



Asiantaeth Genedlaethol
Arwain ac Arloesi mewn
Gofal Iechyd

National Leadership
and Innovation Agency
for Healthcare

Cefnogi GIG Cymru i gyflwyno gofal iechyd o safon fyd-eang
Supporting NHS Wales to deliver world class healthcare

An Analysis of the Dental Workforce in Wales

2012

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1. Foreword

Together for Health was published by Welsh Government in 2011. It sets out the policy imperatives for improving Health in Wales. In addition, the Programme for Government establishes specific objectives relating to dental care have been established.

On oral health and dentistry the specific aim is to:

- continue to increase access to dentists where there are localised problems;
- prevent poor oral health and reduce inequalities through the continued implementation of Designed to Smile to improve the oral health of children;
- invest in raising awareness of people's responsibility in taking care of their own oral health as they should for their general health and well-being;
- ensure dental charges remain affordable and in doing so help tackle oral health inequalities; and

Workforce planning is about, "ensuring the right numbers of people with the right skills are in the right place at the right time to provide the right services to the right people". This is key to the development of effective and efficient dental services and should include Dental Care Professional (DCP) workforce planning. DCPs are vital to the development of integrated dental teams in order deliver both dental treatment and prevention.

Important aspects of this process are exploring the influences on productivity and the level of service that is necessary for a state funded system. A new design for the delivery of dental services is currently being tested in Wales. Interim findings suggest that a modification in the shape of delivery, including changing the skill mix ratios may be required to affect the process of change. It will be important to match the supply of clinicians to the future need for care and varying skill mix levels may have a direct impact upon the productivity.

Although there has been some extension of DCP duties the use of skill-mix directly is an area where the dental profession has lagged behind their medical colleagues. Nurses or auxiliary staff can either supplement or substitute the services provided by doctors, depending on their skill base and legislated scope of practice.

Determining the level of service required is a critical question. In his review of NHS dentistry in England, Professor Jimmy Steele argued ***that the NHS should prevent oral disease and the damage it causes, minimise the impact of oral disease when it occurs and maintain and restore patients' quality of life when this is affected.*** However, from the perspective of workforce planning, important questions remain about how the service should be delivered and by whom.

2. A summary of the key factors identified by the analysis

2.1 Overview

This Review was undertaken by the National Leadership and Innovation Agency for Healthcare (NLIAH) during October 2011 – June 2012 at the request of the Chief Dental Officer for Wales. The aim of the review was to compare the anticipated future supply of dental staff against possible future demand, and make recommendations on planning for a sustainable dental workforce.

2.2 Methodology

The Review was divided into two main parts:

i) Building a profile of Wales' dental workforce

Data was gathered from as many available data sources as possible (see Table A below). Where possible data was compared and validated to obtain an accurate picture of Wales' dental workforce, and because of this validation process, some of the graphs in this report refer to figures being, "as at Winter 2011", rather than a specific date.

Table A: The main data sources used in this report

Data Source	Data provided by each source	Main date of data captured
The NHS' Electronic Staff Register (ESR)	Initial data for the dental workforce directly employed by NHS organisations	September 2011 (updates from Clinical Directors November 2011-February 2012)
Clinical Directors and Dental Review Reference group	These stakeholders verified and improved the quality of the original ESR data.	November 2011 – April 2012
Wales Deanery's Dental Postgraduate Department	Data on dentists in Dental Foundation training (Dental Foundation Register) and Speciality Training posts	January 2012
Cardiff University / Wales Dental School	Data on undergraduate dentists, as well as dental therapists and hygienists in training.	January 2012
	Data on the Dental Clinical Academic workforce employed / based at least partly in the Dental School	January 2012
NHS Wales Shared Services Partnership – Contractor Services (NHSWSSP)	Supplied NHS dental activity data	2010/11 Financial Year
General Dental Council (GDC)	Welsh Dental registration list	December 2011
Health Inspectorate Wales	Workforce data on dentists in the private and NHS sectors.	December 2011
Stats Wales	Official ONS/Welsh Government workforce statistics	December 2011
Dental Nurse training providers	Data showing number of Dental nurses on training course in Wales	March 2012

ii) Forecasting Wales' anticipated supply & demand for newly-trained dental staff

Several different methods of forecasting this "supply" were used, depending on their suitability and the availability of data. The two main methods used were:

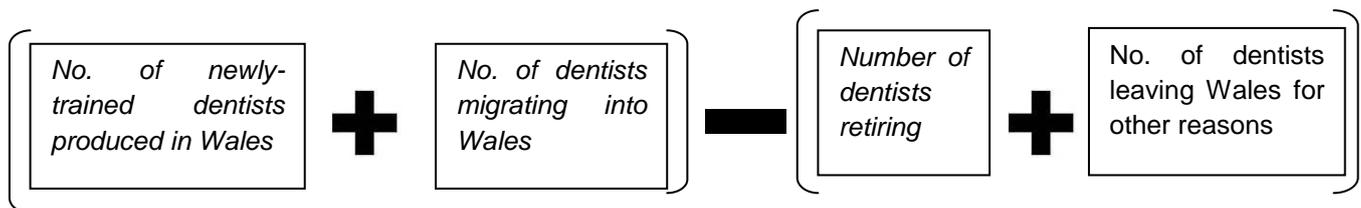
- Extrapolating historical staffing, attrition and/or migration trends forwards into the future
- Comparing historical data against "current" workforce data to establish how many of the dental staff trained in Wales typically remain in the Welsh workforce after qualification. These "retention" rates were then applied to the forecasted output of dental staff in training.

The following "demand scenarios" were also produced to assess the variation in the potential levels of future demand for dental staff.

- The number of new dental staff that Wales' Health Boards anticipate they will require (as set out in their respective Workforce Plans).
- Continuing historical trends in dental workforce size.
- Maintaining current workforce levels (proportional to an increasing population).

The main "supply vs. demand" forecasts outlined in Chapter 4 were calculated as follows:

- The "demand" forecasts show how many dentists would be in Wales' workforce in future according to each "demand" scenario.
- The "supply" forecasts show how many dentists are likely to be available to Wales in each "supply" scenario. The "supply" is calculated as follows:



The "supply" forecasts were then compared against the "demand" forecasts to assess whether Wales is likely to face a shortage or surplus of newly-trained dentists (and/or more experienced dentists migrating into Wales).

2.3 Oral Health Needs in Wales

- The oral health of the people of Wales is generally poorer than that in England. There are more decayed teeth per person, and of particular concern is the comparatively poor dental health of our children. In the UK the incidence of oral cancer is rising and survival rates have not improved.
- Oral disease is also strongly related to social deprivation. These health inequities can lead to marked differences in how dental treatment is sought and provided.

Increasing population and a particular rise in the number of older people will be a major challenge to the dental profession and Welsh Government to meet the changing need and demand for dental care.

2.4 Description of the Current Dental Workforce in Wales

Dentists

- There is an overall total of 1801 dentists working within in Wales* (as at autumn 2011)
- Almost three-quarters of Wales' dentists who perform NHS work ("NHS dentists") work predominantly in the General Dental Service (GDS) providing primary care dentistry
- Approximately half of Wales' NHS dentists are aged below 40, while around one-quarter are aged 50 or above
- Almost 60% Wales' NHS dentists are male
- In broad terms a higher proportion of older dentists are male, while amongst younger dentists (and dental undergraduates) the gender ratio is close to 50:50
- The Community Dental Service (CDS) has the highest proportion of female dentists (67%), while the GDS has the highest proportion of male dentists (60%)

** 105 of these dentists work entirely in the Private sector. However, due to data availability issues, they are excluded from the figures in this document unless stated otherwise.*

Dental Care Professionals (DCPs)

- Wales has a total of 2842 registered DCPs (as at September 2011).
- 80% of DCPs are Dental Nurses, 10% are Dental Technicians, and 9% are Dental Hygienists and/or Therapists, while Orthodontic Therapists and Clinical Dental Technicians make up the remaining 1%.
- 91% of registered DCPs are female.

2.5 Forecast of Future Supply of Dental Workforce in Wales : Trends identified

Dentists

Undergraduates and Foundation Dentists

- During the period 2000/1-2011/12 the number of undergraduates entering the Cardiff Dental School increased each year.
- The percentage of Welsh-domiciled students broadly stayed the same since 2000/01 (c. 35%).
- Since 2006, an average of 64% of dental graduates undertook Dental Foundation Year 1 (DF1) training in Wales. The development of a central recruitment process and changes to pre and post registration mechanisms may affect these numbers.
- During the period 2007-10, an average of 58% of Cardiff trained dental graduates entered the Welsh workforce after completing DF1.

Future Supply of Dentists working in Wales

- 59% (n=1007) of dentists currently working in Wales did not graduate in Wales.
- Of these non-Welsh trained dentists, most of them (57%) obtained their dental degree in England (34% of Wales' total number of dentists).
- The future supply of English-trained dentists is likely to significantly affect the future supply of dentists migrating into Wales.
- 15% of Wales' dentists graduated elsewhere in the European Economic Area (EEA), while a further 5% graduated outside the EEA.

- The number of dentists in Wales increased by an average of c.3.5% per year during 2008-2011*

**Changes introduced by the most recent Dental Contract mean that it is difficult to compare workforce figures from before 2006-2008.*

Supply of DCPs

- Wales has approximate annual intake of 180 DCPs in training
- If historical commissioning levels continue, Wales is likely to produce 20-23 new Dental Hygienist/Therapists, and 20 new Dental Technicians per year

2.6 Utilisation of the Dental Workforce

This Review aims to broadly quantify the potential range of future demand based on modelling the likely effects of a group of “key factors” identified from the available literature and discussions with the Review’s Reference Group.

- Due to the structure of the current GDS contractual arrangements it is difficult to assess the “Full Time Equivalent” (FTE) number of GDS dentists. A proxy for the utilisation of dental services has therefore been used, based on data for the Units of Dental Activity (UDAs) carried out in Wales.
- There is the possibility of changes to the dental contract for primary care dentistry being introduced within the next few years, and this further complicates forecasting.
- The 2011 NHS Workforce Plans suggest that both the Hospital Dental Service (HDS) and CDS dental workforces could remain at their 2011 levels during 2012-2017. However, it is difficult to assess the robustness of the NHS organisations’ forecasts until detailed medium-long term service plans are developed.
- Of concern is the inequity in distribution of certain Dental Specialties and the complete dearth of provision of some across large areas of Wales e.g. Paediatric Dentistry.

There is insufficient data available to create robust demand trends for DCPs. However, the available evidence suggests that:

- The use of skill mix in dentistry is not yet fully developed
- There is scope to make greater use of DCPs to perform some tasks currently undertaken mainly by dentists
- There is also insufficient information on what constitutes optimal dentist to DCP ratio to support effective team working and service delivery.

3. Introduction and Purpose of the Review

This Review was undertaken by the National Leadership and Innovation Agency for Healthcare (NLIAH) during October 2011 – June 2012 at the request of the Chief Dental Officer for Wales. A Steering Group was established to oversee the Review, and an Expert Reference Group was set up to advise the Steering Group, see **Annex C** (Terms of Reference).

The key objectives of the Review were as follows:

- 1) Establish a baseline profile of Wales' current dental workforce
- 2) Forecast the future supply of dentists and DCPs in Wales
- 3) Forecast the possible future demand for dentists and DCPs in Wales
- 4) Compare the anticipated future supply of dental staff against possible future demand, and make recommendations on planning for a sustainable dental workforce.

The scope of the review included Dentists, Therapists, Hygienists, Dental Nurses, Dental Technicians (including Clinical Dental Technicians), and Orthodontic Therapists working in all dental sectors. However, this report focuses mainly on the dental workforce working in primary dental care.

Orthodontists were not included in the review because an analysis of the Orthodontic workforce in Wales was covered in a recent Welsh Government report^[1]. (<http://wales.gov.uk/topics/health/ocmo/professionals/dental/publication/information/reportsep10/?lang=en>)

The last review of the dental workforce in Wales was reported in *Routes to Reform a Strategy for Primary Care Dentistry in Wales 2002* (<http://www.wales.nhs.uk/documents/dent-strat-e.pdf>). It is hoped that this current analysis will build on the previous work and inform the Welsh Government's planning and policy development to help align the supply of dental workforce with need and demand for oral health care. The purpose of this analysis is to provide a clearer picture of the skills mix of dental professionals currently providing dental care and to ensure that we have the right number of people, in the right place, doing the right job.

4. Description of Health Needs in Wales

The oral health of the people of Wales is generally poorer than that generally for England. There are more decayed teeth per person, and of particular concern is the comparatively poor dental health of our children. Detailed information on the oral health status in Wales, including comparative data, can be accessed from the Welsh Oral Health Information Unit:^[2]

<http://www.cardiff.ac.uk/dentl/research/themes/appliedclinicalresearch/epidemiology/oralhealth/index.html>

Adults in middle-early older age cohort pose the greatest challenge in the coming years as they grow older. The demographics of an ageing population in Wales means over the coming decades, not only will this cohort become larger but older people will have more teeth and retain them for longer. These teeth, which will in many cases be heavily restored, require more care both on the part of their owners and the dental profession than did dentures. This picture will be complicated by co-morbidity which impacts on (i) oral health (e.g. the side effects of drugs on the production of saliva necessary for healthy mouth tissue) and (ii) the ability to receive dental care (e.g. dementia) and (iii) the ability of people with disabilities to maintain good oral hygiene.

The incidence of oral cancer is rising and survival rates have not improved. In the UK in 2009 6236 persons were diagnosed with an oral cancer (357 in Wales)^[3]. Across UK countries the highest incidence, for both males and females, is in Scotland. In the UK and most other countries, oral cancer is more common in men than women. However, the sex ratio in the UK has decreased rapidly from around 5:1 fifty years ago to less than 2:1 today. The risk of developing oral cancer increases with age and in the UK the majority of cases (87%) occur in people aged 50 or over.

Oral disease is also strongly related to social deprivation. People living in more deprived areas are more likely to have poorer oral health than those in less deprived areas. These health inequities can lead to marked differences in how dental treatment is sought and provided. The impact of remuneration on dental services has received relatively little attention from a health economic perspective. The type of remuneration system influences both the supply of services and the demands that patients place on GDPs.

We are also faced with the demographics of an increasing population and a rise in the number of older people. It will be a major challenge to the Welsh Government to meet the increasing demand for dental care. National Adult Dental Health Surveys have found that the oldest in our population have experienced the bulk of the disease. The dental needs of this cohort are not certain as there is limited evidence on survival rates for dental restorations and for predicting future problems for heavily restored teeth. They are likely to require remedial operative dentistry of increasing complexity, while the health of the remaining population steadily improves.

Evidence is also required to determine the effectiveness of current provision. Approximately 95% of the costs for NHS Dentistry are spent on routine care provided by general dental practitioners (GDPs), yet a large proportion of patients who regularly attend are asymptomatic and do not require treatment. Although the principle of the National Health Service in the UK is that care should be available to all, approximately 44% of the population in Wales do not attend the dentist regularly and this group tends to be those who are the most disadvantaged. Given the evidence from the Adult Dental Health Surveys, if unchallenged this situation, where the majority of resources are consumed by those with the lowest needs, is likely to deteriorate further.

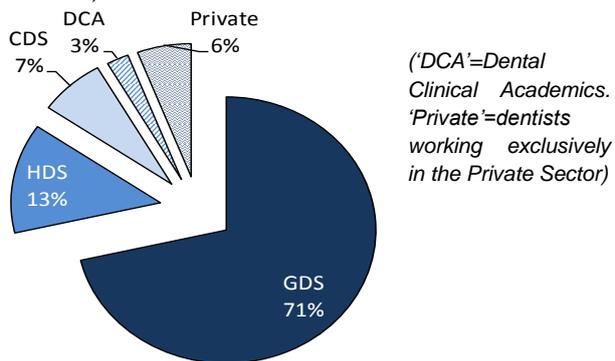
5. The Current Dental Workforce in Wales

A key part of this analysis was to establish a baseline profile of the dental workforce in Wales. Therefore, this chapter provides an overview of Wales' dental workforce. It summarises the information available for each dental staff group as at late 2011/early 2012, and includes all Dentists and DCPs.

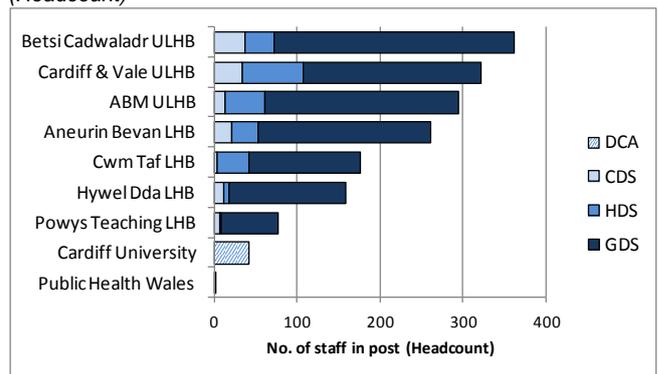
5.1 Dentists

Wales has a total of 1801 dentists spread geographically across the GDS, HDS, CDS, Private and academia, **see Graphs 1 & 2**. Almost three-quarters (71%) of all dentists have a primary role working in the GDS.

Graph 1: Percentage of Wales' dentists working primarily in each dental service (Headcount)



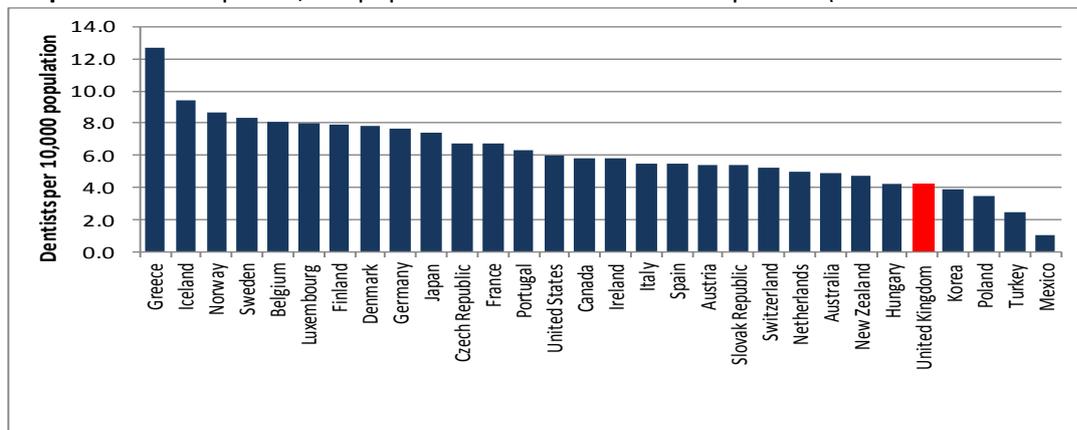
Graph 2: Total number of dentists¹ by service and Health Board area/ other organisation (Headcount)



Information from Health Inspectorate Wales identifies 105 dentists who work exclusively in the Private Sector (6% of Wales' total dentists). However, more detailed data on these dentists is not available, and they are excluded from the remainder of this Review.

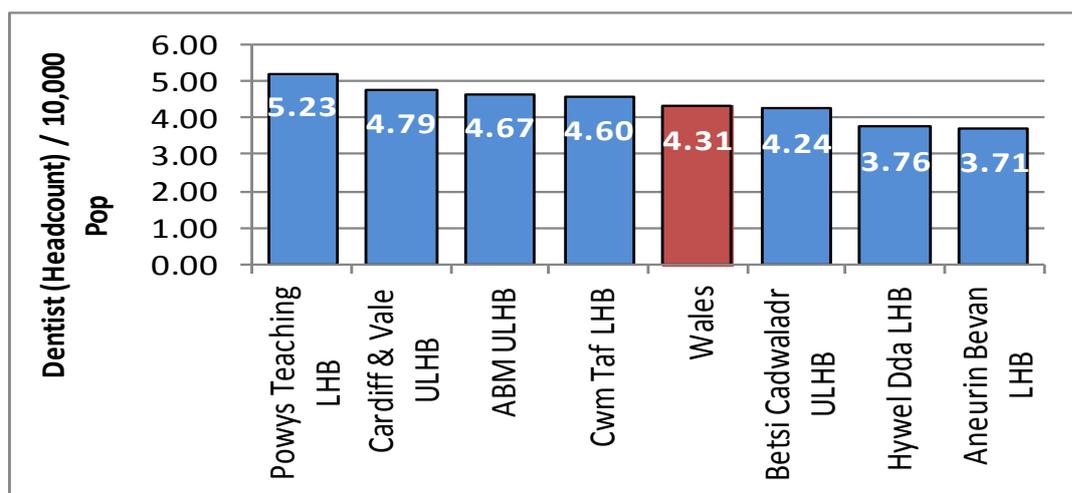
On average, there were approximately 6.8 dentists per 10,000 inhabitants cross EEA countries in 2011^[4]. The United Kingdom ratio of dentists per 10,000 populations is one of the lowest at 4.2, see graph 3. As at 31 March 2012, Wales had a ratio of 4.5 dentists per 10,000 population. However, these comparisons should be not be made without due consideration of the oral health, service designs and specific needs and demands pertaining in each country.

Graph 3: Dentists per 10,000 populations: International Comparison (as at 2011. Source: OECD)



There is variation across Health Board areas with Powys having the highest overall ratio of dentists to population while Aneurin Bevan LHB has the lowest, see Graph 4. This is to be expected given the varying rural and urban geography of Wales and the lingering effects of the old contractual arrangements under which GDPs could set up practices outside of any strategic planning process.

Graph 4: Ratio of **GDS** Dentists based in each Health Board area by 10,000 Population



Of the 1696 dentists working, at least partly for the NHS, 10% of dentists (173 individuals) work in more than one NHS dental service. Two-thirds of HDS dentists work as Specialists in one of 9 dental Specialties, The remaining one-third are General Dental Practitioners who work part time in HDS providing care under the supervision of Consultants.

5.1.1 Dentists: Age & Gender

Table 1 shows approximately half (51%) of Wales' dentists are aged below 40, while around one-quarter (27%) are aged 50 or above. Over half of Wales' dentists are male (57%). However, the gender distribution of younger and older dentists differs. While the gender distribution of dentists aged under 40 is broadly 50:50, there are a higher proportion of older male dentists.

Table 1: Wales' Dentists by Age Band and Gender (GDS only) (*Headcount*)

Gender / Age Band	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-60	Over60	Total
Number of females	47	138	135	118	80	77	65	45	21	726
Number of males	46	121	121	144	98	117	129	100	94	970
Total number of dentists	93	259	256	262	178	194	194	145	115	1696

The gender distribution of Wales' current dental undergraduates is broadly 50:50, and has been since the 1980s, suggesting that, the dental workforce of the future will generally have 50:50 gender balance in terms of headcount. Dentists in the CDS and Dental Clinical Academics (DCAs) are typically older than their HDS and GDS counterparts, and have larger percentages of their workforce that are older than 55 (35% of the DCAs and 29% of CDS). 23% of DCAs are aged 55-59 and there is a risk of a "bulge" of retirees during the next 5-10 years.

The CDS has the highest proportion of female dentists (67%), while the GDS has the highest proportion of male dentists (60%). Gender and age profiles for each dental service and Dental Services by Age Band are shown in **Table 2**.

Table 2: Percentage of dentists in different age bands - identifying proportion of potential retirees

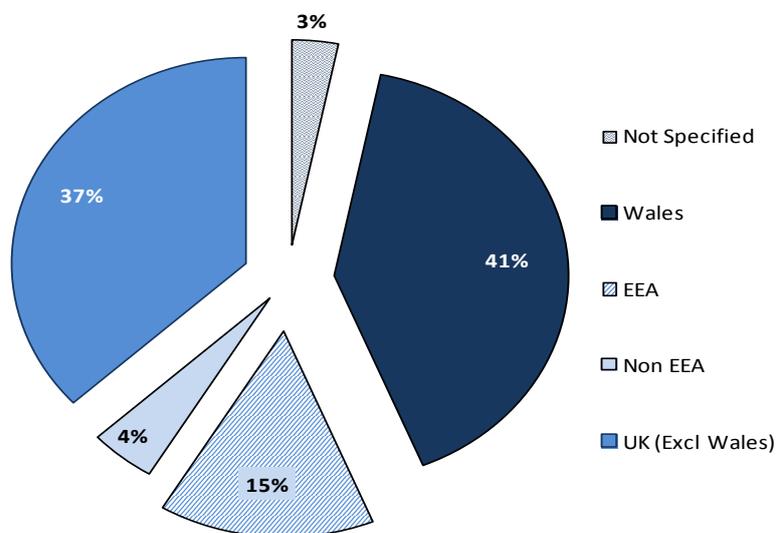
	DCA	CDS	HDS	GDS	Total
Under 55	65%	71%	91%	86%	85%
55 – 59	23%	16%	5%	8%	9%
60 +	12%	13%	4%	7%	7%
Headcount (total: all ages)	43	128	240	1285	1696

Note: The age profile of HDS dentists includes significant proportion of dentists in Dental Foundation 2 training (who are typically in their 20s).

5.1.2 Dentists: Geographical Area of Primary Qualification

This section profiles the dentists who currently work in Wales by their “place of primary dental qualification” i.e. from where they obtained their dental degree or equivalent. This is used as a proxy for each dentist’s country/region of origin. The breakdown of dentists across Health Boards and NHS Trusts is shown below. 78% of the dentists currently in the workforce obtained their dental degree in the UK, see **Graph 5**.

Graph 5: Dentists by Country /Region of Primary Qualification (March 2012) (*Headcount*)

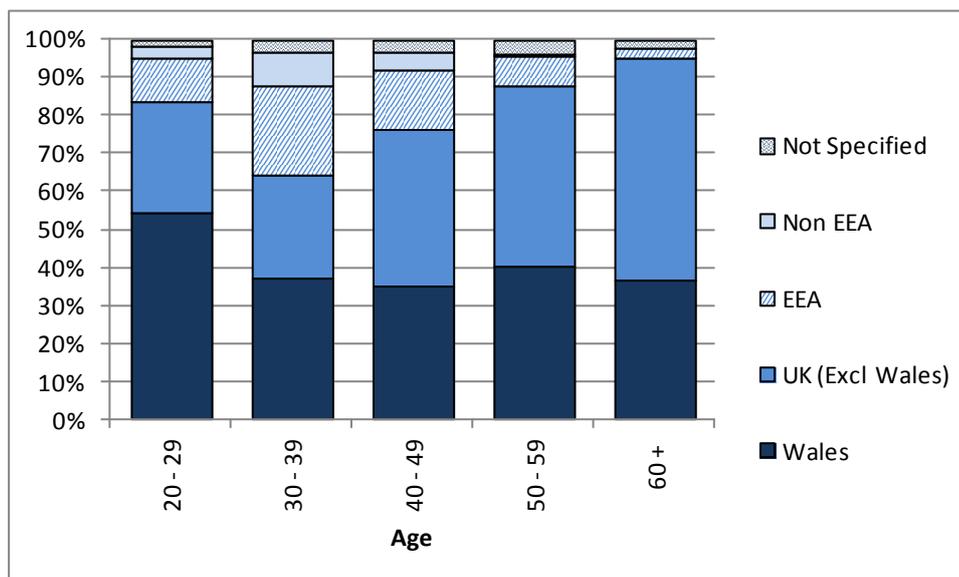


North Wales has a significantly higher proportion of dentists who graduated in England and may reflect the fact that some North Wales students chose to study dentistry in Liverpool and Manchester. It is important to note that there is some evidence to suggest that the North Wales Dental Student Bursary Scheme has helped recruitment and the retention of local dentists.

Powys and Hywel Dda have the greatest proportion of EEA dentists. These areas also have lower proportions of Welsh-trained dentists. This seems to suggest that dental employers in these areas have had to look outwith the UK to mitigate recruitment and retention difficulties.

However, the proportion of EEA dentists working in Wales is slightly less than the UK average, (16.5% GDC performance report 2012)^[5].

Graph 6: Proportion of dentists from different geographical Regions in each age band (*Headcount*)



5.1.3 Profile of Wales' Current Dental Undergraduates

Cardiff University's School of Dentistry is the only dental school in Wales and trains undergraduates via its five-year Bachelor of Dental Surgery course. There are currently a total of 364 dental undergraduates enrolled onto this course.

- 193 (53%) of these students are females and 171 (47%) are male.
- 31% (n=113) of the students are listed as being originally domiciled in Wales, 64% (n=232) are from the rest of the UK, and 5% (n = 19) are from outside the UK¹.

5.2 Dental Care Professional (DCP) Workforce

Since 31st July 2008, all DCPs have been required to register with the GDC. Wales has a total of 2842 registered DCPs spread across the NHS GDS, Private, HDS, CDS and academic sectors. The majority (80%) of these DCPs are Dental Nurses. Dental Technicians compose 10% of the workforce, Dental Hygienists and/or Therapists 9%, while Orthodontic Therapists and Clinical Dental Technicians make up the remaining 1%, **see Tables 3, 4 and 5.**

5.2.1 DCP types by Age band and Job role,

Table 3: DCPs by age band (*Headcount*)

	Under 40	40 - 49	Over 50	Not Specified
Dental Technician	50%	23%	25%	2%
Orthodontic Therapist	67%	33%	0%	0%
Dental Therapist	20%	40%	40%	0%

¹ The maximum number of places for students from outside the EEA is set by the Welsh Government

Dental Hygienist/Therapist	73%	27%	0%	0%
Dental Hygienist	20%	55%	25%	0%
Dental Nurse	53%	31%	15%	1%
Total	52%	32%	16%	1%

Table 4: DCPs by job role (*Headcount*)

GDC Role Description	Total	Primary DCP Role used in the Review
Dental Nurse	2279	Dental Nurse
Dental Technician	274	Dental Technician
Dental Hygienist	174	Dental Hygienist
Dental Hygienist; Dental Therapist	58	Dental Hygienist/ Therapist
Dental Therapist	18	Dental Therapist
Dental Nurse; Orthodontic Therapist	11	Orthodontic Therapist
Dental Hygienist; Dental Nurse; Dental Therapist	8	Dental Hygienist/Therapist
Clinical Dental Technician; Dental Technician	7	Clinical Dental Technician
Dental Hygienist; Dental Nurse	6	Dental Hygienist
Dental Nurse; Dental Technician	<5	Dental Technician
Orthodontic Therapist	<5	Orthodontic Therapist
Dental Hygienist; Dental Therapist; Orthodontic Therapist	<5	Orthodontic Therapist
Dental Hygienist; Orthodontic Therapist	<5	Orthodontic Therapist
Dental Technician; Orthodontic Therapist	<5	Orthodontic Therapist
Total	2842	

There are 2588 (91%) female DCPs and 254 (9%) males. The vast majority of males are Dental Technicians or Clinical Dental Technicians. The majority (81%) of DCPs work in the GDS or Private dentistry, 10% of DCPs work primarily in the CDS and about 9% in the HDS. 66% of Dental Therapists work in the CDS.

Table 5: DCPs working in Wales by Dental Service (*Headcount*)

	CDS	GDS	HDS	Total
Clinical Dental Technician	0.0%	85.7%	14.3%	7
Dental Technician	0.0%	80.4%	17.8%	276
Orthodontic Therapist	0.0%	62.5%	37.5%	16
Dental Therapist	66.7%	33.3%	0.0%	18
Dental Hygienist/ Therapist	22.7%	77.3%	0.0%	66
Dental Hygienist	6.7%	87.2%	6.1%	180
Dental Nurse	10.8%	81.3%	7.8%	2279
Total (all DCPs)	10.0%	81.1%	8.6%	2842

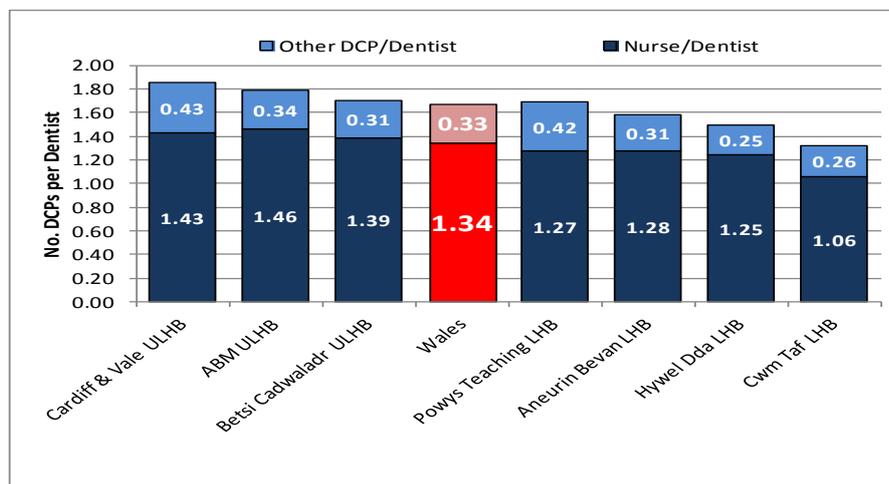
5.2.2 Ratio of DCPs to dentist

Cardiff and Vale Health Board (CVHB) has the highest ratio of DCPs to dentists (1.86 DCPs to 1 dentist). It also has the highest ratio of registered Dental Nurses to dentists (1.43:1). This could reflect the presence of the dental teaching hospital based in Cardiff. Cwm Taf LHB has both the lowest ratio of DCPs to dentists (1.32:1) and the lowest ratio of registered Dental Nurses to

dentists (1.06:1). However, as there is no FTE data available for DCPs, the ratios are based on “Headcount” data. The ratios given do not reflect the fact that a significant number of DCPs work less than full time, **see Graph 7**.

Also, because the concept of team working is well embedded in dentistry, teams often have several DCPs working to a particular dentist during the course of the working week. There may therefore be a wide variation of ‘DCP to dentist’ ratios in different teams based on the particular team structure chosen by an individual dentist or practice.

Graph 7: Ratio of DCPs / Nurses to Dentists by LHB (Headcount)



“Other DCP” = All DCPs except Dental Nurses

5.2.3 Profile of Wales’ Current DCPs in Training.

Dental Nurses

Trainee Dental Nurses are able to qualify via three different routes; the NEBDN* Diploma, the City and Guilds NVQ Diploma and the Certificate of Higher Education in Dental Nursing. Annex F contains details of the training providers.

Dental Hygienists

Dental Hygienists are trained via a 2-year Higher Education Diploma in Dental Hygiene. Cardiff University is currently the only Higher Education Institution in Wales that delivers this course. As at 2011/12:

- There are 16 students on the course (7 in the first year and 9 in the second year).
- 81% (n=13) of the students are over the age of 21.
- 88% students have a UK domicile

Dental Therapists

Until August 2011, Dental Therapists were trained via a 27 months HE combined Diploma in Dental Therapy and Dental Hygiene. However, this Diploma was converted into a (3 year) BSc Degree course in 2011, offering the dual qualifications in hygiene and therapy. Therefore, Wales

currently has a mix of Diploma students (usually in their second or third year) and Degree students (in their first year).

A total of 24 students are currently on the Dental Therapy Diploma and Degree courses in Wales. There are 6 students on the Degree course. All are in their first year and all the students have England as their country/region of domicile. There are 18 students on the Diploma course, all the students are female and 14 of are over the age of 21.

Dental Technicians

Dental Technicians are trained via a 3-year BSc Dental Technology degree course. There is only one course in Wales, run in partnership between Cardiff and Cardiff Metropolitan Universities. The course enrolls around 20 undergraduate students each year. Cardiff Metropolitan University also runs a 3 year part-time Foundation Degree in Dental Technology (FdSc) for technologists who are already working in laboratories under the supervision of qualified technologists. Much of the practical experiential learning is carried out during work-based learning. The course is a distance learning course and the intake per year is approximately 16-18 places.

Both the FdSc and BSc degrees enable the graduate to work as a qualified dental technician/dental technologist once they are registered with the General Dental Council.

Orthodontic Therapists

Morrison Hospital is the only Orthodontic Centre in Wales running a training course for Orthodontic Therapists (Diploma in Orthodontic Therapy). This is a one-year course with a four-week core course and 10 to 12 further study days at the Centre. The rest of the training is in the clinical setting where the trainee is employed. The previous intake had 14 trainees, all of whom qualified.

* NEBDN= National Examining Board for Dental Nurses

Clinical Dental Technicians

Currently no provision for the training of Clinical Dental Technicians is available in Wales. UK-trained Clinical Dental Technicians are trained elsewhere (e.g. Edinburgh, Kent and Preston).

6. Forecasting Future Supply of Dental Staff

6.1 Dentists

There are three main routes for dentists into the Welsh workforce, and each is assessed in turn in this chapter:

- Newly-qualified dentists who train in Wales and directly enter the Welsh workforce.
- Dentists who train in Wales, but then work outside Wales for a period of time before later returning to Wales.
- Dentists who qualify outside Wales, and decide to come to work in Wales.

The initial stage of training to become a dentist is a UK dental degree. Wales has one Dental School (Cardiff), which currently produces between 63-80 dental graduates per year. All dental graduates in the UK must undertake a one-year Dental Foundation 1 (DF1) programme before being eligible to work as a provider/performer in the GDS. The first cohort of DF1s in Wales

began in 2006. Prior to this, a one-year “Vocational Training” (VT) scheme performed a similar function. The Department of Dental Postgraduate Education for Wales, which is based in Cardiff, manages this.

The Dental School/Deanery data was also correlated against the baseline profile of Wales’ dental workforce outlined above, as well as against data from the Wales Dental Performers List. This enabled the Review to identify broadly how many of the dentists trained in Wales in recent years subsequently entered the Welsh workforce.

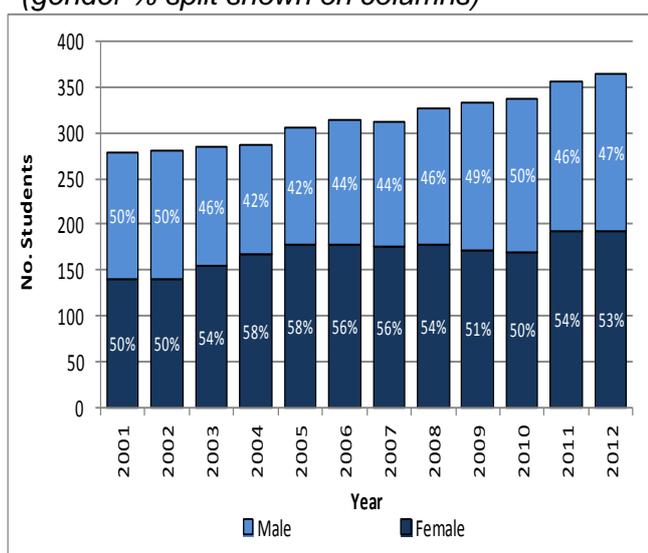
Welsh-trained dentists account for 41% of the dentists currently working in Wales. Forecasting the likely future supply of dentists migrating to Wales (but who trained elsewhere) is therefore also important and will have a major impact on the work planning process.

Forecasts have been produced based on the available migration data. However, the limited amount and granularity of data available means that it was not possible to forecast future migration of dentists into Wales with the same degree of confidence as the forecasts for Wales’ anticipated output of graduate dentists. In the coming years, global economic factors are likely to increasingly shape dentists’ migration patterns. This could significantly influence the number of dentists wanting to migrate to the UK. Other factors also need to be taken into account, such as the level of desire amongst non-UK dentists to gain experience of working in the UK. As a result it is a challenge to forecast non-UK migration and highlights the importance of capturing migration flows of all UK/nonUK trained dental staff into and out of Wales.

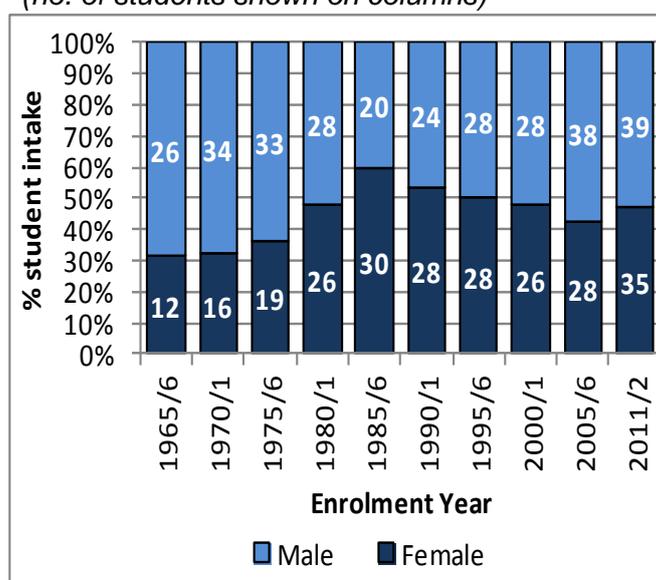
6.1.1 Trends in Dental Undergraduate training

The number of undergraduates entering the dental school in Wales increased each year see **Graph 8**. There was a 30% increase in (headcount) numbers during this period (279 in 2000/01 vs. 364 in 2011/12) and there were on average slightly more female dental students (54%) than males during 2000/1-2011/12, see **Graph 9**.

Graph 8: Number of undergraduates in Cardiff Dental School by Gender (2001– 2012) (gender % split shown on columns)



Graph 9: Intake into Cardiff Dental School (1st year students only) by Gender (1965-2011) (no. of students shown on columns)



The trend of feminisation of the undergraduate population began in Cardiff dental school several decades ago. In 1965, only around 30% of dental undergraduates in Wales were female.

However, this had increased to around 50% by 1980. Since then, the gender balance has fluctuated, but without a clear trend towards further feminisation. The vast majority of Wales' dental undergraduates are from the UK. During 2000/1-2011/12 92% of students were domiciled within the UK of which 35% of students were registered with a domicile of Wales. The average attrition rate from the course during 2000/1 – 2006/7 was 10%. Female students had a lower attrition rate than males (8% vs. 11%). Similarly, females were more likely than males to graduate without having to re-sit any part of the course (87% vs. 78%)

Table 6 : Number of Wales' Dental graduates by Gender and Nationality 2001-2007 (Headcount)

	% of students who did not qualify	No. of students qualifying
Total (all students)	10%	444
Female	8%	243
Male	11%	201
UK (incl. Wales)	9%	400
EU	17%	24
Non-EU	15%	24

6.1.2 Forecasting Wales' future output of Dental Graduates

Graph 10: Wales' actual & forecasted output of Dental graduates (Headcount)

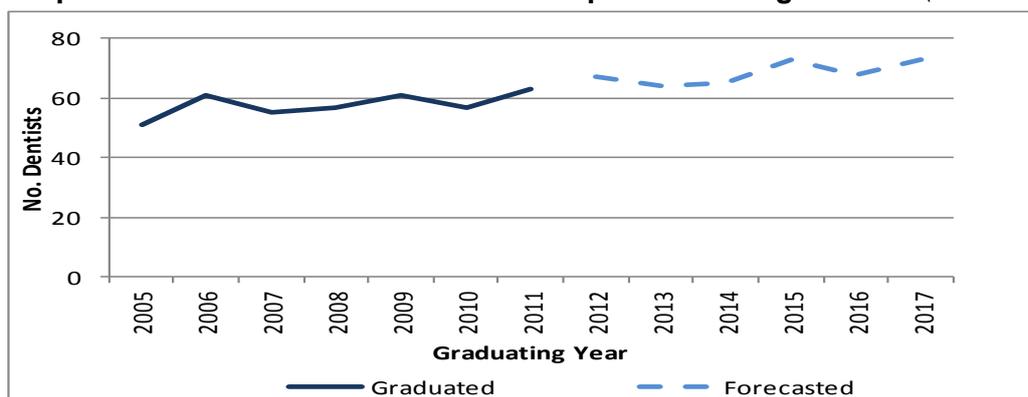


Table 7: Forecasted dental graduate output (Headcount)

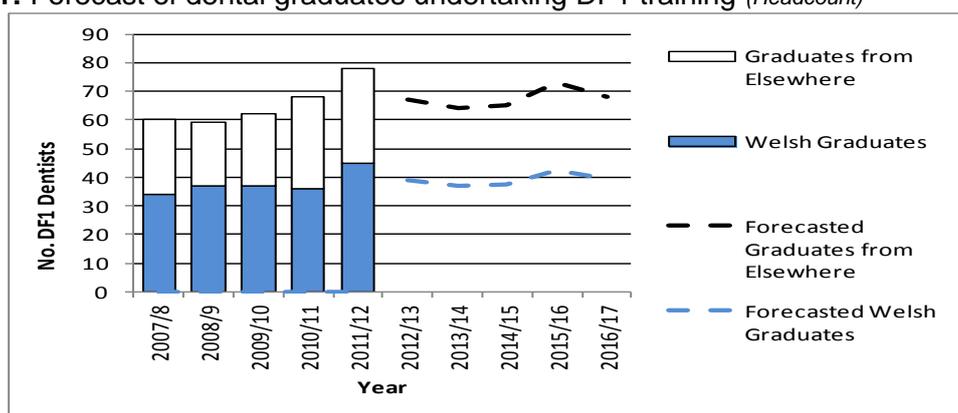
Year of graduation	Wales' actual / forecasted output of graduates
2012	74 (actual)
2013	63
2014	80
2015	73
2016	68
2017	73

Wales' output of dental graduates during 2012-2017 is already largely determined, as these students are already in dental school. Subject to the minor variations outlined in the previous section, Wales is anticipated to produce 64-80 dental graduates per year during 2012-2017, see **Graphs 10 and Table 7**.

6.1.3 Forecasting Wales' output of Foundation Dentists

The current policy position in Wales is for Welsh Government to fund one DF1 post for every dental graduate produced in Wales each year up to a maximum of 74 places. So DF1 numbers have generally mirrored graduate numbers. In reality, not every dental graduate trained in Wales will progress to a DF1 post in Wales. Many will secure a DF1 post elsewhere in the UK, while a smaller number may choose to move abroad or leave dentistry. Each year since 2006 an average of 64% Welsh dental graduates have undertaken DF1 training in Wales. DF1 student places have grown by 28% during 2007-2012 (from 60 to 74), see **Graph 11**. On the assumption that dental school output and DF1 places continue to be matched, the graph also shows the forecasted number of DF1 dentists trained in Wales until 2017.

Graph 11: Forecast of dental graduates undertaking DF1 training (*Headcount*)



6.1.4 Proportion of Welsh-trained dental graduates remaining in the Welsh workforce

The ability to track dentists' career patterns was constrained by the available data; sufficient data was available to identify the number of dental graduates produced in Wales since 2007 who were in the Welsh workforce in late 2011/early 2012. The data also showed the number of dentists who completed DF1 in Wales during 2007-2011 and were in the Welsh workforce in 2011/12.

On average during the period 2007-2010, 58% of Welsh-trained dental graduates entered the Welsh workforce after completing DF1. ***Undertaking DF1 training in Wales is a significant factor in the decision to continue working in Wales.*** Of these, 90% undertook DF1 training in Wales and 10% undertook it elsewhere before returning to work in Wales.

6.1.5 Forecasting the future supply of dentists trained outside Wales

We need to take account of the net inflow of dentists coming to work in Wales as Welsh-trained dentists only account for 41% of the dentists in the current Welsh workforce:

- 34% of Wales' dentists obtained their dental degree in England; ***therefore, the future supply of English-trained dentists is likely to significantly affect the future supply of dentists migrating into Wales.***
- Scotland and Northern Ireland's future output of newly-trained dentists is likely to affect Wales' future supply to a much lesser degree. Only 2% of Wales' current dentists graduated in Scotland and 1% in Northern Ireland.
- 15% of Wales' dentists graduated elsewhere in the European Economic Area (EEA), while a further 5% graduated outside the EEA.

Anecdotal evidence suggests that recent increase in the dental workforce was in response to NHS access issues of the late 1990s and early 2000s. This may have increased the rate of growth in dentist numbers during this period. In addition, other factors such as the volatile global financial situation could have influenced inward migration from EEA and beyond. **Table 8** highlights the trends in Performers List numbers between 2008-2012.

Table 8: Average Annual Growth in Dentists on the Welsh Performers List (2008-2012) (Headcount)

Region		From Wales	From UK (excluding Wales)	From EEA (excluding UK)	From Outside EEA	Total (all Regions)
Number of dentists on the Performers List	In 2008	644	583	153	25	1405
	In 2012	664	619	288	76	1647
	Net change (2008-12)	20	36	135	51	242
% of dentists on Performers List	In 2008	46%	41%	11%	2%	100%
	In 2012	40%	38%	17%	5%	100%
Average Annual Growth (2008-12) (%)		0.6%	1.2%	17.7%	40.6%	3.4%

This growth in numbers of dentists joining the Performers List in Wales should be balanced against the largely static number of Units of Dental Activity (UDA) commissioned each year by Local Health Boards. In other words more dentists are delivering broadly the same level of NHS work. This may indicate more part time positions being created in dental practices across Wales and/or a change in the type of treatments and content of courses of treatment being provided as the contractual arrangements introduced in 2006 bedded in.

6.1.6 Forecasting Wales' Supply of DCPs

Due to the lack of available data, it is not possible to produce supply forecasts for DCPs to the same extent as dentists. The extent to which supply forecasts can be produced for each DCP type is outlined below.

Dental Nurses

Wales currently trains an average of 370 Dental Nurses every two years (allowing for a reported attrition rate of between 0-20 percent, which varies by Provider). Data is only available on the number of Dental Nurses in the Welsh workforce as at 2011/12. This means that it is not possible to identify historical trends in workforce growth/reduction upon which forecasts could be based.

Dental Hygienists and Dental Therapists

As with Dental Nurses, data exists on the current number of Hygienists and Therapists in the Welsh workforce, but not on the historical numbers of staff. Similarly, no data is available on

where Welsh-trained Hygienists and Therapists go after completing their training, nor on the number of non-Welsh trained Hygienists/Therapists that come to work in Wales. Trends identified by the historical data obtained are :

Hygienists	Therapists
<ul style="list-style-type: none"> • 7% attrition rate during training • 77% students passed the training course without re-sitting; while 16% passed with one re-sit. • Training places commissioned during 2003-12 were within a range of 6-13 places 	<ul style="list-style-type: none"> • 7% attrition rate during training • 89% students passed the training course without re-sitting; while 4% passed with one re-sit. • Training places commissioned during 2003-12 were within a range of 6-13 places

Historical data from the General Dental Council indicated that, of the Hygienists and Therapists trained in Wales since 2003-04 only 32% of these Hygienists and 42% of Therapists were still on the General Dental Council's DCP register and living in Wales by 2011/2

Dental Technicians

Qualified or non-qualified technicians who are not registered with the GDC can be employed in a laboratory and make dental appliances if a GDC registrant signs off the work carried out. Cardiff Metropolitan University, in partnership with Cardiff University, deliver the only dental technician course in Wales. The course typically enrolls 20 undergraduate students each year. Intakes typically include 7 or 8 Welsh-domiciled students and 8 or 9 English-domiciled students. The remainder are usually international students.

Historical data on number of technicians who graduated from Wales is not available. Data is also not available on the number of technicians trained elsewhere who have entered the Welsh workforce in recent years. Due to inadequate data, forecasting the future supply of technicians is not possible but anecdotal reports suggest that Wales has not experienced any difficulties in recruiting sufficient numbers of technicians in recent years.

Orthodontic Therapists and Clinical Dental Technicians

Morrison Hospital is the only orthodontic centre in Wales running a validated training course for Orthodontic Therapists. This profession is relatively new and there are no workforce statistics available for this group. Clinical Dental Technicians are highly specialised and only six are registered on the GDC register. Currently there are no Clinical Dental Technicians trained in Wales.

7. Forecasting Wales' Future Utilisation of Dental services

This Chapter aims to forecast the number of dentists and DCPs that Wales is likely to need in future years. The forecasts in this Chapter are based on the existing service/workforce configuration, and on existing particular historical trends continuing in future. If significant changes occur in the coming years, the forecasts will need to be revised accordingly.

The “demand” for a particular workforce should be thought of as “the number of particular staff needed at a specific moment in time”. The future utilisation of dental services and how many dental and medical staff will be required to deliver the service is particularly difficult to forecast, due to:

- Differing opinions on how many/what type of staff are likely to be needed to enable an organisation to meet its objectives e.g. Royal Colleges or trade unions may have a different view to an employer, and both these views may be different to a forecast based on historical staffing trends.
- In healthcare, there is an added dimension of how much of a population’s “need” or “desire” for healthcare is translated into demand (and impacts on workforce requirement).
- The number of factors that can potentially change between now and the date forecast (for example, changes in technology, government policy, legislation/regulation, migration of staff and the economic climate).
- The longer a particular workforce takes to train, the longer the forecast has to be. For staff who take many years to train (e.g. dentists), the above factors can significantly alter the demand for staff in the time it takes to train additional/fewer numbers of workers.

The main demand scenario used takes into account forecasted population growth, dental disease rates and trends in the utilisation of dental services. It is based on similar approaches taken previously at a UK-level, as well as by Scotland and Australia^{[6][7][8][9]}.

A more complete list of factors that may affect the future supply or demand for dental staff in future is provided in **Annex D**. The methods used to produce each forecast varied depending on the data available, and are outlined below. **Utilisation of the GDS was only considered as part of this report.**

7.1 Future Utilisation of the GDS in Wales

The Information Centre^[10] suggested that there were a number of options that could be used to count dentists, or make an estimate based on activity data. Findings from estimating the number of dentists based on UDAs makes no attempt to calculate the number of unique dentists as the total number of unique dentists would be greater than the total Full Time Equivalent (FTE) dentists. It is considered that this method would not produce an appropriate measure of the number of NHS dentists for policy or decision making purposes. However, this figure could provide a useful insight into the total commitment to NHS dentistry.

The factors modelled to produce the “future demand” forecasts for GDS dentists outlined in this section are listed below. Each factor is then discussed in turn:

- a) Assessment using UDAs that each dentist carries out.
- b) The proportion of the population who visit a GDS dentist.
- c) Anticipated population growth and changes in the oral health of the population.
- d) The total number of UDAs carried out each year by GDS dentists.

There are no data on how many FTE dentists work in Wales' GDS. However, a figure for the number of FTE dentist in Wales is needed in order to carry out effective supply/demand modelling. This scenario was modelled using data obtained from the NHS Information Centre and uses the premise of the number of UDAs performed providing a measure of the amount of NHS work carried out by dentists. This can be used to provide a proxy for the number of FTE GDS dentists in Wales.

- According to NHS Information Centre data ^[10] a survey of dentists working in England and/or Wales, found that the average dentist works 37.2 hours per week.
- On this basis, an FTE of 37.2 hours per week is equivalent to 93% of headcount. Using this assumption, a 'Headcount' of 1285 would equate to 1195 FTE dentists.
- The Information Centre data also notes that the Welsh GDS dentists worked an average of 75.3% of their time in the NHS. This would equate to 890 FTE GDS dentists in Wales

An assumption was made (following consultation with the Reference group) that "1FTE=7000 UDAs" would be used as a proxy to measure utilisation.

7.1.1 The proportion of the population who visit a GDS dentist

Data from the NHS Information Centre shows that 49% of Wales' population visited a GDS dentist at least once during 2011/12. Similar data from Stats Wales shows that the proportion of Wales' population visiting a GDS dentist remained broadly static during 2006-2011 (increasing by only 0.03%). The equivalent increase in England during this period was also very small (0.6%).^[11]

If the percentage of Wales' population that visit a dentist changes in future, this will also create more/less demand for dental staff.

The forecasts in this Chapter therefore assume that the proportion of the population visiting a dentist in future will remain at its 2011/12 level.

Table 9 shows that different age bands within the population are forecast to increase and decrease at different rates. In particular, the proportion of people in Wales who are in the older age brackets is forecast to increase significantly faster than the rest of the population. Increasing numbers of older people will require ongoing support from Health and Social Care Services, including dental teams. Their care needs will be affected by decreased mobility and medical/mental health problems.

While the number of UDAs used on treating older patients is already higher than the number used for younger people, it may increase further in future.

Historically, most people lost all their teeth (edentulous) by the time they reached their later years. Currently, 42.5% of over 75s are edentulous (Adult Dental Health Survey 2009), and this percentage is likely to decrease significantly during the next 20 years. Not only will older patients therefore retain more of their teeth, but many of those teeth will have had heavy restoration during their lifetime, which increases the work (and enhanced skills) needed to maintain them.

Caring for the teeth of elderly patient's places significantly greater demand on the dental workforce than monitoring/replacing dentures e.g. research from Australia ^[12] suggests that, during 1979-2005, the average number of visits to a dentist per year was 61% higher for patients with at least some teeth (dentate) compared to edentulous patients.

Table 10 shows the average number of annual UDAs that patients of different ages utilise, on average, older patients require more UDAs than younger ones.

Table 9: Wales' population: average annual change by age band (source: Stats Wales)

Table 10: Average UDAs per patient in Wales during 2011-12 (source: NHS Information Centre)

Age band	Actual average annual change (2001-2010)	Forecasted annual change (2011-2025)
Under 16	-0.7%	+0.7%
16-24	+1.8%	-0.7%
25-34	-0.7%	+1.0%
35-44	-0.5%	+0.4%
45-54	+0.4%	-1.0%
55-64	+1.7%	+0.6%
65-74	+1.2%	+1.0%
75-84	+0.2%	+3.0%
85+	+9.6%	+3.3%
Total (all ages)	+0.4%	0.5%

Patient Range	Age	Average UDAs per patient
0 – 2		1.3
3 – 5		1.8
6 – 12		2.6
13 – 17		2.6
18 – 24		2.6
25 – 34		3.3
35 – 44		3.7
45 – 54		4.1
55 – 64		4.3
65 – 74		4.2
75+		4.3
Total (all ages)		3.4

This more dentate cohort of older people is likely to place an increased demand on specialist dental services, as some of these individuals become unable to maintain good oral hygiene, require domiciliary care, and become unable to co-operate with dental treatment or have medical / pharmaceutical requirements which complicate dental treatment. This is particularly pertinent for nursing home residents. While improvements in patients' oral health are likely to increase demand from older patients, it could also reduce the future demand from the rest of the population. As a greater percentage of the population retain healthier teeth for longer, fewer patients should require treatment (particularly the more complex procedures).

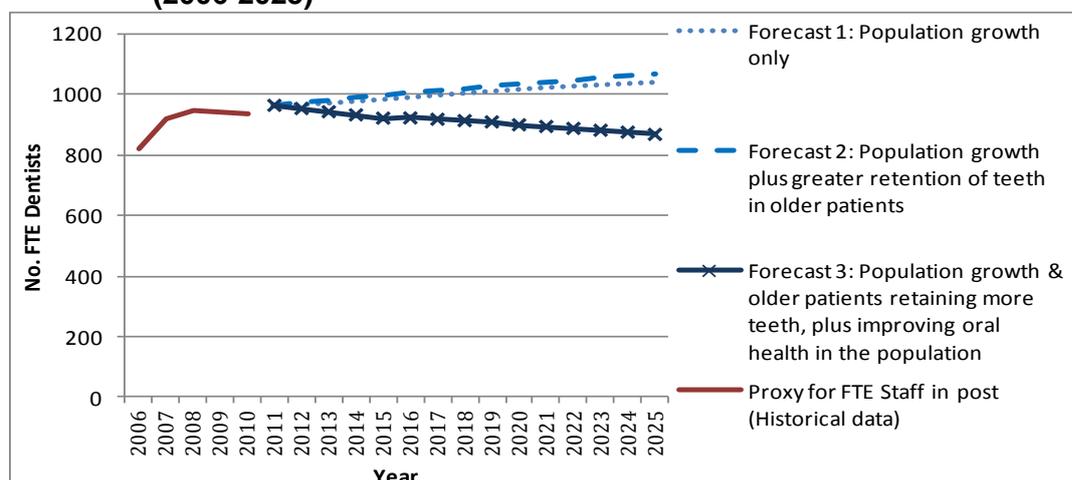
Graph 12 forecasts how many GDS dentists Wales would need to meet the additional demand caused by the anticipated demographic and oral health changes in Wales' population. It compares the number of dentists required to account for:

Demand Forecast 1: The anticipated increase in Wales' population.

Demand Forecast 2: The number of dentists required for Forecast (1), but also accounting for an increasing proportion of older patients retaining at least some of their natural teeth.

Demand Forecast 3: The number of dentists required in Forecast (2) but also factoring in the decreasing dental need of younger patients as they become older.

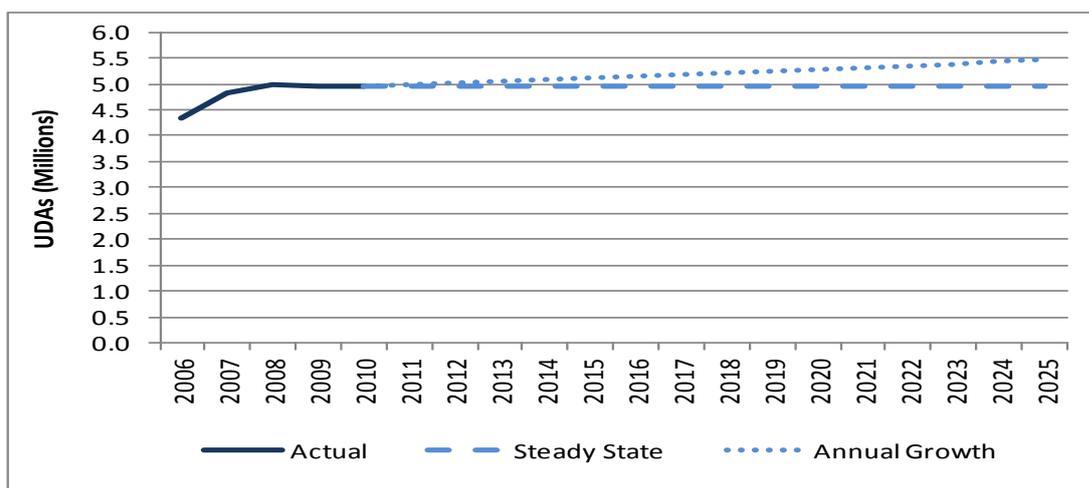
Graph 12: GDS Dentists (FTE) required in Wales to meet population / oral health changes (2006-2025)



7.1.2 The total numbers of UDAs carried out each year by GDS dentists

Under current contract regulations the amount of GDS services in Wales is dependent on the number of UDAs that the GDS is asked to deliver by NHS organisations. The total number of UDAs carried out by the GDS in Wales changed during 2006-2010, see **Graph 13**. It shows forecasts how many UDAs would be needed if the average annual increase in UDAs carried out during 2007-10 (0.5%p.a.) continued up to 2025.

Graph 13: Actual/Forecasted number of UDAs carried out by the GDS in Wales. (2006-2025)



Key Points to note:

The forecasts outlined so far suggest that, if current trends continue, the future utilisation of NHS dental services in Wales is likely to be static. However, services would need to grow to meet an increased demand of a growing population. It is currently impossible to predict with any great certainty the number and skill mix of dental staff that would be required to meet the increased needs and demand.

7.1.3 Anticipated future demand for General Dental Practitioners in the Private Sector

As at 2009/10, Welsh General Dental Practitioners who performed at least some work in the GDS spent an average of 24.3% of their time working outside the NHS. This is 2.8% lower than the equivalent figure for England.

Table 11: Percentage of General Dental Practitioners' time spent on non-NHS activities

Year / Country	06/07	07/08	08/09	09/10	Average annual % change during 2006/07 – 2009/10
England	28.8%	29.4%	28.0%	27.1%	0.56
Wales	25.8%	25.7%	24.5%	24.3%	0.50
England & Wales	28.6%	29.2%	27.8%	26.9%	0.56

Anticipating the likely future demand for non-NHS dental treatment is particularly challenging. Anecdotal evidence suggests that the current economic climate is suppressing demand for private sector dental treatment. If economic conditions improve at some point during the next 10-15 years, then this would be likely to increase demand. If demand for dental procedures not generally available on the NHS (e.g. cosmetic dentistry) increases, this would raise demand for dental staff in the private sector. Data from the British Household Panel Survey suggests that the percentage of the UK's population who visit a private dentist rose to around 15%-21% during 1999-2008, while the proportion visiting an NHS dentist remained at around 45% during the same period.

7.2 Future demand for CDS and HDS dentists

According to NHS organisations' 2011 Workforce Plans, Wales' Health Boards do not anticipate changing the number of HDS or CDS dentists they employ during 2012-2017. However, service plans developed after 2011 may alter these forecasts.

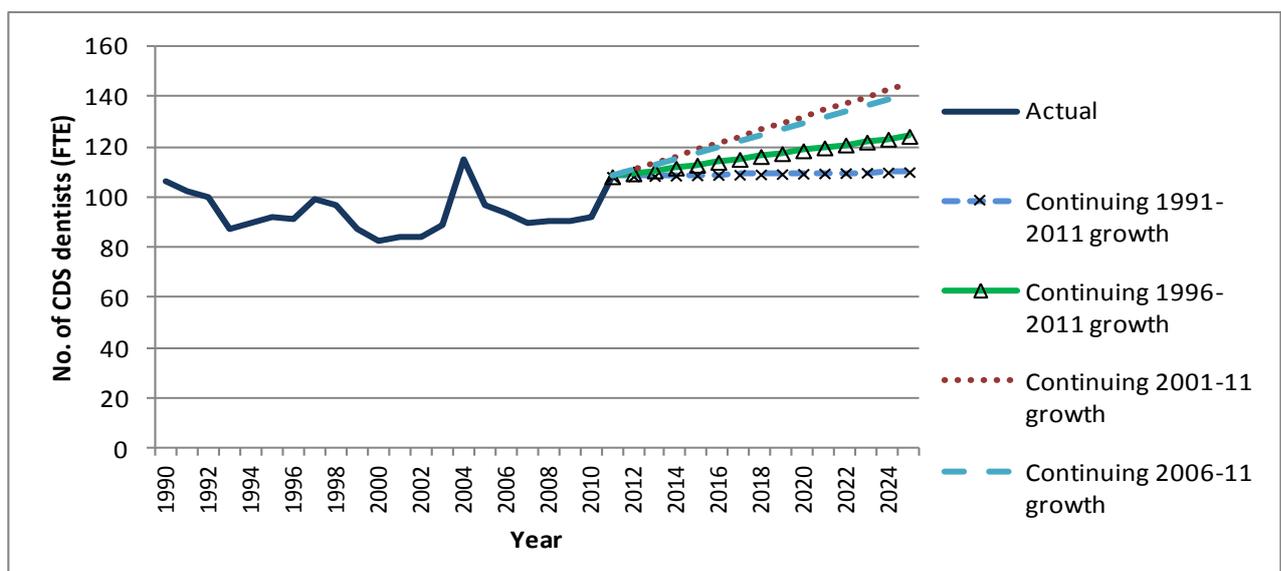
- It is difficult to assess the robustness of the NHS organisations' forecasts until detailed service plans are developed and agreed.
- It is assumed that Welsh Government policy will continue to require the delivery of services to be mainly provided in Primary Care and that HDS must be for those patients who require hospital care or advice.
- The small number of dentists in the majority of HDS specialties means that it is not possible to present a detailed supply/demand analysis for each specialty in this Review (due to data protection issues).

However, data modelling work is currently being carried out jointly by the Wales Deanery and NLIAH to compare supply vs. demand for Consultants in each individual dental specialty.

As **Graph 14** shows, the number of FTE dentists in the CDS has fluctuated between c.80-120 during the past two decades.

- There was an overall trend of slight increases in CDS dentist numbers during 1990-2011 (0.1% per annum). However, the rate of growth experienced during the past five, ten or fifteen years was faster (at 2.4%, 2.6% and 1.2% per annum respectively).

Graph 14: Number of (FTE) CDS dentists in Wales, plus different forecasts based on this trend data*



* Source: Stats Wales. The Figure for 2006/7 not available due to data coding issues caused by the introduction of the Electronic Staff Record system. A linear progression from 2006-8 is assumed.

As with the HDS, Health Boards 2011 workforce plans did not anticipate that the number of CDS dentist employed in Wales will change during 2012-2017, but again, service plans developed after 2011 may alter these forecasts.

- Other factors will also influence the size and shape of the CDS workforce (e.g. the increasing need for care of vulnerable people and those with special needs is increasing requirement for CDS services, while the economic climate could suppress historical rates of workforce growth in many NHS services).

Given the above, it is assumed that the number of FTE CDS dentists in Wales will increase at the low rate of 0.1 FTE per annum.

7.3 Future demand for DCPs

As previous chapters illustrate, the available data on DCPs is very limited. It is therefore extremely difficult to create robust forecasts for supply/demand for DCPs. For example, it is not possible to build forecasts based on historical trend data.

However, a review of the available information reveals the following:

- The use of skill mix in dentistry is not yet fully developed, and lags behind its use in the medical workforce.
- There may be scope to make greater use of some DCPs to perform tasks currently undertaken mainly by dentists.

Approximately 95% of the costs for NHS Dentistry are spent on routine care delivered by General Dental Practitioners, yet a large proportion of patients who regularly attend are asymptomatic and do not require treatment. Despite this, their care is delivered by the most expensive resource, the dentist^[12]. Many existing DCPs are not being utilised to their full potential. There appears to be an appetite among many DCPs to take on higher-level work^[13]. A number of barriers exist to addressing this e.g. UDAs cannot be attributed to DCPs in the current dental contract.

The available evidence suggests that DCPs are able to perform a range of dental procedures to the same standard as dentists. There is also scope to make greater use of some DCPs in particular services (*e.g. use of hygienists and therapists to provide dental care to children of high dental need, and/or contribute to the care of the elderly and patients with special needs*).

However, there is little information available on what proportion of a dentists' work could be undertaken by a DCP. One study^[14] suggests that:

- An extra expanded duty dental nurse can increase the productivity of a single-handed dental practice by at least 35%, possibly up to 58%.
- The optimal ratio of expanded duty dental nurses to dentists is close to one to one.
- The equivalent evidence^[15] about the marginal productivity of (non-extended) dental nurses and dental hygienists is much weaker, but is a very tentative 18% for dental nurses and a very tentative 35% for hygienists.

8. Comparing Forecasted Supply with Utilisation

It is important to note that due to the reasons previously outlined, these forecasts can only give a broad sense of whether Wales is likely to experience an undersupply or oversupply of dentists in future. We should note that:

- The current level of Welsh-trained dental graduates remaining in the Welsh workforce for at least 5 years after Foundation training (58%) continues.
- Historical trends for number of dentists migrating into Wales from elsewhere in the UK and other parts of the world continue, as well as historical trends of Welsh-trained graduates returning to the Welsh workforce after a period working elsewhere (or outside the dental profession).
- The proportion of dentists working “less than full time” remains at current levels.
- On average, dentists retire at 60 years old. The supply/demand for dentists working entirely within the private sector is excluded.

The forecasted supply of dentists is then compared against the following “possible future demand” scenarios:

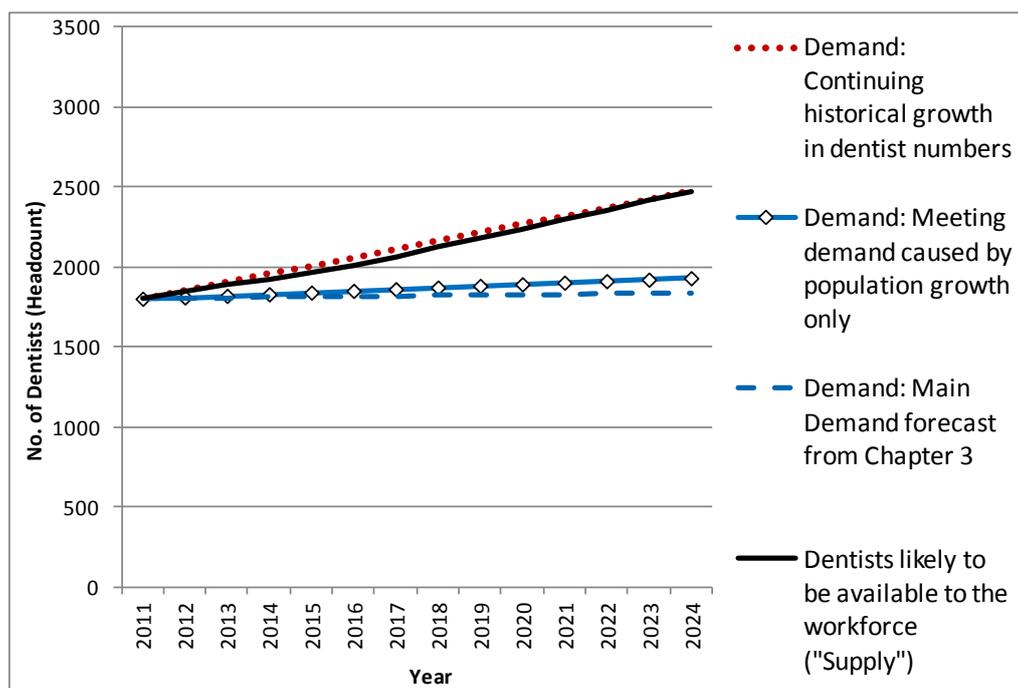
- Maintaining dentists numbers at the current level (but proportional to an increasing population)
- Dentists required to meet the main “utilisation” forecast outlined in Chapter 7 which accounts for:
 - changes in demand for GDS dentists caused by an increasing population;
 - increased retention of natural teeth in older patients; and
 - reduction in demand from the rest of the population due to improved oral health.

Graph 15 shows the forecasted supply of dentists is then compared against the following “possible future demand” scenarios:

- I. Maintaining dentists numbers at the current level (but proportional to an increasing population)
- II. Dentists required to meet the main “demand” forecast outlined in Chapter 3, which accounts for
 - Changes in demand for GDS dentists caused by an increasing population, increased retention of natural teeth in older patients, and a reduction in demand from the rest of the population due to improved oral health.
 - A continuation of historical trends in the numbers of dentists working in the HDS, CDS and clinical academia.
- III. The dental workforce continues to grow at historical rates.

The graph shows that, if the aforementioned trends continue, Wales is likely to have sufficient numbers of dentists available to meet all the levels of demand modelled. There is a risk of a surplus in available dentists, particularly if the rate of growth in dentist numbers in future is higher than that experienced over the past 7-20 years.

Graph 15: Supply/Utilisation forecasts: Inward migration trends continuing and dentists retiring aged 60 (*Headcount*)



The modelling identified that two factors had a particularly significant impact on the forecasted supply of dentists:

- The age at which existing dentists retire
- The number of dentists migrating into/out of Wales each year.

If existing dentists retired on average at 55 or 65 respectively the model suggests that:

- If dentists retire on average aged 55, there is a risk that supply will not keep up with demand in future (unless the dental workforce remains at its current size for much of this decade).
- If dentists choose to retire at 65, supply is forecasted to outstrip demand in all scenarios modelled.

Changes in migration patterns of dentists from non UK sources may affect the supply of dentists but to a lesser degree than age factors.

9. Conclusions and Discussion

If the rate of growth in dentist numbers continues at historical rates, Wales is likely to have a broad balance between supply and demand. If there are increases in retirement age and/or dentists choose to retire in their mid-60s or later, or if the rate of growth in demand for treatments slows (e.g. due to economic factors), the supply of dentists is likely to outstrip demand. **Over the past 7-20 years, the average rate of growth in total dentist numbers (c.1.6%-3.5%p.a.) appears to have been significantly higher than the rate of growth in Wales' population (0.5%p.a.).**

The modelling described in this Review suggests that Wales is unlikely to face a Wales-wide shortfall of dentists during 2012-2020.

A key objective of this analysis is to consider whether we have an appropriate number of dentists working in Wales. Whilst the forecasts reported in the Review provide useful information around the expected future direction of the demand for and supply of dentists it is important to recognise, the forecasts have limitations because they do not capture the complexity that affect the dental marketplace. Therefore, any decisions about the supply of dentists should be informed by both the forecasts and additional evidence. ***This evidence is based on a number of factors should be taken into consideration when considering dental workforce planning in the future.***

The Medical England report (2011)^[16] noted that there should be broader considerations for workforce feminisation “.....*Legislation introduced in April 2011 will enable fathers to share 50% of maternity leave. For this reason, the effects of part time working and career breaks may not continue to be isolated to women. Fathers have for some time, been able to request flexible working yet the data indicate that there are still differences between male and female working patterns. If the right to share maternity leave is taken up, the differences in working patterns between the gender groups may decrease, as they have in some Scandinavian countries*”

Recent research however indicates that changes in working patterns may mitigate this effect: Tomson et al (2012)^[17] found:

- 15% of a graduate cohort (qualifying 25 years previously) had been lost from the GDC register
- A significant rise in the number of young dentists enrolling in postgraduate training soon after qualifying
- Young graduates work fewer hours than older dentists did at similar times in their careers
- Over time dentists reduce the number of sessions they work

There are a number of research reports that indicate a growing trend for part-time working. The Scottish workforce study (2010) showed that 62% of the workforce worked full-time, however Gallagher et al (2009)^[18] demonstrated that only 60% of her final year students anticipated working full time in the future.

The introduction of specialisation into primary care may also affect the number of graduates attracted to full time careers in general dental practice. Research at a London Dental School indicated over 30% of the final year students expected becoming a dentist with a special interest (DwSI). Additionally foundation dentists have also indicated that there is an increasing desire to specialise, because this may enable them to avoid the boredom of repetitive generalist work (Gallagher 2007)^[19]. A shift towards specialist services could alter the pattern of dental service delivery and capacity of dentists may be reduced.

These developments, however, should be viewed as opportunities for change. It has been well documented by a plethora of commentators about the need to use the DCP workforce more effectively. Interim results from the Welsh Dental Pilot Programme have highlighted the advantages of a well balanced dental team delivering preventive based approaches in general dental services. In addition the GDC is embarking on a consultation regarding the Direct Access to DCPs. This may affect both the composition and relative numbers of dentists and DCPs required to deliver services in the future.

Some rural areas in Wales (and in other parts of the UK) have found it harder than others to recruit and retain dentists. Training additional dentists does not guarantee that they will choose to apply for posts (or establish practices) in these particular areas. Social, cultural and professional opportunities afforded by life in a big city have been shown to be important factors in the decision

making process of dental graduates about where they work. If these difficulties remain, government and health service planners will need to develop new and innovative solutions to meet the oral health needs of the local populations. Solutions developed in other parts of the UK; in particular, Scotland should be investigated. **The dental workforce in Wales cannot be considered in isolation from the workforces in other parts of the UK and the wider EEA.**

10. Recommendations

- WG should commission the development of an all-Wales approach to capture data on dentist and DCP numbers and ensure that accurate FTE figures can be calculated for both primary and secondary dental care services. Data capture should be on a regular and ongoing basis.
- WG should consider the establishment of an all-Wales Dental Workforce Data Implementation Group to take this work forward by developing a Dental Workforce Common Minimum Data Set.
- WG should ensure that liaison with all Welsh workforce and training stakeholders/partners (PGMDE, HEFCW, Welsh Medical and Academic Board and organisations that in the future take on the current functions of NLIAH) is maintained, and that information is provided to enable effective decision making regarding the training of both dentists and DCPs.
- WG should continue to liaise with UK wide dental workforce reviews/programmes to identify and address clinical specialities where undersupply or over oversupply is of concern.
- WG should encourage and facilitate research into:
 - developing existing and new sources of information on the employment, activity and career patterns of DCPs in all sectors of the market for dental services.
 - Dentist/DCP ratios and skill mix to support effective service delivery and team working.
 - the factors that influence decisions by Dental Foundation trainees to stay in Wales or to leave.
 - dentists and DCPs working in the Private Sector.
- As part of the National Oral Health Plan, Health Boards will develop Local Oral Health Plans. These should include regular review of the local dental workforce in the context of any national review and workforce strategies. This should include the need to review provision of specialist dental services to ensure populations have appropriate and timely access to such care. This will require Health Boards to work together on provision of cross-boundary services.
- Health Boards should ensure the delivery of the four workforce and organisational development objectives in respect of the dental workforce and outlined in the WG document “*Working Differently - Working Together*”
- Cardiff University (UG and PGMDE) should work with LHBs across Wales to establish how their specialist workforce – particularly those in secondary and tertiary care services – can most appropriately deliver specialist services for patients across Wales.

11. Acknowledgements

Thanks are given to everyone who contributed to the Review of the Dental Workforce in Wales and the production of this report; in particular, colleagues from:

- The Dental Public Health Team of Public Health Wales
- Cardiff University School of Dentistry
- Wales Deanery (School of Postgraduate Dental Education)
- Cardiff Metropolitan University
- Staff within NHS Wales especially Workforce Information managers
- Community and Hospital Dental Clinical Directors and service leads
- NHS Wales Shared Services Partnership – Contractor Services
- NHS Business Services Authority
- NHS Information Centre for Health and Social care,
- Centre for Workforce Intelligence,
- NHS Education for Scotland
- Welsh Dental Committee

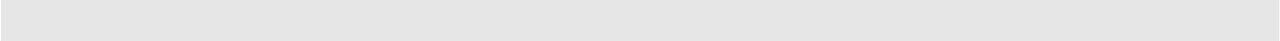
Special thanks to the Dental Review's Reference Group, Extended Virtual Reference group and the Steering group for all their input and support

References

- [1] Task and Finish Report – Orthodontic Sub-group (2010)
- [2] WOHIU Cardiff University website
- [3] Wales Cancer Registry report 2012
- [4] OECD Stats extracts 2012
- [5] General Dental Council Performance report September 2012
- [6] Scottish Government - An Analysis of the Dental Workforce in Scotland: A Strategic Review (2010)
- [7] Modelling the Dental Workforce Supply in England (2009)
- [8] Scottish Government: Framework for modelling dental workforce and building for the future (2004)
- [9] Australia: Dental Statistics & Research Unit (2010)
- [10] The Information Centre - Dental Working Hours England and Wales 2008/09 and 2009/10 (August 2010)
- [11] The Information Centre - Adult Dental Health Survey 2009 (March 2011)
- [12] AIHW Dental Statistics and Research Unit Research Report No. 42: Projected Demand for Dental Care to 2020. www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=6442455361
- [13] Centre for Workforce Intelligence - The policy context for dentistry skill mix in the NHS in the UK (2011)
- [14] Csikar, J.I. et.al., - Dental Therapy in the United Kingdom: part 4. Teamwork-Is it Working for Dental Therapists? (2009)
- [15] Galloway et al - The Professionals Complementary to Dentistry: Systematic Review & Synthesis (2003)
- [16] Medical Education England - MODELLING THE DENTAL WORKFORCE SUPPLY IN ENGLAND (2010).
- [17] Tomson MA, White DA, Morris AJ. Community Dent Health. 2012 Sep;29(3):252-6.
- [18] J E Gallagher, N H F Wilson (2009) 'The future dental workforce?' *British Dental Journal*, 206 (4), pp. 195-199.
- [19] JE Gallagher, R Patel, N Donaldson, NHF Wilson (2007) 'The emerging dental workforce: Why Dentistry?'

Bibliography

- British Dental Association – Dental Futures – Forward to Twenty Twenty
- British Dental Association - Filling the gaps – further improving the oral health of Wales (2011)
- British Dental Association - Workforce Planning in Wales – HWLG (3)-03-11-p2 (March 2011)
- C. Evans, I. G. Chestnutt and B. L. Chadwick, The potential for delegation of clinical care in general dental practice (2007)
- Cardiff University - Implementing the New Dental Contact Studies to inform the planning of NHS General Dental Services in Wales (May 2008)
- Cardiff University – Proposal for Expansion of dental undergraduates and professionals complementary to dentistry (2003)

- The Centre for Workforce intelligence - Horizon scanning report: Medical - Informing medical and dental student intakes - Dental (2011)
 - Department of Health - Report of the Primary Care Dental Workforce Review (February 2004)
 - Department of Health, Social Services and Public Safety, Northern Ireland - Primary Dental care Strategy (September 2006)
 - Dental School Council - Challenges and opportunities for recruitment to clinical academic medicine and dentistry (2010)
 - Dental Schools Council - Clinical Academic Staffing Survey (2011)
 - The Information Centre - Dental Professions Summary Workforce Risks and Opportunities (September 2011)
 - Medical Education England - A Review of Skill Mix in Dentistry (2011)
 - The Orthodontic National Group for Dental Nurses & Therapists - HWLG(3)-16-10-p4 (October 2010)
 - Price Waterhouse Cooper - Review of Non Medical Healthcare Education Provision in Wales (April 2011)
 - Professor Jimmy Steele - NHS dental services in England - An independent review (June 2009)
 - Welsh Assembly Government – 'Routes to Reform' A Strategy for Primary Dental Care in Wales (2002)
 - Welsh Oral Health Information Unit - An Atlas of Oral Health in Wales - Survey of rising 12 year olds 2008/09 (2010)
 - Workforce Review Team – Workforce summary – Dental therapist and dental hygienists (2008)
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General Dental Service

This service is provided by General Dental Practitioners (GDPs), the traditional family high street dentists who provide NHS dental treatment. They are independent self-employed practitioners who are at liberty to choose whether they contract a proportion of their work time to provide NHS treatment. As a consequence GDPs may provide only NHS care, work totally outside the NHS, or as is commonly the case, provide a mixture of NHS and private dental care. In Wales, Health Boards hold the contracts for NHS GDPs.

Hospital Dental Service

This service is salaried and provided by Health Boards. The Hospital Dental Service (HDS) in Wales is a consultant-led service within the secondary care setting. It provides specialist dental care and advice on referral from dentists, medical practitioners and other healthcare professionals. HDS activity occurs across Wales, although certain specialist services are only available in the Dental Hospital, Cardiff.

Community Dental Service

The role of the Community Dental Service is outlined in ministerial letter '*EH/ML/014/08 – Dental Services for vulnerable people and the role of the Community Dental Service*'. This details the requirement for development of the CDS to ensure that vulnerable people have access to appropriate dental care, and the CDS role in epidemiological surveys, screening, oral health improvement and providing dental care for patients with special health needs.

Dental Clinical Academics

Dental Clinical Academics are fully trained dental specialists or dental specialists in training. Some work part time in NHS or Private practice. Cardiff University is the only Dental Hospital in Wales; the university teaches undergraduate and postgraduate dental students.

Dental clinical academics are recognised as having a crucial role in educating and training the future dental workforce, as well as delivering clinical dental services. They are also influential in the future development and delivery of clinical services.

Dental Nurse

A dental nurse supports the dentist in all aspects of patient care; this includes getting the appropriate instruments ready, mixing materials and ensuring patient comfort. They will also take notes from dentist's dictation for records and once the patient has left, the dental nurse tidies the surgery and sterilises all of the instruments. Upon qualification Dental Nurses are required by law to register with the GDC. Dental nurses in Wales are employed in general practice, hospitals and the community dental services.

Dental Hygienists

Dental Hygienists work to the prescription of a dentist within a variety of settings. Upon qualification Dental Hygienists are required by law to register with the GDC. Dental Hygienists carry out a variety of preventative clinical procedures such as scaling and polishing teeth, and

applying topical fluoride and fissure sealants. They use local infiltration anaesthesia and provide oral health education.

Dental Therapists

Dental Therapists have an important role in promoting dental health. The Dental Therapists may treat a wide range of high treatment needs patients from dentally anxious to patients who have learning disabilities. They work to the prescription of a Dentist within a variety of settings. A Dental Therapist can carry out a wider range of procedures than Dental Hygienists. They undertake simple fillings and extract deciduous teeth under local infiltration anaesthesia. They also undertake a range of preventive procedures and provide oral health education. Upon qualification Dental Therapists are required by law to register with the GDC.

Dental Technicians

Dental Technicians (or Dental Technologists) work to the prescription of dentists or doctors and are responsible for the design and manufacture of custom made appliances using a wide range of materials, including gold, porcelain and plastic. They make the dentures, crowns, bridges and dental braces that improve patient's appearance, speech and their ability to chew.

There are four specialist areas: Prosthodontic technicians, Conservation technicians, Orthodontic technicians and Maxillo-facial technicians

Orthodontic Therapist

An Orthodontic Therapist works to a prescription from an Orthodontist (or dentist) and they are not trained to diagnose or plan treatment. Orthodontic therapists also carry out treatments to assist patients in an emergency by relieving pain or making appliances safe.

Clinical Dental Technicians

A Clinical Dental Technician is a registered Dental Care Professional who is trained and qualified to provide a range of Denture Services direct to patients. CDTs are able to perform the same duties as Dental Technicians but their extended role allows the CDT to supply and maintain dentures without the prior review of a dentist. While some CDTs work as part of a multi-disciplinary team within a dental practice, many operate from their own independent clinic.

Primary job role

Within the dental service many individuals have joint roles and work in more than one dental service. In order to accurately show how many dentists work across Wales, an assessment of the records was carried out to determine each staff member's "dominant area of work".

By using dominant area of work, information displayed avoids double-counting individuals who work across more than one dental service.

Dentist Type

This refers to the way that dentists contract and perform their work:

'Provider Only': Health Boards hold contracts with providers to deliver an agreed level of dental service. A provider that sub-contracts all the dental activity on a contract to performers and does not perform NHS dentistry on the contract themselves is classed as provider only.

'Providing performer': A provider may also act as a performer (providing performer) and deliver dental services themselves. Other dentists will be performers only and will deliver dental services but not hold a contract with the HB themselves (i.e. they will be working for a provider only or 'provider & performer' dentist).

Annex B: Main Data Sources Used

Data Source	Data provided by each source	Date of data captured
Electronic Staff Register (ESR)	Initial data for the dental workforce directly employed by NHS organisations	September 2011
Clinical Directors and Dental Review Reference group	These stakeholders verified and improved the quality of the original ESR data.	November 2011 – April 2012
Wales Deanery's Dental Postgraduate Department	Data on dentists in Dental Foundation training and Speciality Training posts	January 2012
Cardiff University / Wales Dental School	Data on undergraduate dentists, as well as dental therapists and hygienists in training.	January 2012
	Data on the Dental Clinical Academic workforce employed / based at least partly in the Dental School	January 2012
NHS Wales Shared Services Partnership – Contractor Services (NHSWSSP)	Supplied NHS dental activity data	2010/11 Financial Year
General Dental Council (GDC)	Welsh Dental registration list	December 2011

Please note: robust information on the numbers of dental staff, hours worked and dental activity in the Private Dental sector in Wales was not available. This sector has therefore not been included in the Review.

Annex C: Review's Terms of Reference

Purpose

The purpose of the project is to undertake a strategic review of the Dental Workforce in Wales. The scope of the review will include Dentists, Therapists, Hygienists, Dental Nurses, Dental Technicians (including Clinical Dental Technicians), Orthodontic Therapists and Dental Clinical Academics.

Method and Timescale

The review will be conducted by personnel based in NLIH Workforce Development branch, and overseen by a Reference group responsible for ensuring the review is completed in line with Welsh Government requirements. It is planned that the review will be completed by 30th June 2012.

Objectives

The review will be in three parts:

Part 1: Identify the current dental workforce profile

Part 2: Forecast the future supply of dentists and DCPs in Wales

Part 3: Compare the anticipated future supply of dental staff against possible future demand

- a) Forecast the possible future demand for dentists and DCPs in Wales
- b) Consider those issues which are likely to impact on the future oral health needs of the population of Wales, and which will impact on the future dental workforce
- c) Make provisional recommendations on planning for a sustainable dental workforce, taking into account issues such as rurality and epidemiology
- d) Consider dental workforce planning in respect of Welsh Government policy
- e) Liaise with partners elsewhere in the UK (e.g. The Centre for Workforce Intelligence) to assess how future dental workforce demand outside Wales could impact on the Welsh workforce.

Membership: Reference Group

The work is supported and advised by an expert reference group comprising:

Lisa Howells - Representative from the Chief Dental Officer's office

Hugh Bennett - Consultant in Dental Public Health

Sandra Sandham - Specialist in Dental Public Health (North Wales)

Professor Ivor Chestnutt - Professor & Honorary Consultant in Dental Public Health

Kirstie Moons - Postgraduate Deanery representative for DCPs

Karl Bishop – Chair of the Welsh Dental Committee WDC

Stuart Geddes – Director, BDA Wales

Sue Greening – Clinical Director of the Community Dental Service, Aneurin Bevan Health Board

Gareth Lloyd – GDP and member of GDPC Wales

The Review is to be carried out by Workforce Development, NLI AH. A steering group has been established to oversee the completion of the project. Membership of the steering group is:

Ryan Cunningham – Dental Review Project Manager (NLI AH)

Lisa Howells – Representative from the Chief Dental Officer's office.

Rhydian Owen - Medical and Dental Workforce Planner (Wales Deanery & NLI AH)

Charlette Middlemiss – Associate Director, Workforce Development (NLI AH)

Annex D: Factors Potentially Influencing Supply and Demand for Dental Services

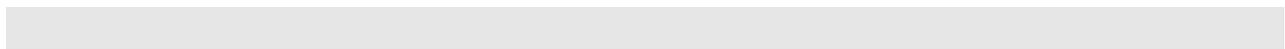
The following are lists of the main factors drawn from CWFI and Reference group which could have an effect on the supply and/or demand for NHS dental staff in Wales.

Demand Factors	Estimated Effect
Increasing proportion of frail elderly who have retained their own teeth resulting in more complex treatment; and or have medical, physical and mental health problems	Increased demand and change skills needed by dental team
Increase proportion of children with dental decay which may require conservative treatment / extraction (particularly young children)	Increased demand and change skill mix in dental team. This is balanced by different treatment regimes which advocate aggressive prevention rather than restoration of all decayed teeth
Improvement in oral health and disease in many population cohorts	Reduced demand
Increase demand / need for speciality services – increase in cancer rates	Increased demand
Change in attendance patterns - greater percentage of the population deciding to attend for regular dental care and checkups as patients knowledge and awareness increases	Increased demand
Trend of increased demand for all health services	Increased demand
Increasing public expectations of dental treatments/services	Increased demand
Increasing number of more complex treatments available	Increased demand – but certain complex treatments will only be available from dentists with additional training / skill
Oral Health strategy targets	Increase/Reduction
Care pathways are improved and redesigned as technology and knowledge improves	Dental professionals work more closely together in integrated teams – Reducing demand for Dentists
Financial pressure leading to fewer jobs within the public sector and private.	Possible reduction in demand for new staff
Economic pressures drive public to avoid oral healthcare	Decrease demand for complex treatment

New contract makes dentistry a prevention-led service	Decrease demand for complex treatment. Increased demand for prevention-related work (e.g. check-ups, oral hygiene work).
Fluoridation of the whole water supply	Improved dental health – reduction in demand
Hygienists and therapists take over tasks traditionally completed by the dentist	Decrease demand for dentists and increase demand for DCPs
A vaccine for dental caries comes to market	Decreased demand for Dentists
Increased demand for health promoters	Increase demand
Increasing skill mix : shifting work away from dentists to DCPs	Decreased demand for Dentists

Supply Factors	Estimated Effect
Anticipated increase in numbers of registered dentists / dentists qualifying from UK Universities over the next 5 years	Increase in supply
Economic pressures precipitate a reduction in training numbers	Decrease in supply
EEA immigration increases, displacing places for UK students	Increasing supply
Legislation making it harder for overseas dentists to work in NHS	Reduction in supply
Changes in % of Welsh-trained dentists staying in Welsh workforce	Reduction in supply
Loss of dental workforce to other countries	Reduction in supply
Decreased practice ownership	May reduce supply or simply change mode of working for dental staff
<p>Social trend of young dentists to reduce the amount of time worked during their career:</p> <p>Increased part-time working amongst dentists and DCPs</p> <p>Increased proportion of women in dental workforce</p> <p>Possible changes in desired working patterns of younger dentists compared to their older colleagues</p> <p>Impact of working time directives, conditions of service, e.g. maternity leave</p>	Reduction in supply

Reduction in average retirement age	
Change in ethnic background of parts of the dental workforce	
Changes in rate of dentists/DCPs leaving NHS (e.g. due to dissatisfaction with working conditions).	Reduction in supply if more dental staff leave the NHS (e.g. due to pension changes) (or vice versa).
Changes in number of dentists returning to NHS work following a career break or time spent wholly outside the NHS (e.g. career break)	Increase in supply if “return to work” rates are improved (or vice versa).
Increasing requirements of non-clinical work (e.g. clinical governance and lifelong learning)	Reduction in supply
NHS financial constraints may lead to a reduction in services provided by NHS and an increase in private treatment.	Reduction in capacity of / supply of staff to NHS
Lack of funding for DCP training	Reduction in supply (or lack of increase)
Improved career prospects for DCPs – particularly with extended duties and additional skills.	Increase in supply
Issues with Dental Nurse training – particularly availability of sufficient local training courses	Reduction in supply if regional training provision inadequate.
The cost of registration for DCPs to join the GDC	Reduction in supply
Reduction in number of hygienists and therapists being trained	Reduction in supply
Hygienist moving towards private work	Reduction in supply to NHS.



Background

Dental bursaries were introduced on a joint basis by the former Gwynedd Family Health Service Authority and the Gwynedd Health Authority in 1995/96 with, initially, five bursary placements were created. When the then North Wales Health Authority adopted the scheme in 1996, up to ten places covering all of North Wales were offered. Applications and take up has fluctuated each year. In one year, places were available to previous year applicants. The scheme is now run by Betsi Cadwaladr University Health Board. During 2008, the scheme was revised to include applications from Dental Therapist/Hygienists. At the start of each year, a flyer is distributed to all Directors of Education, secondary schools and sixth form colleges and Dental Schools. Following this, candidates are interviewed at the beginning of September and, if successful, are awarded the bursary in two instalments – October and April. The level of the bursary is currently determined by the Conwy Division of Betsi Cadwaladr University Health Board (lead LHB for dental issues in North Wales) / North Wales Business Support Partnership and is currently equivalent to a maximum student loan. The amount awarded for 2011/12 was £2,361 or £2,906 for students studying in London for Dental Students and £1,023 for Dental Therapists/Hygienists. This figure is reviewed annually taking account of the student loan and political developments. The bursary is in addition to any other sponsorship, loan or grant.

Detail

1. The scheme is open normally to any resident of North Wales who has secured a place at a recognised dental school within the United Kingdom.

2. The bursary is an interest-free loan. Conditions for repayment are:

Working in North Wales for **five** years post-qualification = **no repayment**

Working in North Wales for **four** years post-qualification = **20%**

Working in North Wales for **three** years post-qualification = **40%**

Working in North Wales for **two** years post-qualification = **60%**

Working in North Wales for **one** year post-qualification = **80%**

Failure to return* to North Wales post-qualification = **100%**

** All recipients of the bursary must demonstrate a commitment to return to North Wales (based on North Wales boundaries) to practice dentistry in the NHS within two years of qualifying. If the post-qualifying vocational training year (two years for CDS) is/are spent in North Wales, this will count towards the five-year target.*

3. Each recipient must agree to be available for work experience for **five** days during the first year of training (**not applicable to any students undertaking second year upwards during their dental training**). Thereafter, regular contact must be maintained with the Dental Bursary Administrator. The Dental Bursary Administrator will also maintain regular annual contact with the Dean at the recipient's Dental School.

4. No award will be payable for re-sitting a year or part-year of study.

5. A recipient who withdraws from their dental course, or fails to qualify, must repay the amount of bursary received **in full**.

6. Qualifying applicants will be interviewed.

Annex F : Overview of Dental Nurse Training Provision in Wales as at May 2012

Area	Provider	Qualification	Capacity	Existing students	Cost	Funding available	Length of course	Format of course	Comments
South Wales	Cardiff University	Certificate of Higher Education in Dental Nursing	20 +	8 2 nd yr 18 1 st yr	currently £9000 (if students are Welsh domicile then £5535 is paid by WG - balance is £3465)	students eligible for LEA grants	1 yr full time (from Sept 2013)	Full-time – 2 days taught study, 2 days placement in practice, 1 day self-study	120 Transferrable Academic Credits Students placed in approved training practices. First year of full-time course commencing Sept 2012
South East Wales	Tooth Fairies Training Ltd	NEBDN Diploma	100+	29 2 nd yr 16 1 st yr	NEBDN - £999 per year plus exam fees (currently £320)	None	18 months	Every May and November	New Provider
		NVQ Diploma	30+		self funded £1000 per trainee	None	18 months		
South Wales	Aspiration Training Ltd	NVQ Diploma	60 places funded	50	Free	Funded by DfES under Work Based Learning (WBL) Contract and Modern Apprenticeship Framework	18 months	Day release once a fortnight for 10 months then workplace assessments	New provider (commenced 2011) – experienced at delivering healthcare qualifications via funding route.
Cardiff/ SE Wales	University Dental Hospital	NVQ Diploma	10 internal; 20 external	10 internal 20 external	Internal trainees are salaried employees £1200 for external trainees	None	18 – 24 months depending on ability of trainee	Internal – employed full time in UDH External – work-based assessment + tutor support & guidance	Well-established provider.
		NVQ Diploma	200+	165	£70 +VAT reg fee – all other costs funded through	Funded by DfES under Work Based Learning	18 – 24 months depending on ability of trainee	Day Release; 1-1 support and assessment in	Provider part

South & West Wales	Learnkit Ltd Swansea				WBL contract	(WBL) Contract and Modern Apprenticeship Framework		workplace; MOODLE tuition	of large consortium of trainers. Utilising MOODLE to support provision
		NEBDN Diploma	Unlimited	5 (all in N Wales) [50 across UK]	£713 inc VAT. May rise pending NEBDN changes.	None	Ave 2 years depending on trainee	Distance learning pack with remote tutor support	

Area	Provider	Qualification	Capacity	Existing Students	Cost	Funding available	Length of course	Format of course	Comments
West Wales	Excel Withybush	NEBDN Diploma	15 - 20	8	£795 + £20 for ROE (excludes exam fees of £320)	None	1 year and 6 weeks	Evening course; 1-1 support	
North East Wales	Wrexham Medical Institute	NEBDN Diploma	20	16	£1200 (inclusive of exam fees)	LHB funded to date	15 months	Day release	Run in partnership with CDS.
North Wales	Llandrillo College (Rhos on Sea and other locations depending on need)	NEBDN Diploma	15-25	16	£1200 (inclusive of exam fees)	LHB funded to date	18 months	Day release once a week.	Well established provider. Course includes First Aid certificate and Essential Skills in Numeracy and literacy and NVQ level 2 in Customer Service. Use of MOODLE platform. Students registered with college and access facilities. Run in partnership with CDS.

NOTES

NVQ

NVQ Diploma delivered via WBL contract requires completion of Modern Apprenticeship framework – this includes completion of Essential Skills in number, literacy and an award in Employment and Personal Learning Skills in Health alongside the Diploma.

NEBDN

NEBDN Diploma new format of the examination is:

Part 1 – 2.5 hour written paper comprising of 75 MCQ and 50 EMQ. Providing Part 1 is passed then the student will sit Part 2 6 weeks later.

Part 2 – OSCEs – 15 stations, 5 minutes at each station.

Exam fees: £320 for first time; £50 for written resit and £250 for OSCE resit

Limited examination centres though this is expected to increase. NEBDN intends that no candidate should have to travel more than 1.5 hours to an examination centre.