with social health insurance/sickness funds to provide mainly primary care, and is financed on a fee-for-service basis according to predetermined agreed prices [4].

### **The Provision of Oral Health Care**

Dental health care coverage for the Greek population is provided in three ways. These are:

1. Through social insurance funds, financed by contributions from both employees and employers.
2. Through the ESY, at rural health services and public hospitals funded by the state budget.
3. Through the private sector, whereby providers are remunerated mainly by direct out-of-pocket payments from patients.

As a consequence, dental coverage has the same structural weaknesses as the rest of the primary health care system; that is, a lack of coordination and limited protection for patients due to the system's segmented character.

A major weakness of the social insurance system is its significant disparities and inequalities, given that there are broad differences in coverage among social insurance funds. As a result, the majority of the population is not covered for dental services. For example, the OAEE (the insurance organisation covering the self-employed) does not cover children aged under 16 years. Beneficiaries of another scheme, the OGA (covering agricultural workers), have the right to consult a dentist only in rural health centres and hospitals. State-funded health centres offer dental treatment to the rural population younger than 18 years old, whereas state hospitals provide oral care for special cases (patients with AIDS, diabetes, and so on). The rural population aged over 18 years and insured through OGA must to use the private sector's dental services, as this group is not covered for dental care. The Greek National Health Service (IKA) employs part-time dentists in its polyclinics who are remunerated on a salaried basis. It has also established contracts with private dentists for only a specific range of services, such as fillings, dentures, other removable prostheses, and orthodontics for children younger than 15 years old. Crowns and bridges are not covered. A number of funds that do not have their own polyclinics contract with private dentists who are remunerated on a fee-for-service basis according to a predetermined tariff, whereas

other funds offer their beneficiaries a free choice of dentist. In the latter case, the patient pays the dentist and is then reimbursed by the fund. The cost of preventive dental services is not covered by funds, with the exception of the beneficiaries of banking funds. Free preventive dental care is only made available occasionally by certain dentists in rural health centres [6].

The private sector and out-of-pocket payments made by patients act as substitutes for the gaps in insurance coverage for dental treatment and express dissatisfaction with the range of existing services offered by the public sector. The extended use of private sector services for dental treatment is highlighted by the fact that 29% of household health expenditure in 2008 was on dental services [7]. Consequently, it is not surprising that the results of a study on the social and economic factors influencing dental care use in Greece showed a strong association between income and the use of dental services. People with higher incomes had an increased probability of using dental care services. Similarly, higher income was also associated with more dental visits [8].

The problems of dental care in Greece are mirrored in the results of a Eurobarometer survey conducted in 2007. The population of Greece was among the least inclined to rate positively the quality of the dental care it received. The survey found that 61% of Greek citizens thought that dental services in Greece were of good quality, the lowest percentage after Poland (50%) and Portugal (51%). Furthermore, on the question of affordability, the most negative opinions were in Portugal (82%), followed by Greece (75%) [9].

### **The Public Sector: Hospitals and Health Centres**

The ESY was introduced in 1983 and implemented in 1986, with the establishment of 131 hospitals in urban and rural areas and 203 health centres in rural areas. In the health centres, dentists provide emergency dental care for people of all ages. People who are younger than 18 years of age, unemployed, or pregnant and nursing (for up to one year after the birth of a child) are offered primary dental care free of charge.

However, due to the economic crisis, the government has changed its policy on health payments. Today, hospitals charge €5 (instead of €3) per medical/dental visit. For example, a tooth extraction costs €6.34 plus €5 for the visit, which means that

the patient pays a total out-of-pocket amount of €11.34. Only those patients with significantly low incomes are exempted (treated free of charge).

Two hundred and thirty-nine dentists work in public hospitals providing secondary dental treatment for medically complex patients. They work in close cooperation with other hospital departments to enhance their overall effectiveness. They provide both primary secondary oral health care for patients with disabilities. Such care is often provided under general anaesthesia at certain hospitals and by specially trained dentists.

The major function of hospitals' dental departments is to handle dental emergencies on a 24-hour basis, 365 days a year. Dentists in these hospitals are obliged to perform administrative tasks, in addition to training staff and undertaking research.

There are 202 health centres spread all over the country in rural areas and in the islands, where people up to 18 years of age are covered for an annual consultation, preventive treatment (dietary and oral hygiene advice, application of topical fluoride, fissure sealants, and preventive fillings), dental radiography, conservative treatment (amalgam and composite fillings), endodontic treatment, and periodontal treatment. They also provide advice about controlling habits, such as thumb sucking, and orthodontic problems but they do not provide any prosthetic treatment. They provide emergency care for a varying number of hours and days per week, depending on the area. Dentists in health centres are also obliged to perform administrative tasks [2].

### **The Dental Workforce**

Greece has the highest proportion of dentists per 100,000 population among European countries [10]. In 2008, the total number of dentists in Greece was 14,260; however, there has been a slight decline, and the total was 13,919 in December 2011. *Table 1* compares the data for registered dentists in 2008 and 2011 according to gender, work place, and specialty.

As shown in *Table 2*, dentists in Greece may work privately and/or be self-employed or work as salaried dentists. However, because they can be both salaried and practise privately, the sum exceeds the total of 13,919 registered dentists for the whole country. Even so, 1037 dentists do not have private dental offices.

In 1994, Greece had so many dentists that the dentist-to-population ratio was 1:944, the highest in the European Union [11,12]. In 2004, Greece had

**Table 1.** Registered dentists in Greece for the years 2008 and 2011 according to gender, workplace, and specialty

Registered dentists	2008						2011					
	Total	%	M	%	F	%	Total	%	M	%	F	%
<b>Dentists in Greece</b>	<b>14,260</b>	100	7,598	53	6,662	47	<b>13,919</b>	100	7,393	53	6,526	47
Health centres	313	100	167	53	146	47	273	100	146	53	127	47
Hospitals	254	100	150	59	104	41	239	100	140	59	99	41
Universities	228	100	156	68	72	32	212	100	146	69	66	31
Social insurance	922	100	426	46	496	54	866	100	412	48	454	52
Orthodontics	419	100	250	60	169	40	431	100	256	59	175	41
Oral and maxillo-facial surgeons	175	100	141	80	34	20	173	100	140	81	33	19
Army	72	100	70	97	2	3	72	100	70	97	2	3

Note: The Hellenic Dental Federation (HDF) sends data and reports for registered dentists to the Hellenic Statistics Office. However, there is slight variation between the two numbers. The numbers used here are from the Hellenic Dental Federation.

**Table 2.** Registered dentists according to gender and work status for the year 2011

Year 2011	Dentists / Total		M		F	
	n	%	n	%	n	%
Dentists in Greece	<b>13,919</b>	100%	<b>7,393</b>	53%	<b>6,526</b>	47%
Self-employed only and/or privately	12,219	100%	6,544	54%	5,675	46%
Only self-employed	11,353	100%	6,132	54%	5,221	46%
Only salaried	661	100%	334	51%	327	49%
Salaried and self-employed	1,102	100%	626	57%	476	43%
Do not have a private dental office	1,037	100%	517	50%	520	50%

120.35 dentists per 100,000 people, compared to the mean of 60.56 for the EU-27 countries and the mean of 65.74 for the EU-15 countries. In December 2011, the ratio was even higher, at 1:775. Despite Greece having the highest dentist-to-population ratio of the European countries, it has very few dental nurses/dental assistants, although the exact numbers are unknown. *Table 3* shows the differences in oral health manpower among European countries for either 2007 or 2008.

The majority of dentists who work either privately or in the public sector do so without dental assistant nurses. The results of a postal survey of Greek dentists on the topic of job satisfaction revealed that working with a dental assistant was associated with job satisfaction ( $P=.005$ ) and financial satisfaction ( $P=.004$ ). It also found that job and financial satisfaction increased according to age and years of practice [13].

There is an uneven distribution of dentists in Greece; the majority of the private dental offices are located in Athens (Attica) and Thessaloniki (Macedonia), 48% and 23%, respectively [HDF, personal communication, 6th December 2011] [1]. All dentists must be members of the Hellenic Dental Federation, which consists of 52 local dental societies [again, HDF, personal communication] [12]. The distribution of dental technicians is similar to that of dentists. The total number of dental technicians in Greece is 1400; half work in Athens (Attica), and the rest elsewhere, all over the country [HFDT, personal communication, 20th December 2011]. There are no clinical dental technicians (denturists) or dental hygienists in Greece.

Greece has two university dental schools; one is located in Athens (Dental School of the National and Kapodistrian University of Athens) and the other in Thessaloniki (Dental School of the Aristotle University of Thessaloniki). The two den-

**Table 3.** Number of dentists per 100,000 population in selected European countries with available data for the years either 2007 or 2008 [12]

Country	Number of dentists	No. dentists per population (100,000)	Year
Albania	985	1:4,264	2007
Armenia	1,700	1:19,000	2008
Austria	4,206	1:1,980	2008
Belgium	7,576	1:1,408	2007
Croatia	3,500	1:1,267	2008
Cyprus	728	1:1,091	2008
Czech Republic	7,048	1:1,468	2007
Denmark	4,800	1:1,141	2008
Estonia	1,220	1:1,097	2008
Finland	4,500	1:1,178	2007
France	40,968	1:1,556	2008
Germany	65,929	1:1,247	2008
<b>Greece</b>	<b>14,126</b>	<b>1:794</b>	<b>2008</b>
Hungary	4,973	1:2,020	2008
Iceland	284	1:1,107	2008
Ireland	1,990	1:2,221	2008
Israel	7,725	1:919	2007
Italy	48,000	1:1,242	2007
Latvia	1,372	1:1,655	2008
Liechtenstein	41	1:866	2008
Lithuania	3,010	1:1,118	2008
Luxembourg	360	1:1,344	2008
Malta	135	1:3,041	2008
Moldova	1 535	1:2,327	2008
Netherlands	8,791	1:1,866	2008
Norway	4,300	1:1,101	2006
Poland	21,750	1:1,752	2008
Portugal	5,700	1:1,503	2008
Romania	13,687	1:1,573	2008
Russian Federation	56,000	1:2,536	2007
Slovakia	3,085	1:1,750	2007
Slovenia	1,296	1:1,563	2008
Spain	24,000	1:1,886	2008
Switzerland	4,500	1:1,680	2008
United Kingdom	31,000	1:1,976	2008

Source: Country Area Profile Project. Country Oral Health Profiles. Oral Health Database: Oral Health Manpower in Euro. Accessed (2011 Dec 10) at: <http://www.mah.se/CAPP/Country-Oral-Health-Profiles/EURO/EURO-Oral-Health-Manpower/>

tal schools provide undergraduate (five-year) and postgraduate studies (Master's and doctoral). The Aristotle University of Thessaloniki has 875 undergraduate students, 117 of whom are new undergraduate students who enrolled for the 2008-2009 academic year [15]. The total number of students who enrol each year at both universities is 280 [14], but this number should be reconsidered because the country's oral health workforce is already too big for the needs of the population.

### Dental Specialties

Only two dental specialties are recognised in Greece (as in most European countries): oral surgery and orthodontics [16-18].

### Continuing Professional Education

Although other countries implemented continuing professional education (CPE) a long time ago, it was only in 2009 that the Hellenic Dental Federation proposed compulsory CPE for dental

professionals in Greece. The proposed system has been examined and the final proposal will be activated by law in the near future. According to this proposal, each dentist (working either in the public or in the private sector) should provide evidence of 150 hours (credits) of CPE in a five-year period to be able to renew his/her professional licence [2,3].

### **Present Situation: Plan of Action for Oral Health 2008-2012**

In 2008, the Ministry of Health published the five-year *Plan of Action for Oral Health, 2008-2012*. The main goal of this plan is to establish a policy that is targeted at oral/dental disease prevention, oral health promotion, effective treatment, and the improvement of dental services (both in efficiency and quality) in the private and public sectors. Furthermore, the plan aims to implement effective policies for the promotion of oral health in children, in adults at work, and in older people, using special training programmes for disabled people, refugees, the homeless and Roma. Moreover, educational programmes for the promotion of topical fluoride products and water fluoridation will be implemented. In addition to protection from contaminated and toxic dental disposables and environmental care, special attention will be paid on promoting evidence-based dentistry and continuing dental education [3].

### **Epidemiology**

In 1987, Moller and Marthaler (1988) conducted a national oral health pathfinder survey in Greece and found that the mean Decayed, Missing, and Filled Teeth (DMFT) index was 4.3 for 12-year-old children [19]. Epidemiological studies over the last three decades (1980-2010) have revealed a reduction in caries prevalence, and the mean DMFT index for six-year-old and 12-year-old children had declined. A systematic review of 48 epidemiological studies in the country from 1980 to 2000 revealed geographical variation in the caries experience of 12-year-old children: Epirus, Macedonia, and Thessaly had the highest DMFT scores (mean DMFT index of 4.21), whereas Attica had the lowest DMFT index (2.45) during the second decade. For 6-year-old children, the mean DMFT index was 0.71 between 1980-1989, but it was lower in 1990-1999 (0.27). Rural areas had higher DMFT indices than urban and semi-urban areas. The socioeconomic status and educational level of parents were associated with the caries experience of their chil-

dren. Moreover, the DMFT index was significantly lower in areas with naturally fluoridated water [20].

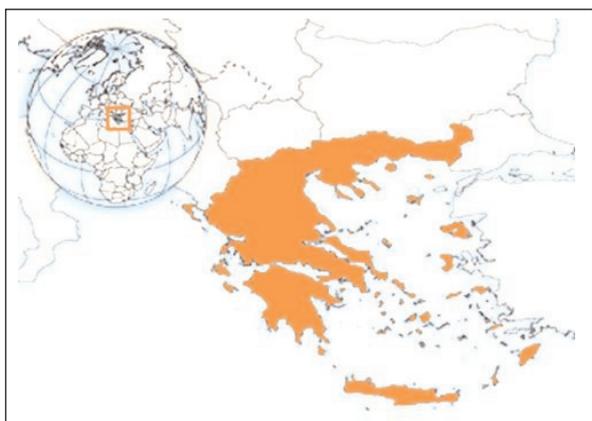
In 2005, a new national pathfinder survey of oral health of Greeks was completed. The results showed that for 12-year-old children, the mean DMFT index was 2.05, and for adults (35-44 years old) the DMFT index was 14.06 [21]. Periodontal diseases had a wide geographical variation; among children aged 12-15 years old, those from Achaia (Peloponnese) had the highest CPITN scores, and among people aged 35-44 years old, those from Chania (Crete) had the highest CPITN scores [21]. It was also found that dental needs remained untreated, especially for the youngest (five years old) and oldest (65-74 years old) respondents [21]. Educational and social inequalities in oral health and the DMFT index have been found, both in old and more recent studies [20,21].

Two studies examined oral health-related quality of life in Greek people using two different indicators, and they showed divergent results. The first was a joint cross-sectional study conducted in Greece and the United Kingdom (UK) to examine cross-cultural differences in oral health-related quality of life and perceived treatment need among older people living independently. Oral health-related quality of life was assessed through the modified Oral Impacts on Daily Performance (OIDP) indicator, as was perceived need for dental treatment. The examined population in Greece, which included edentulous and dentate participants, was significantly more likely to experience oral impacts than the UK participants. However, there were no significant cross-cultural differences for perceived treatment need, with the exception of the dentate respondents [22]. The second study examined the impact of oral health on quality of life in Greeks aged 35-44 years old, both in urban and rural areas, and the indicator used, Oral Health Impact Profile-Short Form (OHIP-14), showed a relatively low effect [23].

### **Health Expenditure: Oral Health**

Health care expenditure in Greece has increased substantially over the last two decades in per capita US dollars purchasing power parity and as a share of gross domestic product (GDP). The proportion of total health expenditure has risen from 6.6% of GDP in 1990 to 9.7% of GDP in 2008. This figure ranked Greece among the ten highest health spenders in the Organisation for Economic Cooperation and Development (OECD) group. In

2008, Greece spent more on health care than Scandinavian countries (Finland spent 8.2% of GDP, Norway spent 8.9%, and Sweden spent 9.1%). As for other Mediterranean countries, Italy spent 8.7% and Spain spent 8.4%, and countries such as Luxembourg and the United Kingdom spent 7.1% and 8.4%, respectively [24].



**Figure 1.** Greece and its islands.

Furthermore, it seems that in 2008 Greece had one of the largest shares of private health expenditures among OECD countries, given that it constituted approximately 40% of total health expenditure. This share ranked Greece the fifth largest private spender on health after Mexico (54.8%), the United States (54.6%), South Korea (45.1%), and Switzerland (40.7%). The percentage of GDP that Greece allocated for public health expenditures (5.8%) was one of the lowest among OECD countries, after Mexico (2.7%), South Korea (3.5%), Poland (4.6%), the Slovak Republic (5.2%), and Hungary (5.2%) [25]. Greece spent more on oral health than any other European country, and this proportion was 1.1% of GDP in 2004 [26]. The percentage of total public health expenditure spent on dental public services was only 1.23%. Out-of-pocket money spent on private dental services was roughly 33% [3,4].

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The provision of oral health in Greece is a complex of public and private services. Although there are large numbers of dentists in the country, they are unevenly distributed geographically, not only in private dental offices but also in the public sector (hospitals and health centres). Some dental departments in public hospitals are understaffed, whereas others are overstaffed. These inequalities are also seen in the way some of these dental departments work together on emergencies, merging their shifts, whereas dentists in departments that are understaffed work alone for 24-hour emergency operations. Emphasis should be placed on the consequences of the economic crisis that have affected general health [27] because of changes in health care and social care affordability [28]; this could affect oral health outcomes as well.

The number of dentists should be commensurate with the country's need. The results of one survey suggested that only 49% of Greeks stated that their most recent visit to a dentist was within the previous 12 months [29]. Another survey suggested that for adults, this figure was lower (39.6%) [30].

There is no fluoridation of any kind in Greece [14]. However, a ministerial resolution for water fluoridation has existed since 1974 (Ministerial Resolution n.54/901/17.1.74), although this resolution has never been implemented [20].

There should be an effective preventive programme (fissure sealants) and therapeutic dental care for children, adolescents, and those vulnerable social groups with limited resources (poor, homeless, unemployed, asylum seekers, and Roma) and the elderly, who are an increasing section of the society. Social inequality is harmful for general and oral health. Policy makers should devise strategies to eliminate disparities and the effects of social determinants on oral health [31]. The provision of oral health in Greece should expand in vulnerable social groups and should focus on health promotion, disease prevention, and disease surveillance.

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### Erratum

*Oral Health and Dental Management*. 2011; **10**: 171

The correct details for this abstract are:

**“Comparative monitoring of urinary fluoride excretion in preschool children.”**

Székely M, Camarasan AC, Bánóczy J, Fazakas Z.

University of Medicine and Pharmacy of Târgu-Mureş, Romania, and Semmelweis University of Budapest, Hungary.