The healthcare system and the provision of oral healthcare in European Union member states. Part 2: Spain

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IN BRIEF

- Spain is the EU Member State with the greatest increase in the number of dentists over the last three decades.
- Oral health care for Spanish adults is provided predominantly in the private sector.
- There has been a great improvement in children's oral health during the last three decades.

GENERAL

Spain is the second largest EU Member State with an area of 504,645 km^2 and is the fifth most populated one with a total of 46.5 million inhabitants. The number of dentists working in Spain has grown rapidly in the last 20 years. In December 2014, there were 33,346 practising dentists with a ratio of one dentist for every 1394 inhabitants. Oral health of children has improved; with a fall in the national mean DMFT index (decayed, missing and filled permanent teeth) among 12-year-olds, from 4.20 in 1984 to 1.12 in 2010. The percentage of the population that has visited a dentist within the last three months has risen from 13.5% (1987) to 16.9% (2011–2012). Forty-three percent of the Spanish population visited a dentist in the last year in 2009. The Spanish National Health System (SNS) provides comprehensive cover for general health, but very little oral healthcare for adults. Only emergency care and oral surgery (dental extractions) for adults are provided in publicly funded clinics. The vast majority of oral health care is provided in the private sector and over 90% of dental professionals work in the private sector. Nevertheless, children aged 7–15 years are covered (with some restrictions) by publicly funded oral healthcare with different care models, depending on the local health authority, and some of them are funded by a capitation system which was introduced 25 years ago.

INTRODUCTION

Oral healthcare in Spain has experienced very important changes in the last three decades. Epidemiological indicators for oral health have improved, and a considerable decrease in dental caries has been achieved. The number of dental schools, dentists and dental hygienists has increased and the dentist to population ratio has vastly improved. Dental public health started to develop in the early eighties with programmes mainly oriented to schoolchildren. These topics are explained below.

ORGANISATION OF HEALTH CARE

Spain is made up of a central government and 17 highly decentralised regions (autonomous communities), each having its own autonomy regarding health policy. However, there is a coordinating body at central/state level which specifies the basic coverage offered by the Spanish national health system, the Servicio Nacional de Salud (SNS). The extent of health care provided by the SNS was first defined in 1995 by royal decree (Royal Decree 63/1995), which consolidated all existing benefits as a basic entitlement for all Spaniards. The statutory SNS predominantly operates within the public sector and provides universal coverage (including for illegal immigrants). It is funded from taxes and provision of basic healthcare and is free of charge at the point of delivery, with the exception of the pharmaceuticals prescribed for adults aged under 65 years, who, with some exceptions, have to pay only 40% of the cost of pharmaceuticals. The devolution of health competences to the 17 autonomous regions started in 1982 and was complete by the end of 2002. This devolution resulted in 17 regional health ministries with primary jurisdiction over the organisation and delivery of health services within their territory, administrating up to 90% of public health resources. While the universally accessible SNS offers extensive medical care coverage, the oral health coverage for the adult population is limited to oral surgery and pharmacological treatment performed by salaried dentists, who work in hospitals and public clinics, and who make up less than 5% of the Spanish dental workforce. The explanation for the absence of a basic dental coverage may be because of social expectations. Spaniards have been used to seeking oral healthcare privately and thus there was no major social and political pressure for its inclusion in the SNS even though this topic is frequently in the manifestos of nearly all political parties at election time. Voluntary private schemes cover about 13% of the population, additional to their SNS basic coverage, although there is some regional variation. In the Balearic Islands, Catalonia and Madrid more than 20% of the population buy private insurance. Purchasing voluntary private insurance does not imply opting out of the SNS, but rather purchasing alternative and complementary coverage such as specialist care or adult dental care. Since the early 1980s, the public system has been offering oral health care for children up to 14 years except for orthodontic care. Children's oral health care in Spain has been characterised by a large difference in the level of benefits depending on the region where the children live. This seriously affected equity in access to dental treatment for children throughout Spain. As stated previously, oral health care is mainly supplied in a private fee-for-service system

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in which more than 90% of Spanish dental professionals work. Most of the autonomous communities have developed public health dental programmes with preventive activities (mainly fluoride mouth rinsing, oral health education and the application of fissure sealants) while some have also established a basic coverage for the permanent dentition of children (6 to 15-year-olds) with public financing and the public or private provision of services.[1–5]

By 2008, in an attempt to homogenise basic oral health care benefits for children across the different regions to avoid inequity within the framework of the SNS National Plan for Oral Health, the central state administration funded a broad range of oral health prevention and care measures, including: annual clinical examinations (check-ups) of teeth and the oral cavity, and dental treatment (fillings, endodontics, extractions and dental prophylaxis). Unfortunately, since 2009, due to the economic recession, funding for children's oral health care has been heavily reduced, even though the system had improved access to oral health care. Inequity among some Spanish children still exists depending on the region where they live. Moreover, most of the programmes have been reduced, but at different levels depending on each regional health ministry. There is also a lack of information regarding exactly what effect the reduced level of oral care is having.[1]

ORAL HEALTH SURVEYS

There have been six national oral epidemiological surveys in Spain. They took place in 1984,[6] 1987,[7,8] 1993,[9] 2000,[10] 2005[11] and 2010,[1,12,13] as well as numerous regional and local surveys. Most of the oral health information from these surveys refers to normative diagnostic and treatment needs and have been performed using WHO criteria.[14,15] Since 2005, Spanish oral epidemiological surveys have also included two questions about patients' oral health perceptions (of pain and eating/chewing capacity) taken from the EGOHID project.[16] Data from all these surveys show a continuous improvement in many oral health indicators even though data from the 2005 survey revealed a trend towards stabilisation. Table 1 shows the improvement of some indicators from 1993 to 2010, including tooth-brushing habits. A further example is the mean national Decayed, Missing and Filled permanent Teeth (DMFT) index in 12-year-olds,[15] which has shown a fall from 4.20 in 1984[6] to 1.12 in 2000,[10] and then a stabilisation to 1.33 in 2005[11] and 1.12 in 2010.[13] According to WHO,[15] this figure can be considered as: very low at (<1.2), low at (1.2-2.6), moderate at (2.7-4.4) and high at (>4.4). Thus, Spain can be considered to have a 'very low' mean caries level for its 12-year-olds. Nevertheless, the distribution of the disease (caries) is very asymetric. In 2010 for 12-year-old children, 46% of DMFT teeth were found in 10% of children and 64% of DMFT teeth were found in 17% of children.[13] Furthermore, for all studied years, and for most indicators, there is a SES (socio-economic-status) gradient, with more disease in those with a lower SES, or in immigrant populations.[18] Following international recommendations,[19] the Spanish Association of Oral Epidemiology and Dental Public Health (SESPO) and the Spanish Dental Association (Consejo General de Dentistas)[20] have proposed basic goals for oral health of the whole population in Spain for the years 2015-2020. They mainly refer to improving tooth-brushing habits, periodontal health and reducing caries prevalence. For example, the mean national DMFT index should be <1.0 in 12-year-olds by 2015, and the percentage of edentulous older (65-74 years) people should be ≤15% by 2020.[17]

Table 1 Changes in oral health indicators in Spain from 1993 to 2015

Indicator	Age (yrs.)	1993[9]	2000[10]	2005[11]	2010[13]
dft[a]= 0 (%)	5-6	62.0%	66.7%	63.7%	63.3%
DMFT[b] (mean)	12	2.32	1.12	1.33	1.12
Restoration Index[c] (%)	12	37.9%	52.9%	52.9%	52.7%
	15	43.5%	55.1%	59.6%	60.5%
Missing teeth (mean)	35-44	4.70	30.00	3.00	1.40
Population with at least 21 teeth (%)	65-74	NA[f]	28.1%	32.4%	44.3%
Edentulous (%)	65-74	31.3%	23.4%	16.8%	16.7%
CPI[d] = 0 (%)	15	25.3%	55.3%	34.5%	22.0%
	35-44	3.6%	19.3%	14.8%	16.0%
Daily toothbrushing with fluoride paste (%)	12	NA	NA	83.1%	93.9%
	15	NA	NA	84.8%	93.4%
	35-44	NA	NA	86.1%	94.3%
	65-74	NA	NA	75.1%	80.1%
Difficulty in eating/chewing (%)[e]	35-44	NA	NA	18.0%	26.1%
	65-74	NA	NA	26.9%	22.6%

Adapted from Bravo et al. Int Dent J 2009; 59: 78–82 (Ref. 17)
a: dft = decayed and filled deciduous teeth.
b: DMFT = decayed, missing and filled permanent teeth.
c: Percent of filled teeth within DMFT.
d: Community periodontal index.
e: The complete question was 'Have you experienced difficulties in eating/chewing because of problems with your mouth, teeth or dentures of any grade in the past 12 months?' Information was recorded on a 5-point scale: never (0), hardly ever (1), occasionally (2), fairly often (3) and very often (4). The data in the Table refer to the categories 2+3+4.
f: Not available.

NUMBERS OF DENTISTS AND THE USE OF ORAL HEALTH SERVICES

The last three decades have seen a sharp increase in the Spanish dental workforce and a rather low demand for oral health care services. While the Spanish population increased by 24% in the period 1980-2014 (from 37.5 million to 46.5 million inhabitants), the number of dentists increased by 745% (from 3,946 to 33,346) changing the dentist/population ratio from 1/9,506 to 1/1,394. The percentage of women in the profession has increased (from 29.5% in 1994 to 44.4% in 2010) and the average age of dentists has decreased (55% of dentists were younger than 40 years old in 2010) due to the high number of new graduates. If the current number of new Spanish dentists graduating each year remains at current levels, there will be approximately 40,000 dentists in Spain by 2020.[21] There are no controls on the number of students entering private dental schools, so the current overproduction is likely to continue and many new graduates will be unable to find employment in Spain. As a result, the current level of migration of Spanish dentists to other EU member states is likely to continue. For example by 31 December 2014, the United Kingdom's General Dental Council reported that 676 Spanish dentists had registered with them to practice in the UK. There are a number of reasons for this rapid increase in the number of dentists. First of all, from the late 1940s up to the 1980s, oral health care was provided

by stomatologists, who were trained firstly as doctors in medicine (a 6-year-long degree course) followed by two or three years specialised training in stomatology, initially at a single school of stomatology in Madrid. By the early 1980s, nine different schools of stomatology had been established offering the degree to a total of 569 new students per year. In 1986 the Spanish stomatology degree was replaced with a new programme in odontology, which met the requirements of the EU Training Directive and comprised five years of university training. In 2015, 21 university dental schools (12 public and 9 private) train more than 1500 new dentists per year.

A second factor for this rapid increase in the number of dentists has been the immigration of dentists graduated from Latin-American universities. The 1980s and 1990s witnessed the arrival of thousands of Latin-American dentists as well as Spanish citizens who had travelled to some Latin-American countries in order to obtain a dental degree, which was then automatically validated by the Spanish Government, in order to work in Spain without further training requirements. The market created by this demand led to the opening for dental schools in Latin-American countries whose only graduates were Spanish students. Nowadays, the arrival of dentists from other non-EU Member States to Spain still occurs. However, their training is now checked to ensure that it is of a similar standard to Spanish dental training. If the Spanish Ministry of Education deems it to fall short of this standard, the dentist concerned is required to pass a specific examination set by one of the dental schools within the public universities to achieve recognition of their diploma. This examination can vary depending on the university which sets the examination. It typically includes multiple-choice tests, written papers, clinical simulation, laboratory skills, etc). It should be highlighted that Spain, together with Luxembourg and Austria, are the only EU member states with no officially recognised dental specialties. The Spanish Dental Association (Consejo de Dentistas), universities, and scientific societies are trying to obtain recognition of dental specialist training and dental specialties and are in negotiations with the Spanish Government. A number of different organisations (universities, Spanish Dental Association, etc) provide courses for continuing education (CE), although it is not mandatory in Spain. According to the Spanish National Health Interview Surveys, the percentage of the population that has visited a dentist within the last three months has risen from 13.5% (1987)[23] to 16.9% (2011-2012).[24] In all national health surveys, there is an association of dental utilisation with age (less demand from older people), gender (higher demand by women), SES (higher demand in high SES groups), and population size (higher in big cities). Regarding reasons for dental visits, the main reasons are clinical examinations (check-ups), dental extraction(s), dental filling(s) and dental prophylaxis (hygiene) with large differences according to age.

Generally speaking, demand for oral health care in Spain is low compared with that in other countries with similar economic and political systems. The latest Eurobarometer survey[25] showed that 43% of the Spanish population visited a dentist during the last year (data from 2009). It should be noted that 47% of the Spanish population believed that the economic crisis had negatively affected visiting a dentist[26] and that the economic recession in Spain has been particularly severe with an unemployment rate of 23.5% in February 2015 and a higher rate (50.7%) among the younger population (those under 25-years-old).

Balancing the considerable increase in the number of dentists and the limited increase in utilisation, it has been estimated that there has been a 42% reduction in the number of private dental visits per dentist over the 10 year period from 1987 to 1997. Figures from the autonomous region of Catalonia showed a similar trend.[27]

It is widely accepted among Spanish dentists that there is need for a 'numerus clausus' (control of numbers) of dental students entering Spanish dental schools.[20,28] The excess number of dentists has increased at the time of the economic crisis.[29] Furthermore, the increased number of dentists does not seem to have been associated with better oral health of the population.[30,31] There is no scientific control of the number of dentists in relation to oral health needs of the population. Dental organisations such as the dental schools of the universities and the Spanish Dental Association cannot control the increase, and the number of dental schools continues to grow especially among private universities, which currently train approximately half of the new dental graduates.

OTHER ORAL HEALTH PROFESSIONALS

Moving on to discuss other oral health professionals in Spain, a brief description of their roles, numbers and the education of dental hygienists, dental technicians and dental nurses now follows.[32,33] Although their registration is not mandatory (with the exception of some regions for dental technicians), it was estimated in 2013 that there were about 13,200 dental hygienists, 11,135 dental technicians and 37,000 assistants (dental nurses).[32] Both dental hygienists and technicians hold a registrable qualification granted by the Ministry of Education. Their education and training is provided over two years by private or public schools, within the universities, and after secondary school. Dental hygienists are allowed to carry out prophylaxis and oral health education, but only under the prescription of a dentist who must be present in the building while they are working. Dental hygienists are almost exclusively employed in private practice. With regard to dental technicians, they may only work in commercial laboratories. Finally, dental assistants (dental nurses) work at the chair-side. There is no formal training or qualification for dental nurses, and they are usually trained by dental practitioners directly.

DENTAL PUBLIC HEALTH PROGRAMMES IN SPAIN

During the 1980s community oral health promotion and prevention started in Spain, the main target was the prevention of dental caries among children. Public health measures included the fluoridation of drinking water, which took place in several autonomous communities with densely populated cities like Seville. However, at present, this type of measure is in decline in Spain, with the closure of several of the fluoridation plants, opened in the 1980s. This means that today less than 10% of the Spanish population receives fluoridated water. The main exception is the autonomous community of the Basque Country, where nine fluoridation plants cover 1.6 million people (78% of the population). On the other hand, some Canary Islands have plants designed to reduce the high content of natural fluoride in their water due to the volcanic origin of many aquifers. At school level, health education campaigns and a programme of weekly fluoride mouth-washing were widely implemented in the 1980s and 1990s (from the age of 6 years to the age of 14 years). Although nowadays some communities have discontinued this measure, while in others the age range covered decreases year after year due to the lack of promotion of this activity and the lack of further evaluation, in addition to a very low amount of funds allocated.[2] These programmes were initially evaluated in the 1980s on a community level, but no further assessments have been reported in the last two decades. In recent years there have been efforts to promote community prevention programmes such as brushing in schools in Andalusia, the Canary Islands and Catalonia. To date, there are no published evaluations of these schemes.

ORAL HEALTH CARE IN SPAIN

As previously stated, the SNS provides wide coverage for general health, but little for oral health. Only a few basic services for adults are covered by the SNS. They include emergency care and dental extractions by public dentists. The vast majority of dental treatment is provided under private contract in which the patient pays the dentist directly.

Dental companies (the equivalent of corporate bodies in the United Kingdom) are developing rapidly, a process probably facilitated by the large increase in the number of young professionals searching for a place to work and the higher risks of starting their own dental practice. Ownership of dental clinics is no longer the exclusive domain of dentists, and investors from outside the dental world are increasing at a fast rate. Moreover, most of the health insurance companies have started to open and manage their own dental centres instead of contracting their services to independent dentists as in the past. This has led to the opening of hundreds of new dental clinics, each employing several dentists and often located on streets in city or large town centres. The Children's Dental Health Plan has attempted to make oral health care available to all Spanish children aged 7 years to 15 years. Many of the activities covered by this plan (reviews, topical fluoride, sealants, fillings, etc) were already covered by Royal Decree 63/1995. However, this Royal Decree 63/1995 suffered from 'under funding' which caused unequal provision in services offered to Spanish school-children based on their place of residence. The objective of the plan was to ensure equal care to that developed by capitation programmes (PADI) in Basque Country and Navarre, which were developed early in the 1990s. More than a decade later, from 2002 onwards, the PADI model,[1,2] with some modifications, was adopted in Andalusia (2002), Aragon (2005), Balearic Islands (2005), Castille la Mancha (2005), Extremadura (2005), Murcia (2003) and the Canary Islands (2009).[34]

PADI (dental care program for children) is a capitation system and was initially criticised for not incorporating the treatment of deciduous teeth and for establishing a fixed capitation payment to private dentists, not according to caries risk. There are some dentists working in the public health service on a salary basis who take care of children not attending the programme and who have severe dental caries as a result of which they are not being accepted within the capitation scheme by private practitioners. However, once stabilised by the public health service they can re-enter the capitation programme with private practitioners. PADI has been shown to have achieved good results in various assessments regarding health results and coverage rates. These regions have achieved lower caries rates, higher restoration percentages, and greater satisfaction of patients.[35,36] Still, the Basque and Navarre PADI programmes are not perfect and there are always areas for improvement to achieve excellence. Studies have shown that Navarre has decreased the socioeconomic gradient in decay, and has a higher level of dental care probably derived from its high utilisation rate with over 70% of the population covered.[1,2,37] Nevertheless, the utilisation rate is much lower in other regions.[1]

The capitation system (PADI) has also experienced some problems. A controversial aspect in the PADI programmes is the significant difference in the capitation payment between the various autonomous communities[2] and the fear of many private practitioners that schools with children with poor oral health would use the service, while those with orally healthier children would not use it continuously, leading to distortions in capitation payments to dentists. Furthermore, while private dentists who are contracted to the classic PADIs in Basque Country and Navarre are basically satisfied with the programme,[38] in other PADI programmes, such as in Andalusia, the opinion seems worse, because many Andalusian dentists are unhappy with the way the programme is administered.[39] While evaluations of programme activity are non-existent in some regions, it seems generally accepted that capitation models, particularly in Basque Country and Navarre, have achieved greater equity in access by socioeconomic level (compared to models based on salaried dentists).[1,40] It could be argued that there is a need to evaluate the efficiency of these PADI programmes *versus* other options to provide benefits, such as the system of established networks of public salaried dentists integrated into primary care networks (such as in Asturias, Galicia, Valencia or Catalonia) and mixed systems, as those used in both New and Old Castile.

EFFECTIVENESS OF PUBLIC DENTAL PROGRAMMES

The last three decades have witnessed a significant decrease in the prevalence of dental caries in Spanish children. This decrease has coincided with the progressive implementation of three different models of children´s oral health care. This has meant that politicians, irrespective of their political party, have interpreted it as a success of their measures, assuming a cause-effect relationship. However, from a scientific point of view there have been no high quality studies to support the politicians' view It can be hypothesised that other factors, such as the improvement in living standards of the population or the wider use of fluoride toothpastes, have had a greater effect than the care programmes as a factor in the overall decline in caries incidence, and there has also been an increased demand for dental care in Spain.[41]

In the absence of adequate studies substantiating the effectiveness of these programmes, it seems generally accepted that capitation models for children, particularly the earliest in the Basque Country and Navarre, have achieved greater equity access for children of lower socio-economic status.[40]

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