

# Education in and the Practice of Dental Public Health in the United Kingdom and Finland

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**Abstract:** This paper describes and compares the education in and practice of dental public health in Finland and the United Kingdom. A brief introduction describes the populations of the two countries in terms of their geography, mean per capita, Gross Domestic Product (GDP), life expectancy, recent oral epidemiological data, oral health needs and the dental workforce. This is followed by a description of education in Dental Public Health in each country at undergraduate, postgraduate and continuing levels. The practice of Dental Public Health is then outlined. In both countries it includes: leadership and management of health organisations, teaching, training, research, advising and evaluating. A discussion follows. It considers the need for the provision of Dental Public Health at a time of changing oral health need and gives examples of problems that have arisen when such advice has not been sought or has been ignored. Finally, the paper considers how education in Dental Public Health could be developed to provide more flexible training whilst ensuring that the quality of knowledge and skills of specialists is maintained or improved.

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## Introduction

At present, the European Union (EU) recognises only two dental specialties. They are Oral Surgery and Orthodontics. However, some EU member states have no official lists for any dental specialties and others, as they are free to do, recognise and list specialists in many specialties [1] (Table 1). Although most countries within the EU recognise the importance of public health, have formal university education in this specialty and maintain lists of Public Health specialists, only Finland and the United Kingdom (UK) have formal training programmes for Dental Public Health (DPH) and maintain lists of specialists in DPH. In Bulgaria and in Germany, Dental

**Table 1 – Dental specialties officially recognised by the member states of European Union and with a specialist list on 1 January 2009**

Member State	Oral			Childrens		Prostho	Endo	Others
	Ortho	Surg	Perio	Dent	DPH			
Austria	no list	no list	no list	no list	no list	no list	no list	no list
Belgium	Yes	Yes	Yes	no list	no list	no list	no list	no list
Bulgaria	Yes	Yes	Yes	Yes	Yes*	no list	Yes	Yes
Cyprus	Yes	Yes	no list	no list	no list	no list	no list	no list
Czech Rep.	Yes	Yes	no list	no list	no list	no list	no list	no list
Denmark	Yes	Yes	no list	no list	no list	no list	no list	no list
Estonia	Yes	Yes	no list	no list	no list	no list	no list	no list
Finland	Yes	Yes	no list	no list	Yes	no list	no list	Yes
France	Yes	no list	no list	no list	no list	no list	no list	no list
Germany	Yes	Yes	Yes**	no list	Yes***	no list	no list	no list
Greece	Yes	Yes	no list	no list	no list	no list	no list	no list
Hungary	Yes	Yes	Yes	Yes	no list	no list	no list	no list
Ireland	Yes	Yes	no list	no list	no list	no list	no list	no list
Italy	no list	no list	no list	no list	no list	no list	no list	no list
Latvia	Yes	Yes	no list	Yes	no list	Yes	no list	no list
Lithuania	Yes	Yes	Yes	Yes	no list	Yes	Yes	no list
Luxembourg	no list	no list	no list	no list	no list	no list	no list	no list
Malta	no list	no list	no list	no list	no list	no list	no list	no list
Netherlands	Yes	Yes	no list	no list	no list	no list	no list	no list
Poland	Yes	Yes	Yes	Yes	no list	Yes	Yes	no list
Portugal	Yes	Yes	no list	no list	no list	no list	no list	no list
Romania	Yes	Yes	no list	no list	no list	no list	no list	no list
Slovakia	Yes	Yes	no list	no list	no list	no list	no list	no list
Slovenia	Yes	Yes	Yes	Yes	no list	Yes	Yes	no list
Spain	no list	no list	no list	no list	no list	no list	no list	no list
Sweden	Yes	Yes	Yes	Yes	no list	Yes	Yes	Yes
United King.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

\*In Bulgaria there is a specialty called Social Medicine and Dental Health Organisation

\*\*Recognised in one Lande (region) only

\*\*\*In Germany there is a specialty of Community Dentistry that includes Public Health, Ortho – Orthodontics, Oral Surg – Oral Surgery, Perio – Periodontology Children Dent – Children Dentistry, Dental Pub Health – Dental Public Health, Prostho – Prosthodontics, Endo – Endodontics

Public Health is included in the specialties of Social Medicine and Dental Health Organisation (Bulgaria) and Community Dentistry (Germany). At a number of dental schools in other EU member states, Professors of DPH are members of the Faculty where the teaching and research in the special field are provided.

There are similarities between Finland and the UK in the Dental Public Health, although it is organised differently, each country has a well developed public health oral health service and equally large private sector. Although the geographical size (surface area) of Finland is broadly similar to that of the UK, its population is just over 5 million, only one twelfth of that of the UK. The population of the UK is predominately urban and there are many cities with a population greater than 200,000 whereas in Finland only Helsinki has such a population. The same difference applies to migrants; they are relatively few in Finland but far more exists in the UK, especially in the cities where the populations are increasingly culturally and ethnically mixed. This is also true for the dental profession in the UK: over 20% of dentists working in the UK received their degree abroad [2]. Both countries are prosperous with the per capita GDP of just over \$ 35,000 in 2007 [3] and an average life expectancy in 2006 of 78 years [4] (CIA Fact book 2008). Both countries have an aging but generally dentate population [5, 6] and the greatest need for oral health care is in groups which are socio-economically or educationally deprived. Over the last 30 years, both countries have also seen a significant decline in the prevalence of caries in children. The most recent national data indicate a mean National DMFT for 12-year-olds in the UK (2003) of 0.8 and 62% with no obvious caries [7] and of 1.2 with 42% with no obvious caries in Finland (2008) [8].

In the UK, in 2008, oral health care was provided by 31,000 active dentists out of 35,500 who are registered [8], 6,000 Dental Hygienists, 1120, Dental Therapists, 92 Clinical Dental Technicians and 10 orthodontic therapists, supported by 38,500 Dental Nurses (chair-side assistants) and 6,907 Dental Technicians. In Finland, in 2007, oral health care was provided by 4,500 active dentists, 1575 dental hygienists, 331 clinical dental technicians (denturists) and 6158 dental nurses (chair-side assistants) [9].

In the UK in 2006, 45% of adults and 64% of children received oral health care from within the National Health Service (NHS) and 15% of adults from non-NHS (private sources) [10]. Much of the private care involved more expensive treatments such as implants and in 2006, in England, where 85% of UK dentists work, the average general dentist earned 58% of total income from private practice and 42% from the NHS [10]. In Finland in 2005, 62% of total expenditure on oral health care was in the private sector the other 38% was in the public sector [9] although the public sector treated more patients than the private sector. In both countries the vast majority of children who seek treatment are treated within the Public Service, very few receive private treatment.

In the UK, in 2008, there were 122 registered specialists in DPH [6]. As explained in a later section of this paper, which describes the practice of DPH in the UK,

many other dentists provide advice on this topic. They include over 100 Clinical Directors and Assistant Clinical Directors who work in a non-clinical role as managers and directors in the Salaried Dental Service (previously known as the Community Dental Service). In Finland, in 2007, there were 204 specialists in DPH, 158 of whom were Clinical Directors and 46 university teachers and advisers [11].

At this background, this paper describes education in DPH and its practice in these two countries.

Education is considered under the headings:

- Undergraduate
- Postgraduate (specialist)
- Continuing

The practice of DPH is considered under the headings:

- Advising at local, regional and national levels
- Conducting surveys, research and development
- Commissioning and evaluating services
- Promoting oral health
- Teaching and training

## **Education**

### *Undergraduate Education*

In the UK, the General Dental Council is the competent authority that registers dentists and other dental workers. It provides all dental schools in the UK with guidelines for the content of the undergraduate curriculum [12]. The guidelines state that on completion of undergraduate studies all dentists should be familiar with:

- The prevalence of dental conditions in the UK
- The importance of community-based preventive measures
- Social, cultural and environmental factors that contribute to health or disease
- The principles of recording oral conditions and evaluating data

In Finland the competent authority that registers specialists is a government agency, the National Authority of Medico-legal Affairs. The curriculum is decided by the universities under supervision of the Ministry of Education. The curriculum is similar but more time is taken on stressing the importance of community-based preventive measures.

### *Postgraduate Education*

In the UK a number of full or part-time courses in DPH are available and lead to various certificates, diplomas and postgraduate degrees. These do not in themselves

lead to recognition as a specialist in DPH. Masters and doctorate programmes are offered by many universities. Certificates, such as the certificate in oral health care leadership and management [13] are offered by Royal Surgical Colleges.

Specialist training in DPH is for a minimum of four years. Prior to starting any specialist training, it is necessary to complete at least two years of approved general training after registration as a dentist. For young dentists, at least one of these years is invariably vocational training in an approved general dental practice. Until 2007, everyone who wished to enter specialist training was then required to pass an examination set by one of the four (England, Ireland, Edinburgh and Glasgow) Royal Surgical Colleges and obtain a diploma. This is no longer a formal requirement. However, it is extremely difficult to be accepted on to a specialist training programme without this diploma.

The four year programme in DPH is a mixture of academic and practical training. The academic training takes place in a university department and leads to a master degree in DPH. The practical training takes place both in university departments and whilst working as an assistant to a consultant in DPH in the community. Apart from the master's degree, there are annual external assessments of progress. Dentists with a doctorate (PhD.) in DPH can gain exemption from some of the training and may be able to complete their training in the community in less than four years. The final assessment is an oral examination during which the trainee's portfolio of work, over the four years, plus log book are discussed. It leads to the award of a fellowship of one of the four Royal Surgical Colleges and a certificate of completion of specialist training which enables the trainee to be registered as a specialist in DPH. Thus, those who have completed training in the specialty of DPH gain three qualifications, which are: the diploma of membership of one of the Royal Surgical Colleges as they enter training, a master degree in DPH during the four year training programme and a fellowship at the end of training.

During training, a salary is paid to the trainee by the NHS. In the first year it is € 36,000. It increases each year and those with PhDs may be paid slightly more.

The four year training programme covers:

- Oral health needs and demands assessment
- Use of information technology
- Commissioning and evaluating oral health services
- Promoting oral health
- Research and development
- Teaching and training
- Effective communication
- Managing changes, people, resources, time and support

The training programme in Finland has many similarities to that in the UK. Entrants must be registered as dentists and have completed at least two years as a full

time dental practitioner. There is competitive entry to training, but no entrance examination or requirement for a postgraduate diploma. Each of the three dental schools (Helsinki, Turku and Oulu) in Finland offers a three year full-time training programme in Dental Public Health, half of which is theoretical (academic) and half practical. During training a salary of about € 36,000 is paid by the Finnish Public Dental Service.

The objectives of the curriculum are achieved in the following areas of public health:

- Trends of health, illness and social environment at national and global level and the effect of these trends on his/her own environment
- Producing, processing, critically analyzing and applying scientific and professional information by using modern methods
- Basic principles of planning, implementation and evaluation
- Management, leadership and health economics

The academic studies consist of general subjects such as philosophy, ethics, scientific methods, communication studies, language studies, nutrition, diagnostics and clinical dentistry. Other topics are tailored to the student's background and interests and relate to the political, legislative and administrative organisation of Finland, planning

## **Table 2 – Literature assessed in the Finnish national examination for the specialty of Dental Public Health**

### *Books (latest edition):*

1. Last J. M., Wallace R. B. (eds): Maxcy-Rosenau-Last: Public health and preventive medicine. (Appleton and Lange) (Chapters 6–41 are not included).
2. Lääkärietiikka (Ethics in medicine). Suomen Lääkäriliitto (The Finnish Medical Association).
3. Daly B., Watt R., Batchelor P., Treasure E.: Essential Dental Public Health. (Oxford University Press).
4. Mäntyranta T., Elonheimo O., Mattila J., Viitala J. (eds): Terveyspalveluiden suunnittelu (Planning health services). The Finnish medical Society Duodecim.
5. Sintonen H., Pekurinen M., Linnakko E.: Terveystaloustiede (Health economics). WSOY.
6. Muir Gray J. A.: Evidence-based healthcare. How to make health policy and management decisions. Churchill Livingstone.
7. Holma T., Outinen M., Idänpää-Heikkilä U., Sainio S.: Kirkasta ja uudista laadunhallintaa – kehittä laatutalo (Quality assurance in a new way). Suomen kuntaliitto.
8. Koskenvuo K. (eds): Lääkärintyö ja laki (Physicians work and the law). The Finnish medical Society Duodecim.

### *Journals (three latest volumes):*

1. Community Dentistry and Oral Epidemiology
2. Community Dental Health
3. Suomen Hammaslääkärilehti (The Finnish Dental Journal)
4. Evidence-based dentistry

management and economy of public health, implementing and evaluating public health programmes, social and behavioural and business sciences.

The practical work aims at familiarizing the trainees, in depth, with the organization and methods of health service delivery in Finland. It takes place in supervised practice at the most important health care organisations such as health centres, the Ministry of Social Affairs and Health, social insurance offices and university hospitals.

At the end of the three years, trainees take a national examination which leads to the award of a masters degree and licensing as specialists in DPH. It is expected that candidates for the examination will be totally familiar with the contents of a number of relevant dental journals published in the previous three years and various other scientific literature (Table 2).

### *Continuing Education*

In the UK, in order to retain registration and the legal right to work in dentistry, all dentists and other dental workers are required to complete at least 250 hours of continuing education within a five year cycle. Specialists are expected to undertake a significant proportion of these hours within their specialty. In Finland, there is no such requirement but it is generally accepted that dentists and dental workers should undertake continuing education.

### **The Practice of Dental Public Health**

In the UK the practise of DPH can be expressed in five broad headings, which are:

- Advising at local, regional and national levels
- Conducting surveys, research and development
- Commissioning and evaluating services
- Promoting oral health
- Teaching and training

In Finland the corresponding tasks are:

- Leadership and management of the municipal health centres
- Teaching, training and research
- Advising and evaluating

In the UK, the following groups give advice in DPH:

- NHS Dental Consultants in DPH
- Academic staff at universities
- Chief Dental Officers and other dental staff working for the Governments of England, Scotland, Wales and Northern Ireland. Each of these four home countries has their own Department (Ministry) of Health

- Advisers in Dental Practice
- Some dentists in the Defence Dental Services (Military) and Community Dental Services (public salaried dental service)
- Dentists who advise dental companies who own several practices.

All NHS Consultants in DPH are registered on the specialist list for DPH, as are most but not all academic staff at universities. However, at present only two of the four national Chief Dental Officers are specialists in DPH and virtually none of the Advisers in Dental Practice and few of those who advise dental companies are specialists.

#### *Conducting Surveys, Research and Development*

Historically, these activities have been co-ordinated by university departments. Many still are. However, Consultants in DPH provide advice at a local level, where small surveys and needs assessments are performed, independently from university departments. Since 1968, there have been ten yearly national surveys of adult dental health [5] and since 1973 national surveys of child dental health [7]. These surveys have been funded by the Government and co-ordinated by university departments of DPH working with trained and calibrated dentists from the Community Dental Services.

#### *Commissioning and Evaluating Services*

Since 2006, in England and Wales oral health care has been commissioned at a local level by Primary Care Trusts (PCTs) in England and Health Boards (HBs) in Wales. There is a total of 150 PCTs and HBs. One of the roles of specialists and consultants in DPH is to advise the PCTs and HBs on how to assess the oral health needs of the population and what services to commission from local dentists to meet these needs. There is also a need to evaluate the effectiveness and outcomes of the services and their quality. This evaluation is performed by the specialists and consultants in DPH and Advisors in Dental Practice (ADP). The ADP are senior general dentists who are employed on a part-time basis by PCTs and HBs to visit dental offices (practices) and advise on quality issues. Some have certificates in oral health care leadership and management but none are specialists in DPH.

#### *Promoting Oral Health*

This is performed at both national and local levels, generally in response to initiatives launched by the Department (Ministry) of Health of the four home countries. Often they are part of wider health initiatives such as the cessation of smoking. A recent example followed the publication of guidelines for oral health *Delivering Better Oral Health* [14] by the Department of Health for England.

#### *Teaching and Training*

Virtually all specialists in DPH are both teachers and trainers. Some have full-time appointments in universities. Most of those who do not hold such full-time



appointments are honorary members of university departments and give lectures and supervise postgraduate students. Those who are employed by PCTs and HBs often supervise trainees in DPH, who work for them as assistants and are required to provide external assessment of trainees who do not work for them.

In Finland, the Public Dental Service (PDS) consists of about 250 health centres owned by a local municipality or by several municipalities in a federation. All personnel in the public health services and dental services are salaried. As the Public Health Service covers the entire country a number of municipalities cover huge geographical areas with few inhabitants. The majority of specialists in DPH work in the PDS or for municipalities, the others work in universities or government institutes or for the Government.

#### *Leadership and Management of the Municipal Health Centres*

Practically all chief dentists responsible for the leadership and management of the oral health care in large and medium sized health centres have undertaken specialist education in dental public health or a PhD. or sometimes other specialist dental education. Monitoring and evaluating treatment outcomes and oral health promotion have always been important areas in the local chief dentists' work [15].

#### *Teaching, Training and Research*

All three dental schools in Finland have professors and other qualified staff in dental public health, who provide teaching and training and co-ordinate research into dental public health topics. There are also a number of health institutes which employ researchers. Research is also performed by the staff of some PDS clinics.

#### *Advising and Evaluating*

There are a few administrative positions at the ministries of Health and Welfare and Education, at governmental and municipal agencies and some companies that are held by specialists in DPH.

### **Discussion**

In spite of the difference in the size of the populations of Finland and the UK, as described in the introduction to this paper, there are many similarities between the two countries. It is far from clear why they are the only two countries in the EU to have officially recognised the specialty of DPH and to have a number of employment opportunities for those who are recognised as specialists in the specialty. Two important factors may be that both countries have well developed public and private sectors for the delivery of oral health care and considerable Government involvement in planning all aspects of health care including oral health care.

In common with most other developed countries, the current trends in oral health in Finland and the UK are for a growth in the number of children and young

adults with little or no oral disease [6] and in the number of those over 65 years of age who have retained the majority of their teeth but require increasingly complex oral health care to maintain them [8]. These trends challenge both those involved in the provision of oral health care and society in general. Such changes involve all members of the dental professions, dental educators, administrators, politicians and the general population, all of whom need an understanding of the epidemiological and social changes and objective advice on how to meet these changes.

As this paper has demonstrated, in both Finland and the UK, specialists in DPH are trained to understand the epidemiological, demographic, clinical, social, political and financial aspects of the provision of health and oral health care and to give advice and leadership in these areas. There are a number of examples of how oral health trends and changes in both Finland and the UK have been managed (or mismanaged). In both countries, a number of dental schools were closed between 1984 and 1995, in response to predictions that the prevalence of dental caries in children would continue to fall. However, the trend for more people to retain teeth into old age was not taken into consideration. As a result the total number of teeth in the entire population (in the “national mouth”) grew and higher numbers of older patients now have more natural teeth, which require oral health care. In both countries the dental professions (through their national dental associations) feared that there would be insufficient work and the Governments were keen to save money in the short-term.

In Finland, historically, the PDS has catered for children (under 18 years), younger adults (born in 1956 and after) and some special needs groups. However, in 2002, a political decision was made to open the PDS to the entire population (all age groups). This sudden change has led to a demanding period of restructuring in the PDS [16] as adults’ demand for oral care increased considerably at a time when the effects of closing two of the country’s five dental schools were causing a shortage of dentists in the country. Fortunately, an expansion in the numbers of dental hygienists had taken place before the changes took place. This enabled increased delegation of tasks from dentists to dental hygienists and employment of more hygienists in the PDS. These dental hygienists screen children for dental caries and provide a range of care for both adults and children including preventive advice and treatment and removal of calculus. This is a logical development as it can be argued that dental hygienists and therapists should provide preventive advice and simple treatment for the increasing numbers of people with either low levels of disease or simple treatment requirements and that general dentists should delegate much of this type of work to dental hygienists and therapists and provide more some complex treatment along with more specialists in all areas of clinical dentistry.

In England and Wales, a reform of the system for the funding of general dentistry within the NHS was introduced in April 2006 [17]. The reform has meant that for the first time oral health care is commissioned at a local, rather than national level. Commissioning is carried out by the 150 PCTs and HBs who should be advised

by specialists and consultants in Dental Public Health. However, at the time of the reform, the PCTs and HBs were themselves merged from over 300 to the current 150.

As a result, in many PCTs and HBs, the administrators who were responsible for commissioning oral health care had no understanding of how oral health care is provided, or in some cases of commissioning [10]. Furthermore, many PCTs did not appoint specialists or consultants in DPH to advise them and as a result were unaware of the oral health needs of the populations they were responsible for [10].

These examples highlight the need for objective advice on dental public health and leadership when planning changes to and commissioning oral health care.

It is interesting to note the similarities in specialist training in DPH in Finland and the UK. In some respects this is unsurprising. However, unlike education in clinical dentistry, it can be argued that much of the knowledge and skills required by a specialist in DPH can be acquired away from dental faculties, in business schools and by developing leadership and managerial and communication skills in a number of ways, not least by leading and managing large dental practices (offices). In this respect, it can be argued that entry to specialist training in DPH should not be possible until many years experience of dental practice and different aspects of oral health care, both public and private. Two years post-qualification is highly unlikely to be sufficient. It can also be argued that all the knowledge and skills required to practice the specialty of DPH can be acquired from a variety of sources over a period of years. The most important point is that these skills are assessed in depth by an independent academic and professional body.

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