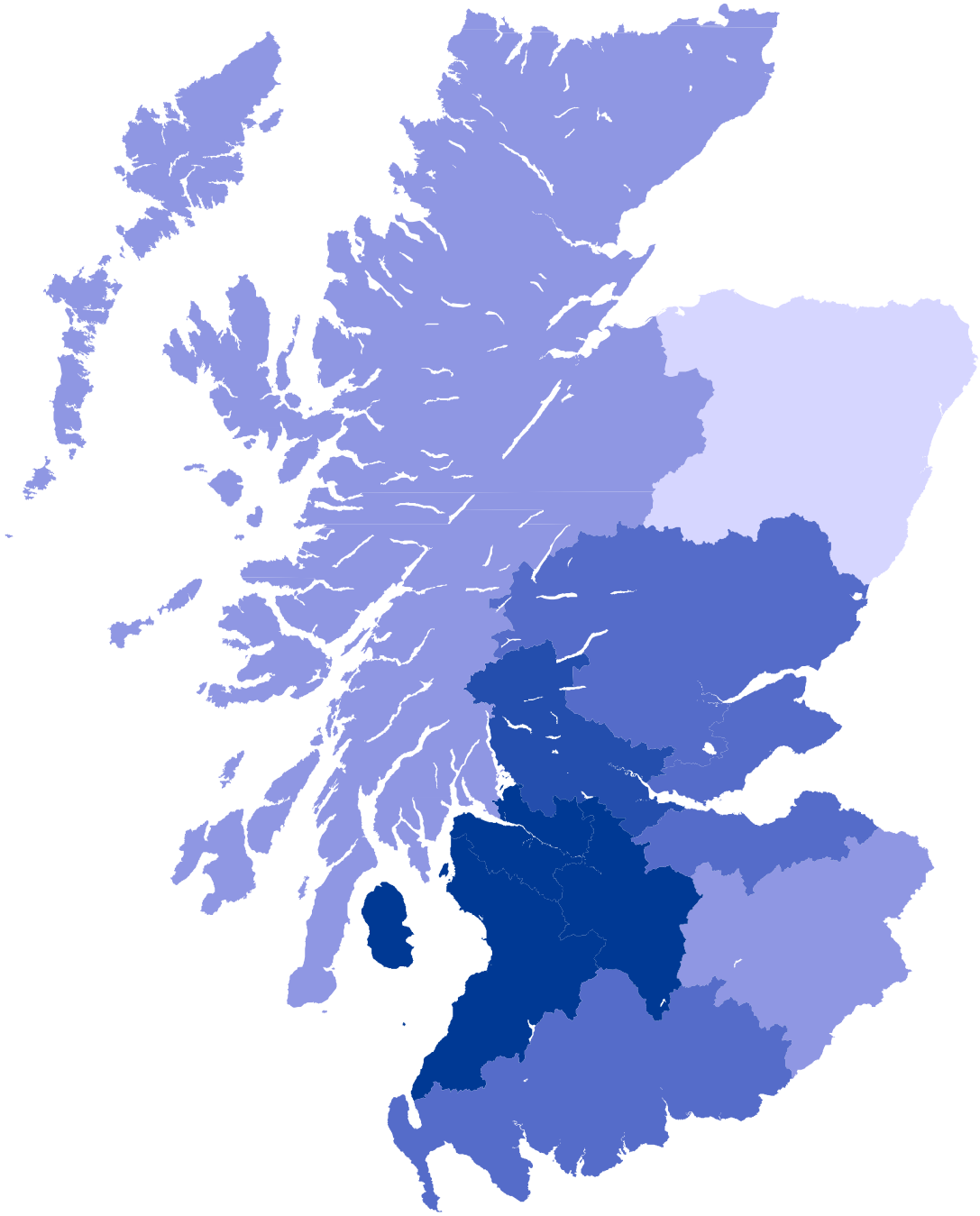
NHS National Services Scotland

NHS Education for Scotland

Dental workforce report

December 2014



Foreword

The 2014 dental workforce report continues to build on the collaboration between NHS Education for Scotland (NES) and NHS National Services Scotland (NSS). This collaborative approach began in 2000 with the support of colleagues from the Health Workforce and Performance directorate of the Scottish Government Health and Social Care Directorates (SGHSCD).

The purpose of this latest report in the dental workforce series is to provide analysis, intelligence and modelling to support workforce planning for dental services in Scotland.

The report examines the pathway from education and training to service delivery for dentists and Dental Care Professionals (DCPs), the utilisation of dental services and forecasts the supply and demand for NHS General Dental Practitioners (GDPs).

The number of dentists and DCPs in Scotland indicates that the capacity of the system to deliver improvements in oral health to the people of Scotland is greater than ever before.

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Executive summary

This report is the latest in a series of biennial dental workforce reports [1, 2, 3, 4, 5, 6], which aim to inform workforce planning for dental services in Scotland.

Chapter 2: Dentists

- The number of dentists registered with the General Dental Council (GDC) with a Scottish postcode in September 2014, 3,883, was at its highest ever level but the annual rate of increase was slower than in previous years.
- Between September 30th 2011 and September 30th 2013 the number of NHS dentists increased from 3,464 to 3,595 and the number of NHS General Dental Practitioners (GDPs) increased from 2,848 to 3,035.
- There is some evidence that changes in pension arrangements in April 2014 had an effect on the age at which NHS GDPs left the General Dental Service (GDS).
- The ratio of applications to accepted places for Bachelor of Dental Surgery (BDS) courses in 2013 was relatively high with about six applicants per accepted place at Dundee and Glasgow dental schools and about 10 applicants per place at the graduate-entry Aberdeen Dental School.
- The intake targets for Scottish dental schools have changed during the past two years with the intake targets for Scottish, Rest of UK (RUK) and European Union (EU) students falling from 170 to 135 and the intake target for international students increasing from six to 40, which has meant that the total intake target for Scottish dental schools is still relatively high.
- Less than 6% of BDS students were from the most deprived Scottish Index of Multiple Deprivation (SIMD) quintile and more than 46% of BDS students were from the least deprived SIMD quintile.
- The Dental Undergraduate Bursary Scheme (DUBS) provides bursaries to undergraduate dental students in return for a commitment to work in NHSScotland after graduation at a cost of about £2.5m a year.

- Dentists who received a DUBS bursary were more likely to be retained in NHSScotland than similar dentists who did not receive a DUBS bursary.
- On September 30th 2013, there were 191 Vocational Dental Practitioners (VDPs).
- There were 237 Vocational Training Numbers (VTNs) issued in Dental Vocational Training (DVT) year 2013-14.
- Dentists issued with a VTN after completing DVT in the UK were more likely to be in the NHSScotland than dentists issued with a VTN from the European Economic Area (EEA).
- Taxable income for dentists in Scotland with some income from the GDS decreased by 25% in real terms between financial years (FYs) 2008-09 and 2012-13.

Chapter 3: Dental Care Professionals

- The number of registered Dental Care Professionals (DCPs) in Scotland increased between 2008 and 2013 at a faster rate than in the rest of the UK.
- The number of registered Dental Nurses (DNs) increased by a third, the number of registered Dental Therapists (DThs) increased by 153% and the number of registered Dental Technicians (DTes) decreased by 20%.
- Between 2011 and 2013 the ratio of applications to accepted places for Oral Health Science (OHS) training increased, indicating significant demand to train as a DTh.
- The number of students graduating from OHS courses in Scotland and therefore able to register as a DTh was at its highest ever level, 39, in 2013.
- On September 30th 2013 the number of DCPs employed in the Hospital, Community and Public Health Service (HCHS) accounted for about 30% of all Scottish DCP registrants with the remainder likely to be employed by independent contractors.
- The number of DNs claiming Jobseeker's Allowance (JA) has decreased since January 2012.
- Median gross hourly pay of dental nurses has been relatively constant at about £9 an hour since 2011, which is higher than the National Minimum Wage of £6.50 an hour and the National Living Wage of £7.85 an hour.
- The introduction of direct access in May 2013, which gives patients the option to see a DCP without having to see a dentist first and

without a prescription from a dentist, is unlikely to have a significant impact on the market for dental services in Scotland until the GDS regulations are changed to allow DCPs to claim for GDS treatment.

- While there are limited routinely collected data on the contribution of DCPs there is a relatively large body of survey and academic work.

Chapter 4: The utilisation of dental services

- The percentage of both children and adults registered with a GDS dentist continued to increase during the past two years with more than 91% of children and 83% of adults registered at the end of March 2014.
- At the end of March 2014 NHS Greater Glasgow and Clyde had a registration rate of 88.7% and NHS Grampian had a registration rate of 67.8%.
- According to the 2011 Scottish Health Survey (SHeS) less than 1% of adults have never been to a dentist, more than 50% of adults received only NHS treatment and 17.5% received only private treatment in the previous 12 months before the survey.
- Between 2008 and 2013 the number of patients registered by Denplan in Scotland fell by 33%.

Chapter 5: Forecasts

- If recent trends continue, there is forecast to be a relatively large increase in the supply of NHS GDPs during the next 10 years.
- The projected changes in the size and composition of the population are forecast to increase the demand for NHS GDPs during the next 10 years.
- During most of the 10-year forecast period there are likely to be more NHS GDPs than are necessary ensure that the current registration rate is maintained but fewer NHS GDPs than are necessary to ensure that everyone in Scotland is registered with the NHS.
- Changes in the assumptions of the supply forecast, such as a reduction in the number of VTNs issued to overseas dentists, have an immediate and relatively large impact on the forecast supply of NHS GDPs.
- Changes in the intake targets to dental schools in Scotland have a relatively small and delayed impact on the forecast supply of NHS GDPs.
- The reduction in the BDS intake targets for Scottish, RUK and EU students will have little effect on the dental workforce if the number

of VDP posts offered is matched to the output of the Scottish dental schools because dental schools have been allowed to offset the reduction in EU students with international students.

- The forecast demand for NHS GDPs does not account for the potential contribution of DThs or direct access.

Chapter 1

Introduction

This report is the latest in a series of biennial dental workforce reports [1, 2, 3, 4, 5, 6], which aim to inform workforce planning for dental services in Scotland. The report complements several other sources of information related to dental services in Scotland such as the annual report of the Chief Dental Officer [7] and the statistics published by NHS National Services Scotland (NSS) [8]. The report also complements information on the dental [9] and Dental Care Professional (DCP) [10] workforce in England.

The number of dentists in Scotland provides one measure of the capacity to deliver dental services. Chapter 2 reports the number of dentists in Scotland who are registered with the General Dental Council (GDC), who work in NHSScotland and the flows of dentists in and out of NHSScotland.

The capacity to deliver dental services is also a function of the number of DCPs. In the past DCPs have had to work with dentists to deliver dental services. The introduction of Direct Access in May 2013 means that patients can now see and receive treatment from DCPs without the prescription of a dentist [11]. Chapter 3 reports on the education of DCPs, the number of DCPs who are registered with the GDC, employment within the Hospital, Community and Public Health Service (HCHS) and labour market indicators for dental nurses.

The utilisation of dental services depends on the supply of dental services and the demand for dental services. Chapter 4 examines several measures of the utilisation of public and private sector dental services in Scotland.

Chapter 5 uses the information in Chapter 4 together with population projections to forecast the demand for NHS General Dental Practitioners (GDPs). These demand forecasts are compared with forecasts of the supply of NHS GDPs that are informed by chapter 2.

Chapter 6 sets out some avenues for future work.

Chapter 2

Dentists

The current stock of dentists is a measure of the current capacity to deliver dental services. The stock of dentists in the future is determined by the current stock of dentists and the flow of dentists into and out of the stock.

2.1 The stock and flow of dentists on the General Dental Council register

The number of dentists on the General Dental Council (GDC) register with a Scottish postcode provides an indication of the supply of dentists in Scotland. Figure 2.1 shows the number of registered dentists with a Scottish postcode in September 2014 was at its highest ever level but the annual rate of increase in 2014 was slower than in previous years.

2.1.1 Specialist lists

Dentists may only use the title 'specialist' if they are on the GDC's specialist list. In 2013 there were a total of 371 dentists on the Specialist lists with a Scottish postcode. Figure 2.2 shows the size of each specialty and its rate of change relative to 2005. There were small decreases in Oral Surgery, Periodontics, Dental Public Health and Oral Medicine indicated by boxes with a red hue. There was no change in Oral Microbiology and Oral and Maxillofacial Pathology. Endodontics doubled in size and all other specialty groups increased slightly in size, indicated by the green hue. There were no specialists in Special Care Dentistry in 2005 so no relative change is indicated.

2.2 The stock and flow of dentists in NHSScotland

Table 2.1 reports the stock and flow of dentists in NHSScotland between 1995 and 2013. These dentists are a subset of those registered with the GDC and consist of salaried and non-salaried General Dental Service (GDS), Community

Figure 2.1: GDC dentist registrants

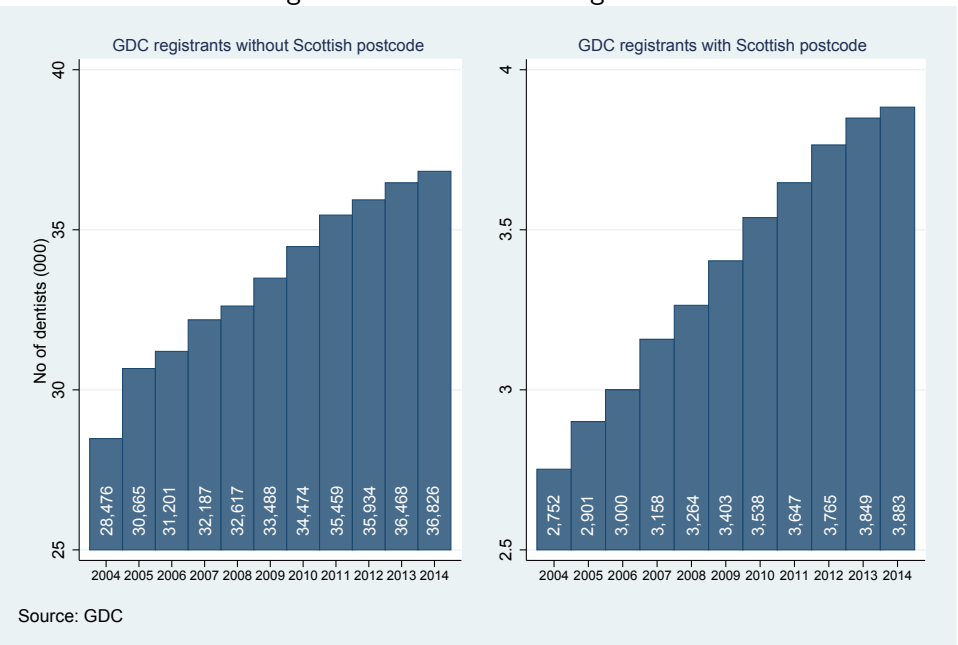
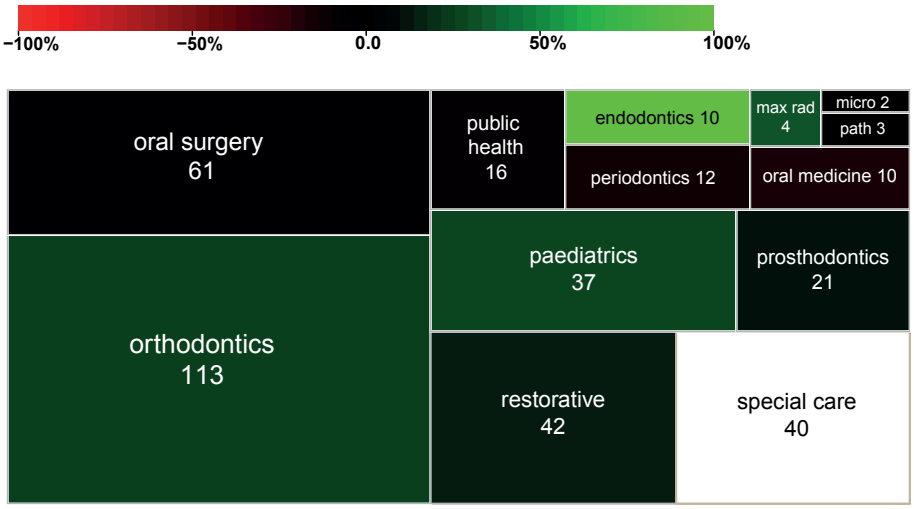


Figure 2.2: The number of dentists on the General Dental Council's specialist lists in Scotland in 2013 and the relative change since 2005 (colour spectrum)



Dental Service (CDS) and Hospital Dental Service (HDS) dentists. The number of dentists reported in table 2.1 differs slightly from the National Statistics published by Information Services Division (ISD). This difference reflects additional quality assurance work since the publication of these data, which is described in appendix A.

Table 2.1 shows that between September 30th 2011 and September 30th 2012 the number of dentists in NHSScotland decreased by 11. This was the first reduction in the number of dentists in NHSScotland since 1995. Between September 30th 2012 and September 30th 2013 the number of dentists in NHSScotland increased by 144. Using mid-year population estimates, the NHS dentist to population ratio on September 30th 1995, 2004 and 2013 was 0.45, 0.52 and 0.67 respectively.

Table 2.1: The stock and flow of dentists in NHSScotland

	NHS	Outflow	Inflow
1995	2,307	159	0
1996	2,323	158	175
1997	2,358	157	193
1998	2,411	152	210
1999	2,462	194	203
2000	2,465	193	197
2001	2,488	162	216
2002	2,550	191	224
2003	2,583	206	224
2004	2,617	203	240
2005	2,668	217	254
2006	2,841	257	390
2007	2,914	303	330
2008	3,070	269	459
2009	3,240	290	439
2010	3,392	287	442
2011	3,464	376	359
2012	3,453	300	365
2013	3,595	0	442

2.3 The stock and flow of NHS General Dental Practitioners

NHS General Dental Practitioners (GDPs) are defined as salaried and non-salaried NHS GDPs and NHS assistants. Table 2.2 reports the stock and flow of NHS GDPs in Scotland. Between September 30th 2011 and September 30th

2013 the number of NHS GDPs increased by 188 or 6.6%. The majority of this increase, 155, is accounted for by the net inflow of NHS GDPs between October 1st 2012 and September 30th 2013. Using mid-year population estimates, the NHS GDP to population ratio on September 30th 1995, 2004 and 2013 was 0.35, 0.4 and 0.57 respectively.

Table 2.2: The stock and flow of NHS GDPs

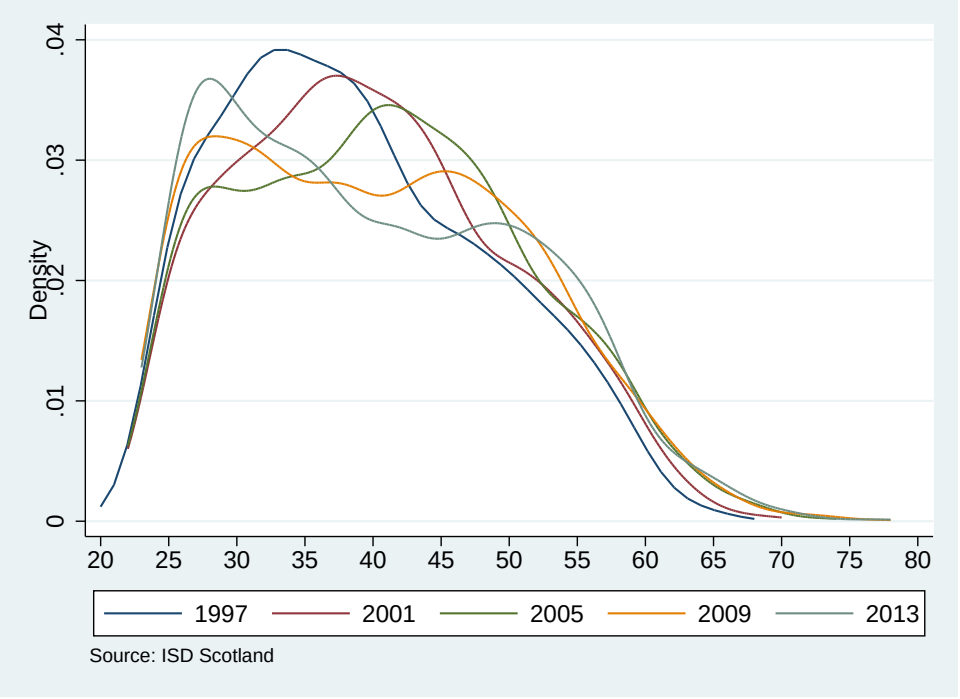
	GDS	Outflow	Inflow
1995	1,786	95	0
1996	1,790	96	99
1997	1,825	96	131
1998	1,862	99	133
1999	1,907	123	144
2000	1,902	110	118
2001	1,945	100	153
2002	1,970	102	125
2003	2,002	123	134
2004	2,036	127	157
2005	2,133	126	224
2006	2,288	130	281
2007	2,396	148	238
2008	2,542	238	294
2009	2,593	204	289
2010	2,783	195	394
2011	2,848	217	260
2012	2,881	219	250
2013	3,035	0	373

2.3.1 Characteristics of NHS General Dental Practitioners

Age

Figure 2.3 illustrates the age distribution of NHS GDPs in selected years. The area under the density function for any age interval measures the probability that an NHS GDP is within that interval. In 1997 the age distribution of NHS GDPs was unimodal, with the mode about 35. The age distribution in 2001 reflected the ageing of the NHS GDPs in 1997. By contrast, the age distributions in 2005 and 2009 and 2013 were bimodal, which reflected both the continued ageing of the NHS GDPs in 1997 and the inflow of relatively young NHS GDPs. In 2013 the median age of NHS GDPs was 40, 25% were younger than 30 and 10% were over 56.

Figure 2.3: Age distribution of NHS GDPs



Pensions and retirement

The minimum retirement age for members of the National Health Service Superannuation (Scotland) Scheme (NHSSSS) is 55 [12]. Pension benefits are accrued until age 75 or 45 years service. GDPs may be affected by changes to the NHSSSS beginning in the tax year 2014-15. These changes are that from April 6th 2014:

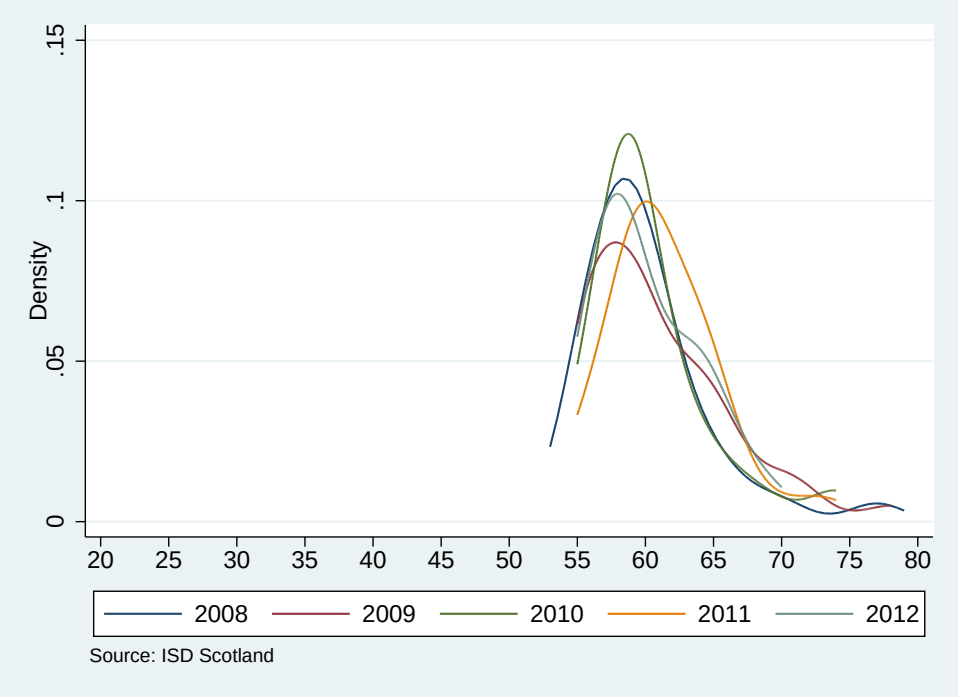
- the maximum amount of pension savings that can benefit from tax relief each year, the Annual Allowance (AA) limit, reduces to £40,000 from £50,000; and
- the maximum amount of pension savings that can benefit from tax relief during a person's lifetime, the Lifetime Allowance (LTA) limit, reduces to £1.25m from £1.5m.

GDPs receive a pension that is 1.87% of their Total Uprated Superannuable Earnings (TUSE), which is based on their cumulative career earnings. Pension savings are compared with the LTA when pension benefits are taken. The tax charge is paid on the amount of pension savings above the LTA. The rate depends on how the excess is paid. If the difference between the pension savings and the LTA is paid as a lump sum the rate is 55%. If the difference is paid as a pension, the rate is 25%. The individual and the pension scheme administrator

are jointly responsible for paying the LTA charge [13]. Therefore dentists whose pension savings were expected to exceed £1.25m on or after April 6th 2014 may have considered retiring before these changes took effect to avoid the LTA charge.

Figure 2.4 shows the age distribution of NHS GDPs aged 55 and over who left the NHS GDP workforce. The modal outflow rate in 2012, which corresponds to NHS GDPs who left between September 30th 2012 and September 30th 2013, is lower than in previous years and indicates that NHS GDPs retired earlier in 2012 than in previous years.

Figure 2.4: Age distribution of NHS GDPs aged 55 and over on leaving the GDS



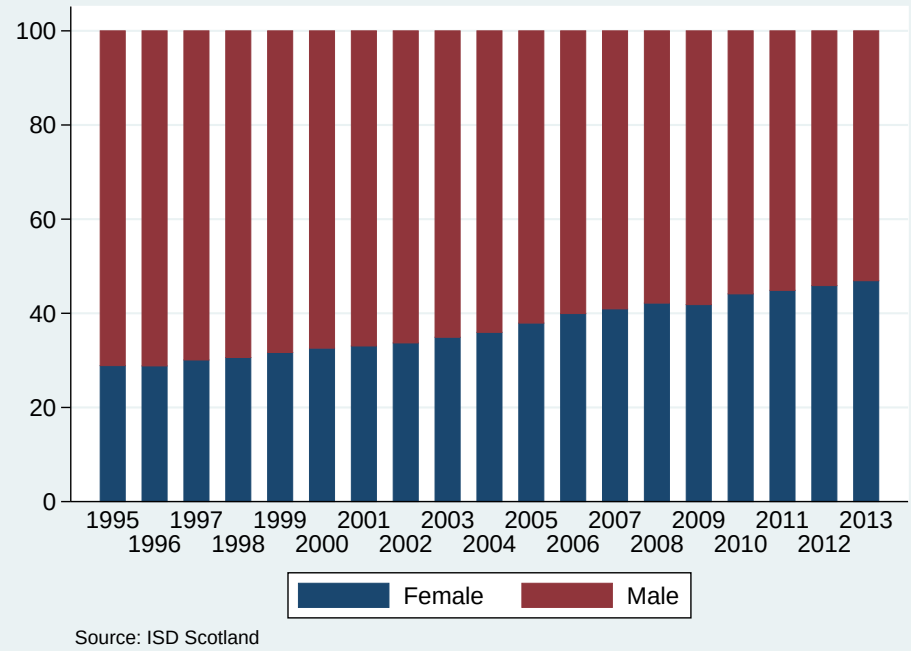
Sex

Figure 2.5 shows how the sex distribution of NHS GDPs has changed. In 1995 less than 30% of NHS GDPs were female. In 2013 almost 47% of NHS GDPs were female.

Country of qualification

Figure 2.6 illustrates the country of qualification of NHS GDPs. As recently as 2005, European Economic Area (EEA) dentists accounted for only 2.5% of NHS GDPs. In 2013 EEA dentists accounted for almost 11.5% of NHS GDPs.

Figure 2.5: Sex distribution of NHS GDPs



Similarly, dentists who qualified from the Rest of the World accounted for 1.1% in 2005 and almost 4.5% in 2013. In 2005 over 88% of NHS GDPs qualified in Scotland. In 2013 just over 75% of NHS GDPs qualified in Scotland.

2.4 Applicants to dental schools in Scotland

The University and College Admission Service (UCAS) collects data on applications and acceptances into undergraduate courses at universities. These data comprise the number of applications to courses through the main application scheme and the number of accepted places via all application routes. The ratio of the number of applicants to places is an indicator of the demand for course places.

The applicants to Dundee and Glasgow dental schools differ from the applicants to Aberdeen Dental School. The Bachelor of Dental Surgery (BDS) course at Aberdeen Dental School requires applicants to hold a first or upper second class honours degree in a medical science or health-related subject from a UK university.

Figure 2.7 shows the ratio of applications to accepted places on BDS programmes in Scotland. In the three most recent years, the ratio has been around six at Dundee and Glasgow dental schools but has increased at Aberdeen to just under ten in 2013.

Figure 2.6: Country of qualification of NHS GDPs

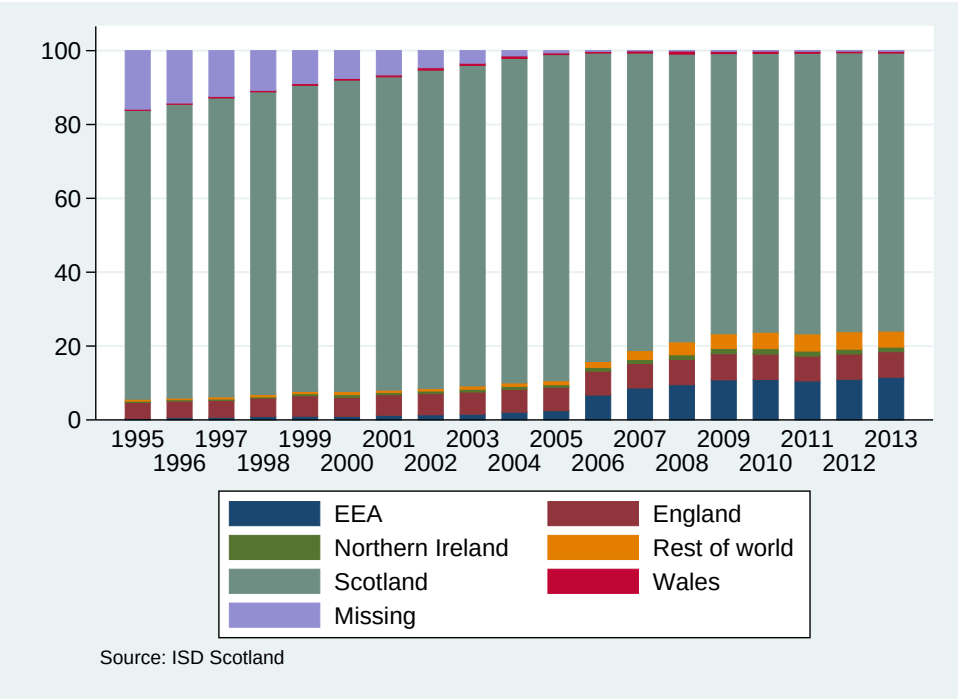
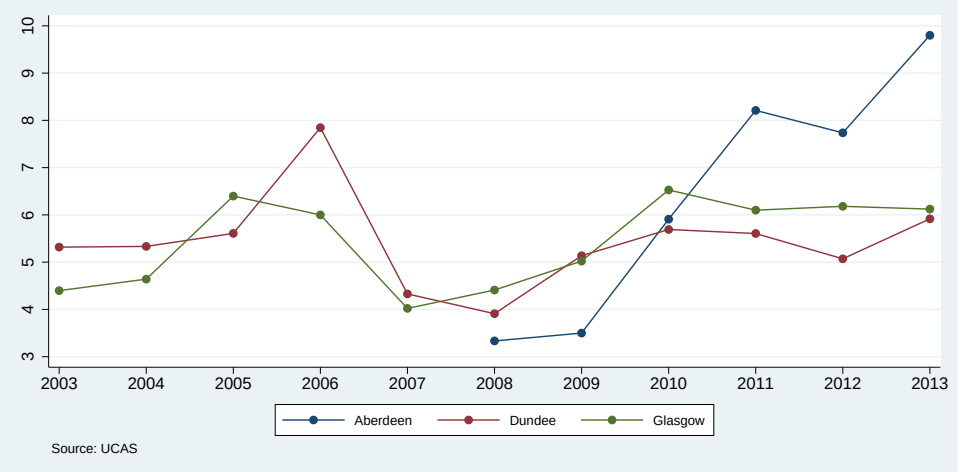


Figure 2.7: Ratio of applications to accepted places on BDS programmes, 2003-13



2.5 Dental undergraduates

2.5.1 Intake targets

The intake target for Scottish, rest of UK and European Union (EU) domiciled students set by the Scottish Funding Council (SFC) was 170 between academic years (AYs) 2009-10 and 2012-13 [14]. The intake target decreased to 153 in AY 2013-14 [15] and 135 in AY 2014-15 [16].

The Scottish Government (SG) guidance on international students changed during this period. In AY 2012-13 Dundee and Glasgow dental schools were allowed up to three international students each [14]. In 2013-14

> "Undergraduate entry has been discussed by the Board for Academic Dentistry, and Scottish Government Health and Social Care Directorates (SGHSCD) has agreed not to reduce the amount of Additional Costs of Teaching (Dental) (ACT (D)) funding made available for the clinical training of dental undergraduate students in 2013-2014, which would allow the universities to increase the number of international students to compensate for the reduction of funded places. However, this is only for the academic year 2013-14 and we will review ACT (D) funding in the Autumn of 2013." [15]

In 2014-15

> "Universities will be allowed to recruit overseas students to compensate for loss of income from home funded students. For the cohort from this year forward overseas students will not attract ACT (D) funding and it is expected that this will be covered by the student fees. Clearly the reason behind this action is to address the oversupply of new dental graduates entering the system in Scotland. Consequently, the overseas students will be expected to be covered by a Memorandum of Understanding which requires them not to enter the Scottish dental workforce." [16]

The intake target for international students increased to 17 in AY 2013-14 and 40 in AY 2014-15.

2.5.2 BDS students

Entrants

The Higher Education Statistics Agency (HESA) collects an annual record for each student in education and training at UK universities. Institutions submit data to HESA in September each year for the previous academic year, comprising one record for every student registered in each course. These data indicate that the total number of students who entered a BDS programme in Scotland

between 2005 and 2012 varied from 153 to 181 between 2005 and 2012 as shown in table 2.3.

Table 2.3: Number of students entering the BDS programme

	2005	2006	2007	2008	2009	2010	2011	2012
Aberdeen	0	0	0	15	20	22	19	19
Dundee	92	66	65	68	68	68	68	73
Glasgow	87	87	92	95	92	91	90	88
Total	179	153	157	178	180	181	177	180
International (not EEA)	<5	6	5	5	9	8	9	9

The data for AYs 2013-14 and 2014-15 are not yet available from HESA but Aberdeen, Dundee and Glasgow dental schools reported their BDS intake for AY 2013-14 was 20, 64 and 90 respectively.

Demographics

The mean age of students who started a BDS course was 25 at Aberdeen, which reflects the graduate-only entry requirements, and 19 at Dundee and Glasgow.

Between 2005 and 2012 38%, 42% and 45% of those starting a BDS course at Aberdeen, Dundee and Glasgow were male.

Figure 2.8 shows the percentage of first-year students domiciled in Scotland, the rest of the UK, the EEA and the rest of the world at each university. The relative size of each group fluctuates over time and between institutions.

The Scottish Index of Multiple Deprivation (SIMD) can be used to examine relative deprivation of students who were domiciled in Scotland on application [17]. Less than 6% of BDS students were from the most deprived quintile. More than 46% of BDS students were from the least deprived quintile. By contrast 4% of medical students in Scotland were from the most deprived quintile and more than 48% were from the least deprived quintile.

Around a quarter of students at Aberdeen Dental School were from Black and Minority Ethnic (BME) groups compared to 14% at Dundee Dental School and 19% at Glasgow Dental School.

A disability was reported by 13% of students at Aberdeen Dental School compared to 4% at Dundee and Glasgow dental schools. More than half of these were categorised as dyslexia or a similar learning disability.

Completion rates

Table 2.4 shows the number of students who completed a BDS course at each dental school.

Figure 2.8: Domicile of first year BDS students

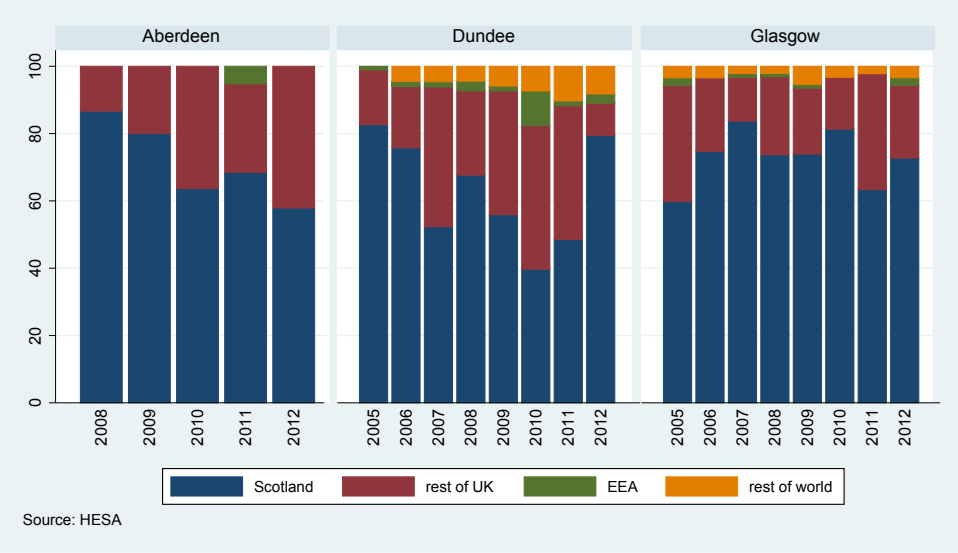


Table 2.4: Number of completing BDS students by year of completion

	2006	2007	2008	2009	2010	2011	2012	2013
Aberdeen	0	0	0	0	0	0	14	16
Dundee	60	52	53	68	90	66	60	56
Glasgow	77	70	79	80	78	84	84	99
TOTAL	137	122	132	148	168	150	158	171

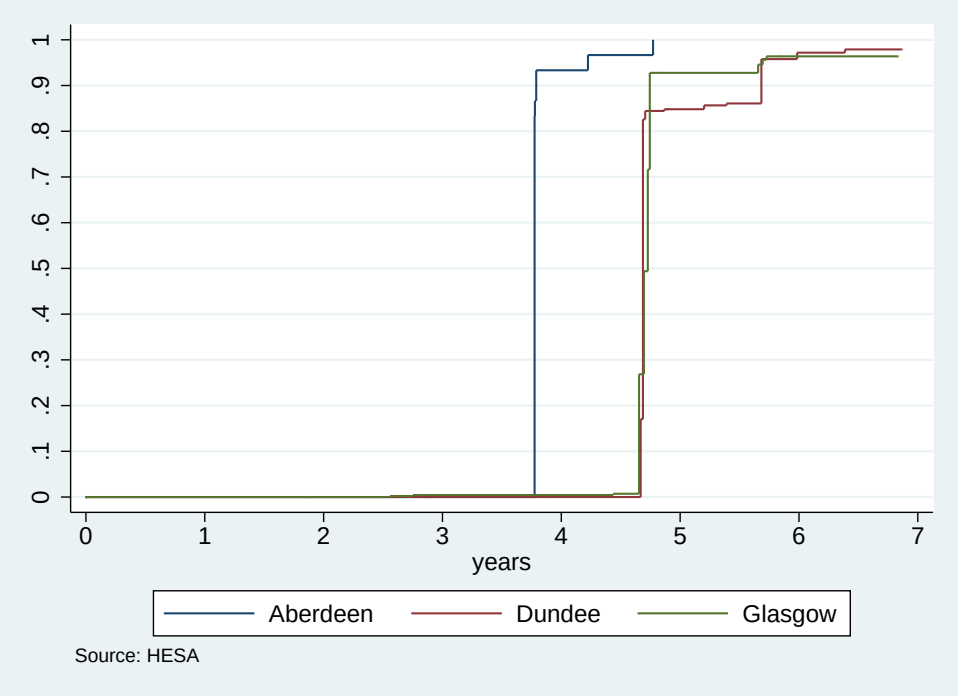
HESA data are not yet available for AY 2013-14 but Aberdeen, Dundee and Glasgow dental schools reported 13, 72 and 93 successful completions respectively during AY 2013-14.

Figure 2.9 indicates that the probability of completing within four years at Aberdeen is 0.9 and the probability of completing within five years at Dundee and Glasgow is 0.85 and 0.9 respectively.

2.5.3 Visas and immigration

Overseas BDS students apply for a visa to study at a United Kingdom (UK) university through the Tier 4 (General) student category. Postgraduate dentists who qualify from a UK university are allowed to stay for a maximum of three years as a Tier 4 (General) student to undertake a recognised Foundation Programme [18]. Dentists can stay in the UK for a further five years if they are able to switch to a Tier 2 (General) visa [19]. Therefore international students may be able to work as a dentist in the UK for up to eight years after graduation.

Figure 2.9: Time to completion of BDS students between 2005-06 and 2012-13



2.6 Dental Undergraduate Bursary Scheme

Undergraduate students at Scottish dental schools who are eligible to live and work in Scotland indefinitely after graduation can apply for a bursary of £4,000 for each clinical year of their course [12]. In return they commit to full-time NHS dental work in Scotland for one more year than the number of bursaries they received, or part-time equivalent. Aberdeen Dental School students are eligible for a bursary for each of the four years of their course. Therefore, a student who receives one bursary must commit to work in NHSScotland for two years and a student who receives four bursaries must commit to work in NHSScotland for five years.

2.6.1 Trends in the number of DUBS bursaries

Table 2.5 reports the number of Dental Undergraduate Bursary Scheme (DUBS) bursaries granted in each AY since 2006-07.

Table 2.6 shows that these 4,572 bursaries were granted to 1,633 students at a total cost of £18.3m, yielding an implied commitment of 6,205 NHS dentist-years. Based on the mean number of patients registered per NHS GDP on September 30th 2013 (1,460), the implied commitment from DUBS is equivalent to 9.06m patient-years of registration.

Table 2.5: DUBS bursaries and cost by academic year

	Bursaries	Cost (£)
2006-07	439	1,756,000
2007-08	488	1,952,000
2008-09	559	2,236,000
2009-10	600	2,400,000
2010-11	612	2,448,000
2011-12	613	2,452,000
2012-13	630	2,520,000
2013-14	631	2,524,000
Total	4,572	18,288,000

Table 2.6: Students, cost and implied commitment by number of bursaries

	Students	Cost (£)	Commitment (dentist-years)
1	349	1,396,000	698
2	319	2,552,000	957
3	316	3,792,000	1,264
4	608	9,728,000	3,040
5	41	820,000	246
Total	1,633	18,288,000	6,205

2.6.2 The retention of DUBS bursary recipients

The retention of DUBS bursary recipients was examined by linking their information to the NHSScotland dental workforce data using probability matching. The matching process used each dentist's forename, surname and their date of birth. Of the 1,633 bursary recipients, 988 were matched to at least one variable in the dental workforce data. There were 866 perfect matches. The 122 imperfect matches were reviewed individually and another 55 matches were found.

One way to evaluate the impact of DUBS is to compare the retention rates of DUBS recipients with the retention rates of non-DUBS recipients. Figure 2.10 shows the proportion of dentists who qualified from a Scottish dental school and undertook Dental Vocational Training (DVT) in Scotland that was retained in the NHSScotland workforce:

No bursary, pre-DUBS corresponds to dentists who qualified from a Scottish dental school and undertook DVT in Scotland before 2007.

No bursary, post-DUBS corresponds to dentists who qualified from a Scottish dental school and undertook DVT in Scotland after 2007 and did not have a bursary.

Bursary, post-DUBS corresponds to dentists who qualified from a Scottish dental school and undertook DVT in Scotland after 2007 and had at least one bursary.

The Bursary, post-DUBS line is considerably higher than the No bursary, post-DUBS line, which may indicate that dental students who wanted to work in NHSScotland applied for a bursary while dental students who didn't want to work in NHSScotland didn't apply for a bursary.

The No bursary, Pre-DUBS line is closer to, but still lower than, the Bursary, Post-DUBS line. If the No bursary, pre-DUBS line is the retention rate that would have been expected in the absence of DUBS then the difference in the retention rate one, two, three, four five and six years after DVT is about -8, 0, 2.5, 6.4, 6.2, 9.3 percentage points.

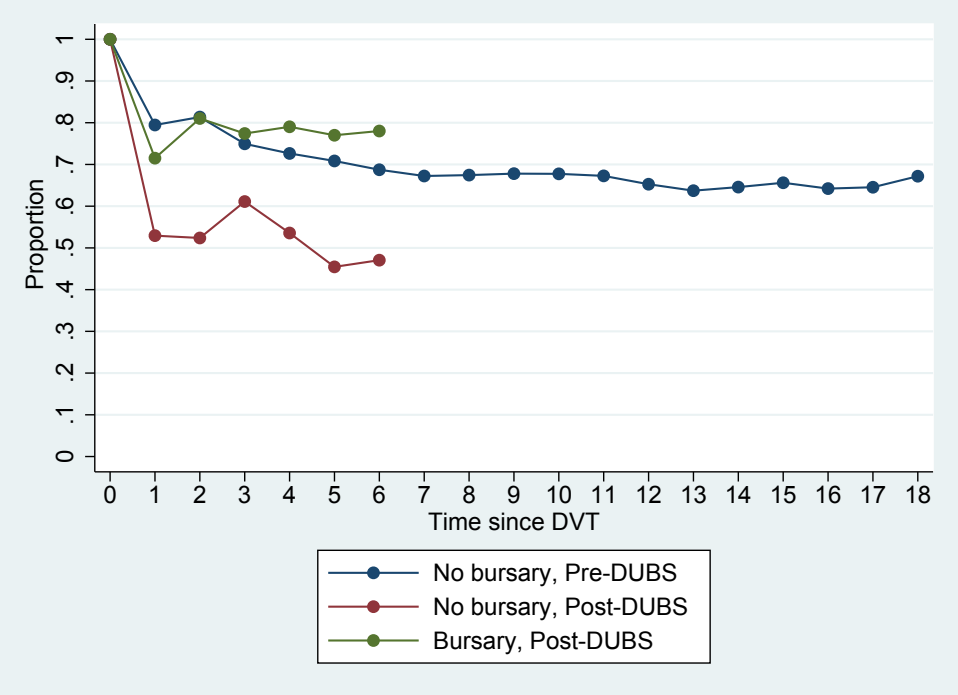
2.7 Dental Vocational Training

New or recent graduates from UK dental schools must complete a one-year programme of DVT in order to be eligible to hold an NHS Board list number, which allows dentists to work as associates or principals in the GDS.

2.7.1 Trends in the number of Vocational Dental Practitioners

Figure 2.11 shows the number of Vocational Dental Practitioners (VDPs) in NHSScotland between 1995 and 2013 by their country of qualification. In 2013

Figure 2.10: The proportion of dentists who qualified from a Scottish dental school and undertook DVT in Scotland retained in the NHSScotland workforce



there were 191 VDPs. Most of the VDPs qualified from a Scottish dental school.

2.7.2 The retention of Vocational Dental Practitioners in NHSScotland

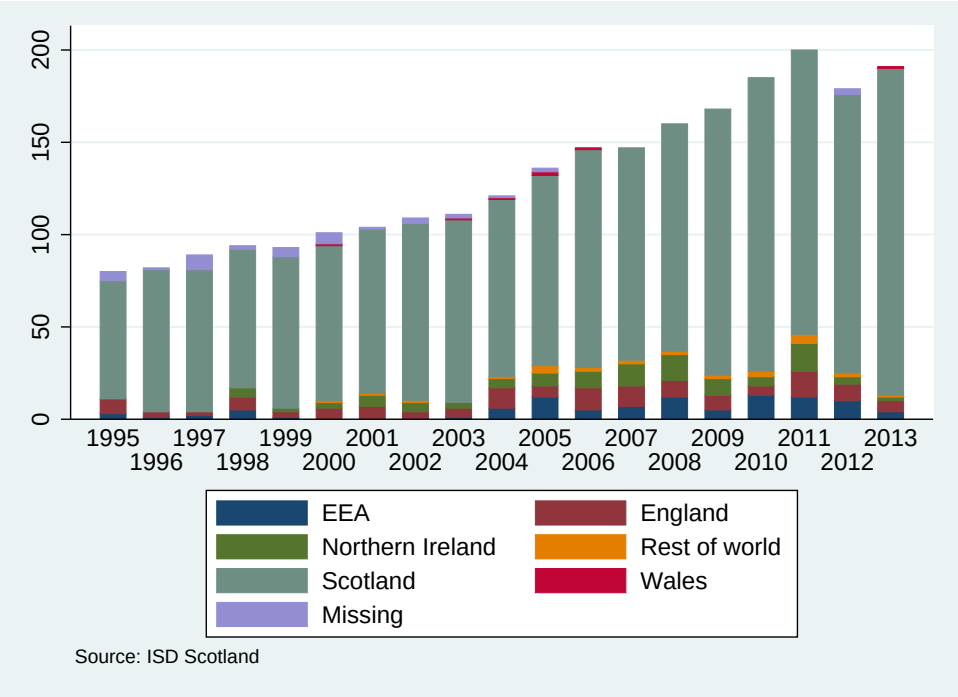
Figure 2.12 shows that the proportion of VDPs retained in NHSScotland after DVT decreased during the time since DVT and then remained at about 0.6 from seven years after DVT onwards. The relatively narrow 95% confidence intervals indicate that if the number of VDPs remains as high as it has been during the recent past, the inflow of VDPs to NHSScotland will remain relatively high.

2.8 Vocational Training Numbers

In order to obtain an NHS Board list number to practise as a principal dentist in NHSScotland, dentists need to be issued with a Vocational Training Number (VTN) from NHS Education for Scotland (NES) to indicate they have satisfactorily completed DVT or are exempt from the requirement to complete DVT because:

- they are from an EEA Member State (other than the UK) and hold a recognised European diploma;

Figure 2.11: The number of VDPs in NHSScotland on September 30th by country of qualification



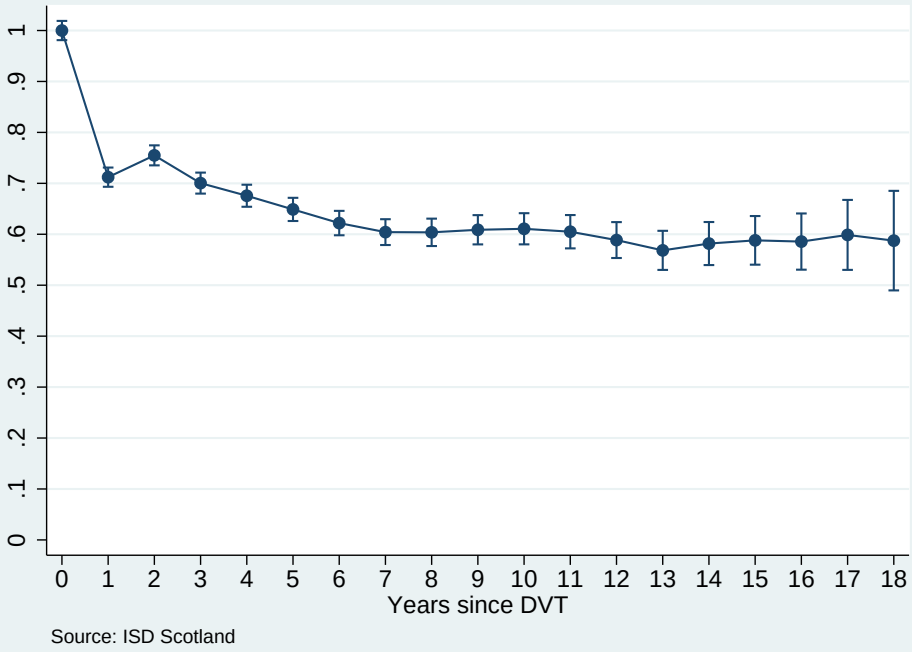
- they have had a NHS Board or Performer number within the past five years;
- they have practised in primary dental care in the CDS or the Armed Forces for four years full-time, or part-time equivalent, and for not less than four months during the past four years;
- they have completed a course of vocational training under the voluntary scheme; or
- their experience or training during the past five years is equivalent to DVT.

The number of VTNs issued is therefore a lead indicator of inflow to the GDS in Scotland.

2.8.1 Trends in Vocational Training Numbers

Figure 2.13 reports the number of VTNs issued during each DVT year, October 1st to September 30th, and shows a large increase in VTNs to EEA nationals in 2005-06. While about 250 VTNs were issued each year since 2005-06, the composition of the recipients changed: there were fewer VTNs issued to EEA nationals and more VTNs issued to dentists who completed DVT. The increase

Figure 2.12: The mean proportion of VDPs retained in NHSScotland and 95% confidence intervals



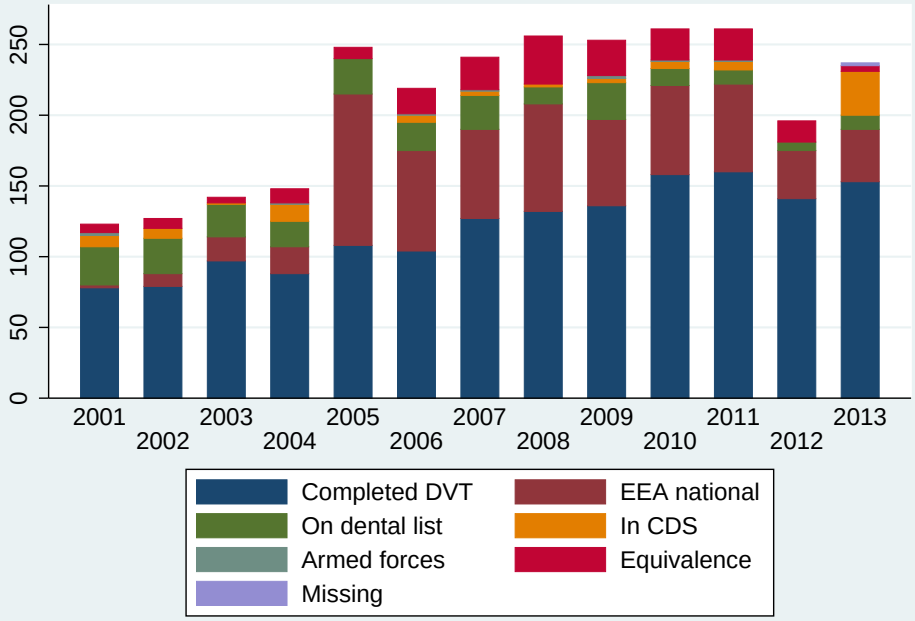
in the number of VTNs issued to CDS dentists in 2013-14 is because of the introduction of the Public Dental Service (PDS) on January 1st 2014. All dentists who were likely to provide GDS treatment as part of their PDS duties had to acquire a VTN before January 1st 2014 [20].

Figure 2.14 shows that the number of VTNs issued to EEA nationals for selected countries. Section 16 relates to dentists who have a primary dental qualification from overseas and have registered with the GDC under Section 16 of the Dentists Act 1984. The country of qualification for VTN recipients changed between 2000-01 and 2012-13. About 60 dentists from Poland received a VTN in 2005-06, which partly reflected the SG's policy to recruit dentists from Poland to address access issues. In 2012-13, the three countries with the largest number of VTN recipients were Greece, Portugal and Spain.

2.8.2 The retention of dentists issued with a Vocational Training Number in NHSScotland

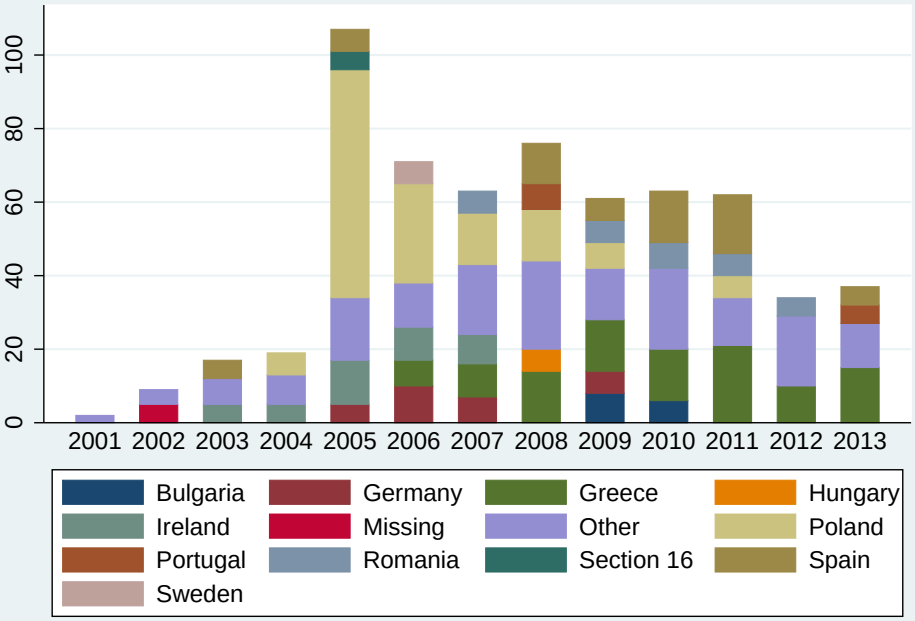
In order to examine the retention of dentists issued with VTNs in NHSScotland, the Scottish Dental Vocational Training Equivalence and Certification Committee (SDVTECC) data were linked to the NHSScotland dental workforce data using the GDC number of dentists. Of the 2,591 dentists who were issued with a VTN between 2000-01 and 2012-13, 96% were matched to dentists in the

Figure 2.13: VTNs issued by NES in each VT year



Source: NHS Education for Scotland

Figure 2.14: VTNs issued by NES to EEA nationals in each VT year

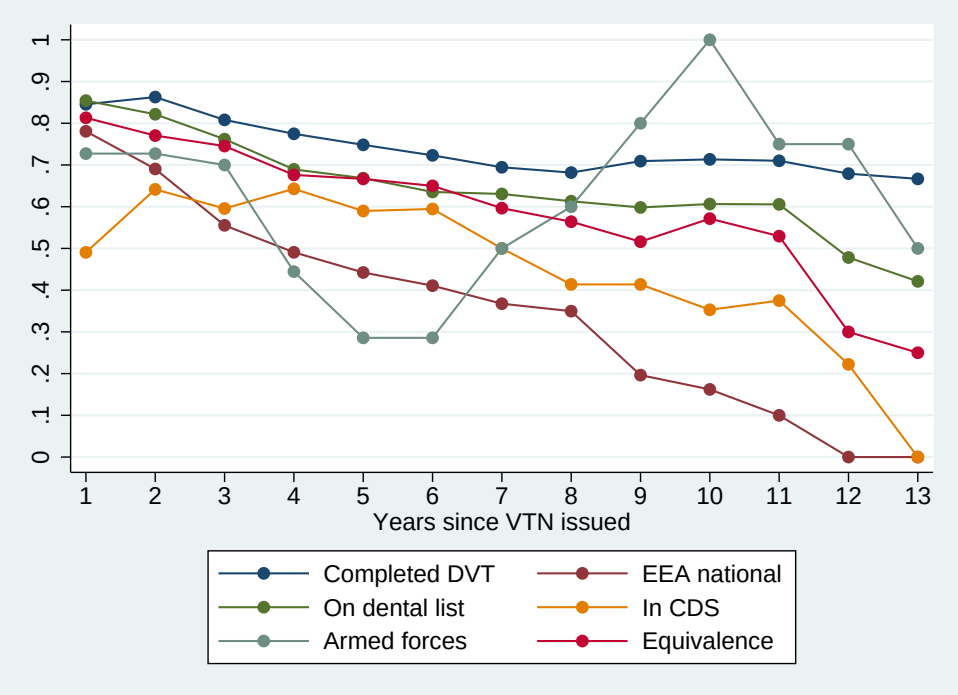


Source: NHS Education for Scotland

dental workforce data.

Figure 2.15 shows considerable variation in the proportion of dentists retained in NHSScotland between application categories. Five years after being issued with a VTN, about 75% of dentists who completed DVT were still in NHSScotland. By contrast, only about 45% of EEA nationals who were issued with a VTN were still in NHSScotland five years later.

Figure 2.15: The mean proportion of dentists issued with a VTN retained in NHSScotland



If the number of VDPs remains relatively high, the number of VTNs issued to dentists who completed DVT is also likely to remain relatively high. It is much more difficult to predict the number of VTNs issued to dentists in the EEA national and Equivalence categories. This represents an important avenue for future work.

2.9 Income

In September 2014 the Health and Social Care Information Centre (HSCIC) published information on earnings and expenses for primary care dentists in Scotland [21]. This information was based on anonymised tax data for full-time and part-time principal and associate dentists with some self-employment earnings from the GDS. Table 2.7 reports mean taxable income for GDS dentists in Scotland expressed in 2012-13 prices using the Gross Domestic Product deflator

[22]. Between financial years (FYs) 2008-09 and 2012-13 real mean taxable income decreased by almost 25% for principals, by almost 22% for associates and by more than 25% overall. These reductions in real taxable income were not driven by increases in expenses, which decreased by almost 22% for all dentists between FYs 2008-09 and 2012-13.

Table 2.7: Mean taxable income in 2012-13 prices

Financial year	Principal £	Associate £	All £
2008-09	129,502	73,206	92,735
2009-10	121,027	67,107	84,336
2010-11	104,625	62,195	75,856
2011-12	104,615	58,560	72,895
2012-13	97,400	57,200	68,800

Similar reductions in real taxable income were found by sex, age, percentage of time working in the NHS, working hours and region.

2.10 Summary

- The number of dentists registered with the GDC with a Scottish postcode in September 2014, 3,883, was at its highest ever level but the annual rate of increase was slower than in previous years.
- Between September 30th 2011 and September 30th 2013 the number of NHS dentists increased from 3,464 to 3,595 and the number of NHS GDPs increased from 2,848 to 3,035.
- There is some evidence that changes in pension arrangements in April 2014 had an effect on the age at which NHS GDPs left the GDS.
- The ratio of applications to accepted places for BDS courses in 2013 was relatively high with about six applicants per accepted place at Dundee and Glasgow dental schools and about 10 applicants per place at the graduate-entry Aberdeen Dental School.
- The intake targets for Scottish dental schools have changed during the past two years with the intake targets for Scottish, Rest of UK (RUK) and EU students falling from 170 to 135 and the intake target for international students increasing from six to 40, which has meant that the total intake target for Scottish dental schools is still relatively high.
- Less than 6% of BDS students were from the most deprived SIMD quintile and more than 46% of BDS students were from the least deprived SIMD quintile.

- The DUBS provides bursaries to undergraduate dental students in return for a commitment to work in NHSScotland after graduation at a cost of about £2.5m a year.
- Dentists who received a DUBS bursary were more likely to be retained in NHSScotland than similar dentists who did not receive a DUBS bursary.
- On September 30th 2013, there were 191 VDPs.
- There were 237 VTNs issued in DVT year 2013-14.
- Dentists issued with a VTN after completing DVT in the UK were more likely to be in the NHSScotland than dentists issued with a VTN from the EEA.
- Taxable income for dentists in Scotland with some income from the GDS decreased by 25% in real terms between FYs 2008-09 and 2012-13.

Chapter 3

Dental Care Professionals

There are six Dental Care Professional (DCP) titles that require registration with the General Dental Council (GDC): Dental Nurse (DN), Dental Hygienist (DH), Dental Therapist (DTh), Dental Technician (DTe), Orthodontic Therapist (OTh) and Clinical Dental Technician (CDT). While there are other roles in the dental care team, this report focusses on people working under one or more of these registrable roles.

In Scotland most DNs, DHs, DThs and OThs work in the General Dental Service (GDS) under the direction of a General Dental Practitioner (GDP). CDTs tend to work independently on edentulous patients or with DTes in private laboratories. A minority of DCPs are employed in the Hospital, Community and Public Health Service (HCHS).

Since May 2013 patients have been able to see and receive treatment from DCPs without prescription from a dentist [11]. Direct access permits DHs and DThs to work entirely independently of a dentist, while DNs and OThs are able to undertake selected aspects of their scope of practice independently. However, there have been very few reports of DCPs in Scotland treating patients independently of a dentist's prescription because the GDS regulations have to be changed to allow DCPs to claim for GDS treatment [23].

3.1 Education

The number of DCPs in training has been guided by the 2005 Dental Action Plan [24] in which a commitment was made to increase the number of dental therapists in training to 45 per year, and dental nurses to 250 per year.

3.1.1 Further education

The GDC recognises three DN qualifications in Scotland: the national diploma in dental nursing that is certified by National Examining Board for Dental Nurses (NEBDN); and the Scottish Vocational Qualification (SVQ) level 3 and Profes-

sional Development Award (PDA) that are certified by the Scottish Qualifications Authority (SQA). Table 3.1 reports the total number of recorded certifications.

Table 3.1: NEBDN and SQA dental nurse certifications in Scotland by year

		2008	2009	2010	2011	2012	2013
NEBDN	Ndip	n/a	n/a	247	305	167	227
SQA	PDA	0	0	117	179	147	147
	SVQ	125	134	146	178	120	139
Total		-	-	510	662	434	513

The GDC currently certifies dental technology training at the University of the Highlands and Islands (UHI) and Edinburgh College, which was formed by a merger between Edinburgh's Telford College, Jewel & Esk College and Stevenson College Edinburgh. The first cohort of the Higher Education Diploma at the UHI began in 2013. Students are employed as apprentice DTe while they study. Six individuals are expected to complete the course in 2016. The Edinburgh College National Certificate courses are full-time and involve regular work placements. The SQA reported between 22 and 65 certified completions per year at Edinburgh's Telford College: 22 in 2008, 41 in 2009, 53 in 2010, 65 in 2011, 56 in 2012 and 30 in 2013.

3.1.2 Higher education

Four higher education providers are certified by the GDC to deliver a Bachelor of Science (BSc) in Oral Health Science (OHS) which leads to registration as a DTh, a DH or both.

Applications to oral health science

Figure 3.1 shows that the total number of accepted places on OHS BSc degree programmes increased from around 10 in 2007, when there was a single university provider, to around 40 in 2013, when there were four providers. The ratio of applications to accepted places varied between universities but increased at all four since 2008.

Oral health science students

The number of students who entered an OHS programme in Scotland between 2005 and 2012 is shown in table 3.2 by the year of their start date as derived from data reported to Higher Education Statistics Agency (HESA).

The mean age of first-year students at Edinburgh and Dundee was about 20 and about 24 at Glasgow Caledonian University (GCU) and UHI.

Figure 3.1: Ratio of applications to accepted places on OHS programmes in Scotland

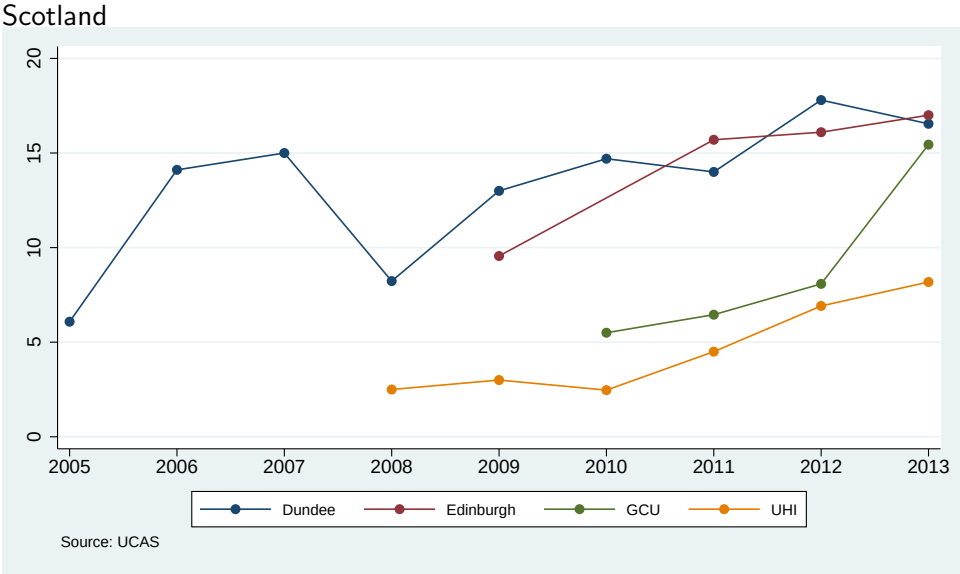


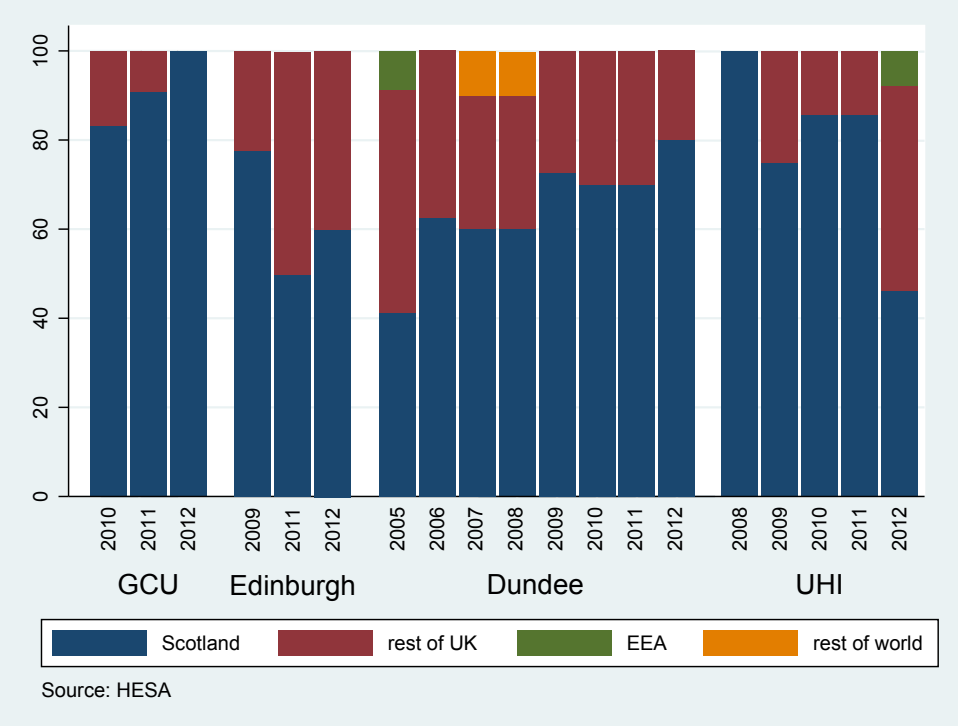
Table 3.2: Number of students entering an OHS programme

	2005	2006	2007	2008	2009	2010	2011	2012
GCU	0	0	0	0	0	12	11	12
Edinburgh	0	0	0	0	<10	0	10	10
Dundee	12	<10	10	10	<12	10	10	10
UHI	0	0	0	12	12	14	14	13
Total	12	<10	10	22	32	36	45	45

Most OHS students were female: 95% at GCU and UHI, 65% at Dundee and 79% at Edinburgh.

Figure 3.2 shows the domicile of first-year students. Most students are from Scotland but the relative size of each group varies between academic years (AYs) and universities.

Figure 3.2: Domicile of OHS students



Almost 7% of students were from the most deprived Scottish Index of Multiple Deprivation (SIMD) quintile and almost 23% were from the least deprived SIMD quintile.

About 10% of OHS students were from Black and Minority Ethnic (BME) groups, which was similar for all four universities.

A disability was reported by approximately 11% of GCU, Edinburgh and UHI students, and 7% of Dundee students. More than half of reported disabilities were categorised as dyslexia or similar learning disability.

The category of highest qualification on entry was known for two-thirds of first-year students in 2012: 40% were qualified to National Vocational Qualification (NVQ) or SVQ level; just under 30% had school-level qualifications including O levels, Highers or A levels; less than 10% had a degree; and less than 10% had a Higher National Diploma (HND) or Higher National Certificate (HNC).

The number of students who completed the OHS BSc at each university is

shown in table 3.3 by year of completion.

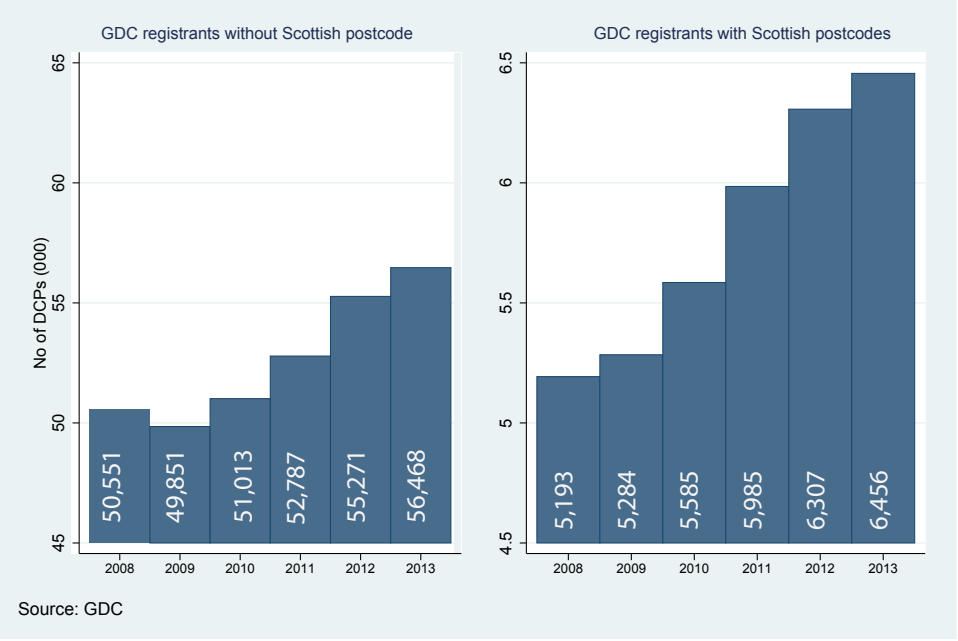
Table 3.3: Number of students who successfully completed the OHS BSc

	2007	2008	2009	2010	2011	2012	2013
GCU	0	0	0	0	0	0	10
Edinburgh	0	0	0	0	0	0	<10
Dundee	<10	10	<10	11	<12	<10	<10
UHI	0	0	0	0	<10	11	12
Total	<10	10	<10	11	17	18	39

3.2 DCP registration

Data from the GDC register were used to identify registrants with one or more registered role and a Scottish postcode, which indicates the number of DCPs registered to deliver dental services in Scotland. Figure 3.3 shows the number of registrants without a Scottish postcode increased by almost 12% between December 2008 and December 2013. By contrast, the number of registrants with a Scottish postcode increased by more than 24%. The data differ slightly from the numbers published on the GDC website due to the timing of each data extract and the GDC's access to more detailed information on registrants'.

Figure 3.3: Registered DCPs with and without Scottish postcode



The number of individuals registered with each DCP role and a Scottish postcode is shown in table 3.4. Between December 2008 and December 2013 the number of registered dental nurses with a Scottish postcode increased by a third. During the same period the number of registered hygienists and the number of registered therapists both increased by around 100, a change of 25% and 153% respectively. The number of registered DTes decreased by 20%.

Table 3.4: Registered DCPs with a Scottish postcode

	DN	DTe	DTh	DH	CDT	OTh
Dec-08	3,981	653	70	459	<10	<10
Dec-09	4,052	628	91	480	<10	<10
Nov-10	4,297	594	108	495	<10	15
Dec-11	4,846	585	137	544	12	24
Dec-12	5,181	572	149	550	11	30
Dec-13	5,356	525	177	575	15	41

The increase in the number of DNs is likely to be associated with the increase in the number of registered dentists. The reduction in the number of DTes is likely to reflect technological changes in the production of services previously provided by DTes.

Table 3.5 shows that each year about 7% of registrants left, 1% returned having previously left and 10% of were new to the register in Scotland.

Table 3.5: The stock and flow of registered DCPs with a Scottish postcode

	Stock	Outflow	Inflow	
			Past registrants	New entrants
Dec-08	5,193	400	0	0
Dec-09	5,284	331	0	491
Nov-10	5,585	345	55	577
Dec-11	5,985	348	62	683
Dec-12	6,307	443	59	611
Dec-13	6,456	0	75	517

About 13% of the outflow consisted of DCPs who remained on the register but whose postcode changed from Scotland to Rest of UK (RUK). Similarly about 8% of the inflow consisted of DCPs who were previously on the register but whose postcode changed from RUK to Scotland.

3.3 Employment

3.3.1 Employment in the Hospital, Community and Public Health Service

Table 3.6 reports the stock and flow of DCPs employed in the HCHS between 2007 and 2013. During this period the number of employed individuals increased by 90% mostly due to new entrants rather than individuals returning following a break from HCHS employment. In 2013 DCPs employed in the HCHS accounted for 31% of all registered DCPs in Scotland compared to 29% in 2008.

Table 3.6: The stock and flow of DCPs in the HCHS

Year	Stock	Outflow	Inflow	
			Past employees	New entrants
2007	1,074	108		
2008	1,511	127		545
2009	1,769	158	6	379
2010	1,916	185	12	293
2011	1,952	152	12	209
2012	2,010	161	18	192
2013	2,042	0	19	174

Between 2007 and 2013 almost all DNs and Oral Health Practitioners (OHPs), which includes DHs and DThs, were female while the percentage of female DTes increased from 23% in 2007 to 44% in 2013.

The whole-time equivalent (WTE) number of DCPs increased by 83% between 2007 and 2013, from 924.2 in 2007 to 1,693.2 in 2013. In 2007, 93% of the WTE DCP workforce was made up of DNs, 5% were DTes, and 1% were OHPs. The percentages were 84%, 8% and 8% respectively in 2013. Part-time working was most common among OHPs (42%) and DNs (33%) and doubled among DTes from 6% to 14% between 2007 and 2013.

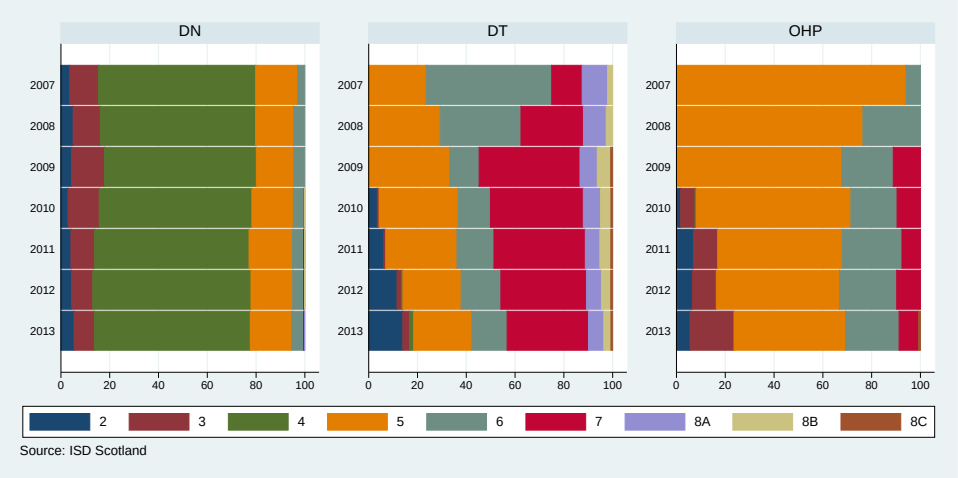
Figure 3.4 shows the distribution of DCP WTE posts in the HCHS by Agenda for Change (AfC) band. The majority of DNs employed in the HCHS were employed in band 4. While the distribution of posts has remained constant for DNs, the distribution of posts for DTes and OHPs has changed considerably.

In 2013 the mean age of HCHS DNs, OHPs and DTes was 38, 43 and 42 respectively.

3.3.2 Labour market information

There are no routinely collected data on DCP activity in practice or their employment within the GDS. However, the contribution to, and impact of, DCPs on the dental workforce has been described in previous dental workforce reports

Figure 3.4: Overall distribution of WTE DCP HCHS staff by band



[5]. More recently the Centre for Workforce Intelligence (CfWI) conducted a review of the DCP workforce in England [10].

In addition, several peer reviewed studies have examined DHs or DThs and the relationship between their employment and earnings [25, 26], productivity [27] and access to services [28, 29]. All of these studies relate to dental practice within the changing landscape of healthcare funding in the United States (US) in recent years. As the ratio of DHs to dentists is much higher there than in the GDS in Scotland the relevance of these findings may be limited [27].

An economic model based on data from the American Dental Association reported that the use of DThs in practice with DHs doing all hygiene work could lead to cost reductions of 0.3-2.4%, depending on whether all patients or just children were treated, but that practice income would not necessarily increase [26].

A literature review of the impact of DThs on productivity indicated that most published evidence on this group outside the US related to their work with children, and noted the findings of a survey that suggested a minority of children from low income families required treatment by a dentist [27].

Different models of oral healthcare delivery designed to cope with unmet need were examined for feasibility in 2012 [29]. One model, based on a two-year DTh training programme plus a period of supervised work in practice, was cost-effective and had the potential to successfully recruit individuals from a broad demographic profile. However, another model, consisting of a six-year training programme for advanced DHs was not considered cost-effective.

A survey of solo dental practices showed that those that employed DHs generated higher net income and patients had longer recall intervals [25].

Labour market outcomes for dental nurses

Information on a representative 1% sample of employees in the UK is available from the Annual Survey of Hours and Earnings (ASHE). Dental nurses in Scotland were identified using their Standard Occupational Classification (SOC).

Table 3.7 shows that the number of DNs was at its lowest in each country in 2007 and has since increased. The increase between 2007 and 2012 was 75% in England and Wales and 380% in Scotland.

Table 3.7: Headcount of employed dental nurses from ASHE

year	All UK records	England	Scotland	Wales
2005	162,055	173	13	<10
2006	163,361	185	11	<10
2007	136,300	134	10	<10
2008	136,991	163	18	<10
2009	167,911	218	31	15
2010	169,698	234	41	13
2011	178,219	257	48	14
2012	172,078	234	48	13

Median gross hourly pay for DNs in Scotland increased steadily from just over £7 in 2006 to just under £9 in 2013. The National Minimum Wage for people who are not apprentices and aged 21 and over is currently £6.50 an hour [30]. The current National Living Wage is £7.85 an hour [31]. Figure 3.5 compares these data with other occupations that share the same SOC minor group code. Median gross hourly pay for DNs in Scotland is similar to care workers, about £1 less than nursing auxiliaries, and about £3 less than non-paramedic ambulance staff.

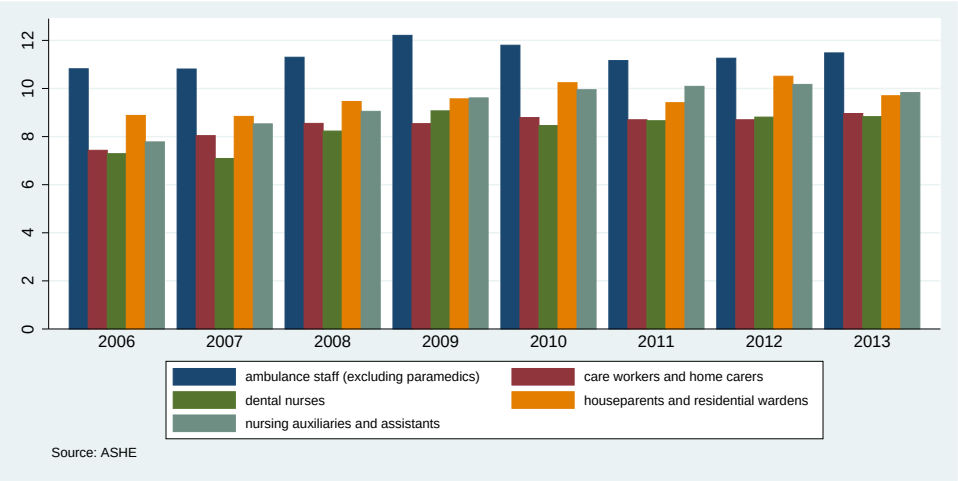
In England, Scotland and Wales up to 3% of dental nurses had more than one job in any year. Excluding those with more than one job, the average number of hours worked each week was 34 in Scotland, 31 in England and 30 in Wales.

Table 3.8 shows the percentage of DNs employed in 2009 who were subsequently employed as a DN in the following three years. Retention was higher in Scotland than in England in each following year.

Table 3.8: The percentage of DNs employed in 2009 that were subsequently employed as a DN

		2 years	3 years	4 years
Dental Nurses	Scotland	96	98	95
	England	94	90	91

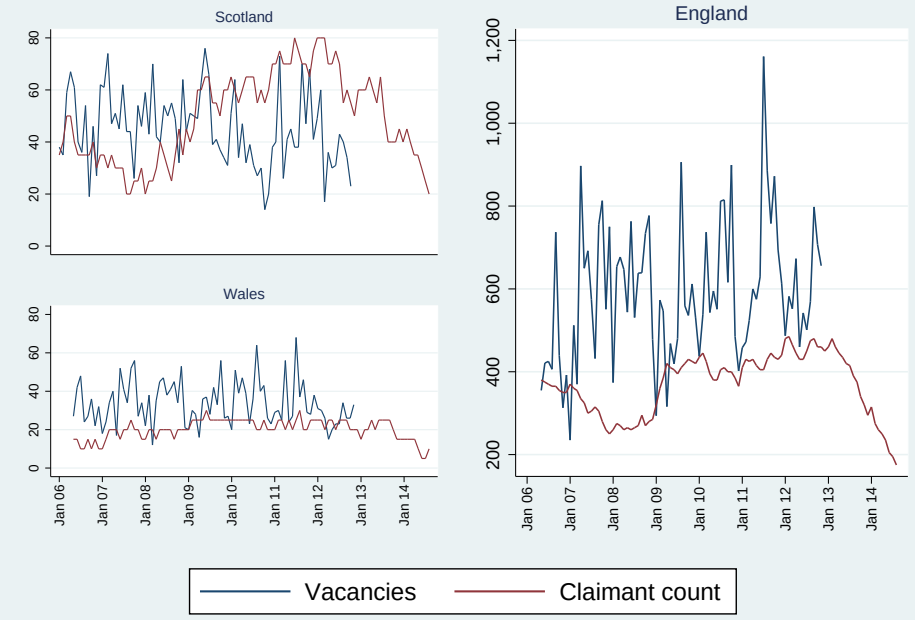
Figure 3.5: Median gross hourly pay for dental nurses and similar occupations in Scotland



Vacancy and claimant data

Figure 3.6 shows dental nurse vacancies and the Jobseeker's Allowance (JA) claimant count for individuals who noted dental nursing as their sought occupation. The claimant count was greater than the number of vacancies in Scotland between mid-2009 and the start of 2013. By contrast, the claimant count in England and Wales has been less than the number of vacancies. Since 2013 the claimant count decreased in all three countries.

Figure 3.6: National vacancies and Job Seeker's Allowance claimant count



Source: NOMIS

3.4 Summary

- The number of registered DCPs in Scotland increased between 2008 and 2013 at a faster rate than in the rest of the UK.
- The number of registered DNs increased by a third, the number of registered DThs increased by 153% and the number of registered DTes decreased by 20%.
- Between 2011 and 2013 the ratio of applications to accepted places for OHS training increased, indicating significant demand to train as a DTh.
- The number of students graduating from OHS courses in Scotland and therefore able to register as a DTh was at its highest ever level, 39, in 2013.
- On September 30th 2013 the number of DCPs employed in the HCHS accounted for about 30% of all Scottish DCP registrants with the remainder likely to be employed by independent contractors.
- The number of DNs claiming JA has decreased since January 2012.
- Median gross hourly pay of dental nurses has been relatively constant at about £9 an hour since 2011, which is higher than the National Minimum Wage of £6.50 an hour and the National Living Wage of £7.85 an hour.
- The introduction of direct access in May 2013, which gives patients the option to see a DCP without having to see a dentist first and without a prescription from a dentist, is unlikely to have a significant impact on the market for dental services in Scotland until the GDS regulations are changed to allow DCPs to claim for GDS treatment.
- While there are limited routinely collected data on the contribution of DCPs there is a relatively large body of survey and academic work.

Chapter 4

The utilisation of dental services

4.1 General Dental Services registration rates

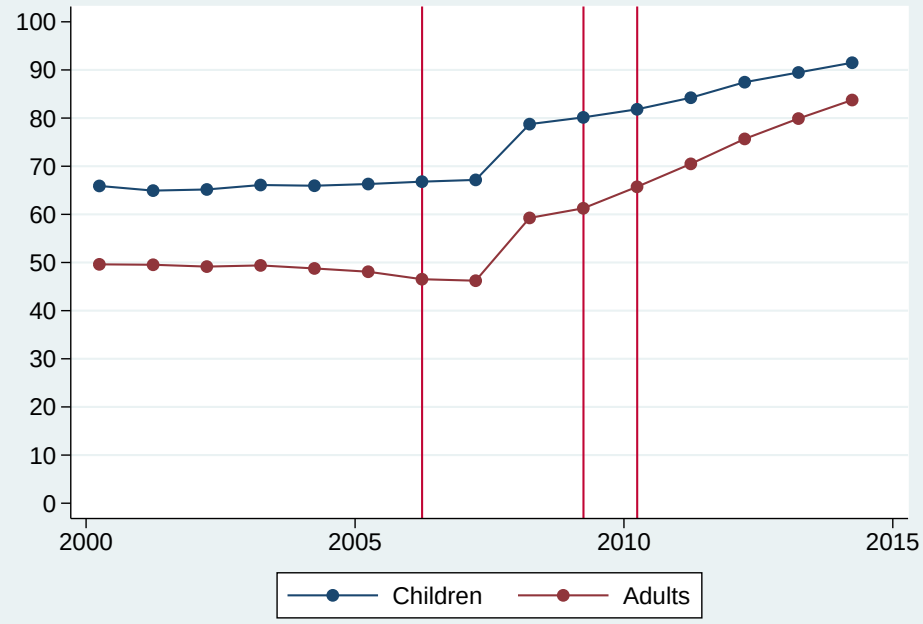
Registration with an NHS General Dental Practitioner (GDP) entitles patients to the full range of dental treatment available under the General Dental Service (GDS). Registration rates therefore provide one measure of access to the GDS.

Figure 4.1 illustrates the trend in GDS registration rates from March 31st 2000 to March 31st 2014. There was a sharp increase in the registration rates of both children and adults on March 31st 2008. The registration period, which is the period during which patients are entitled to receive the full range of dental treatment available under the GDS, was extended from 15 to 36 months from April 1st 2006. The registration period was extended from 36 to 48 months for all patients registered with a dentist from April 1st 2009 [32] and was further extended to non-time-limited registration for all patients registered at April 1st 2010 [33]. These extensions to the registration period, which are indicated on figure 4.1, are likely to have had, and will continue to have, an impact on registration rates.

Figure 4.2 shows the registration rates by NHS board on March 31st 2014. NHS Greater Glasgow and Clyde had the highest registration rate of 88.7% and NHS Grampian had the lowest registration rate of 67.8%.

There are several other points of access to NHS dental care that are not captured by registration data such as the Public Dental Service (PDS), specialist primary care dental services, Emergency Dental Services, Teach and Treat Centres, dental schools, the Hospital Dental Service (HDS) and Occasional Treatment arrangements. Therefore, the actual utilisation of NHS dental services is likely to be greater than the registration rates reported in figures 4.1 and 4.2.

Figure 4.1: Percentage of children and adults registered with a GDS dentist



Source: ISD Scotland

4.2 General Dental Services treatment

Another measure of the utilisation of GDS is the total cost and the number of courses of GDS treatment. Total cost is defined as the sum of salaried and non-salaried GDS treatment fees and is expressed in 2013-14 prices by using the Gross Domestic Product deflator, which is a measure of general inflation in the domestic economy. Figure 4.3 shows that the total cost of GDS treatment increased from just over £165m in financial year (FY) 2007-08 to about £190m in FY 2013-14. This increase in the total cost of treatment reflects an increase in the total number of courses of treatment from 3.4m to 4.4m during the same period.

Each GDS treatment was classified into one of five categories: the assessment and diagnostic category includes treatments like examinations and radiographs; the core category includes treatments that can be performed by dentists, Dental Hygienists (DHs) and Dental Therapists (DThs) such as fillings; the complex category includes treatments that are more advanced than core treatments and can only be performed by dentists such as root canal treatment or crown and bridge work; the orthodontic category includes orthodontic treatments; and the not elsewhere classified category includes all other treatments.

Figure 4.4 shows the percentage of the total cost of GDS treatment accounted for by each category. For example, assessment and diagnostic treat-

Figure 4.2: Percentage of children and adults registered with a GDS dentist by NHS board

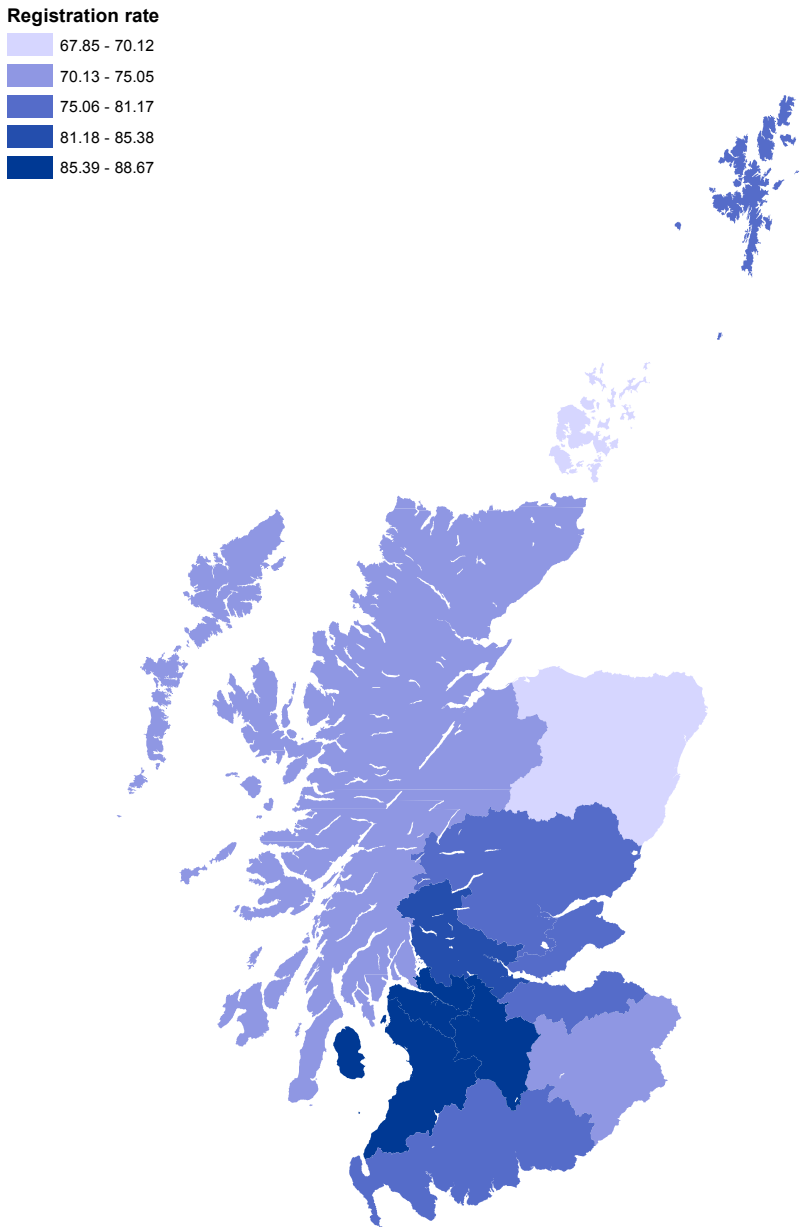
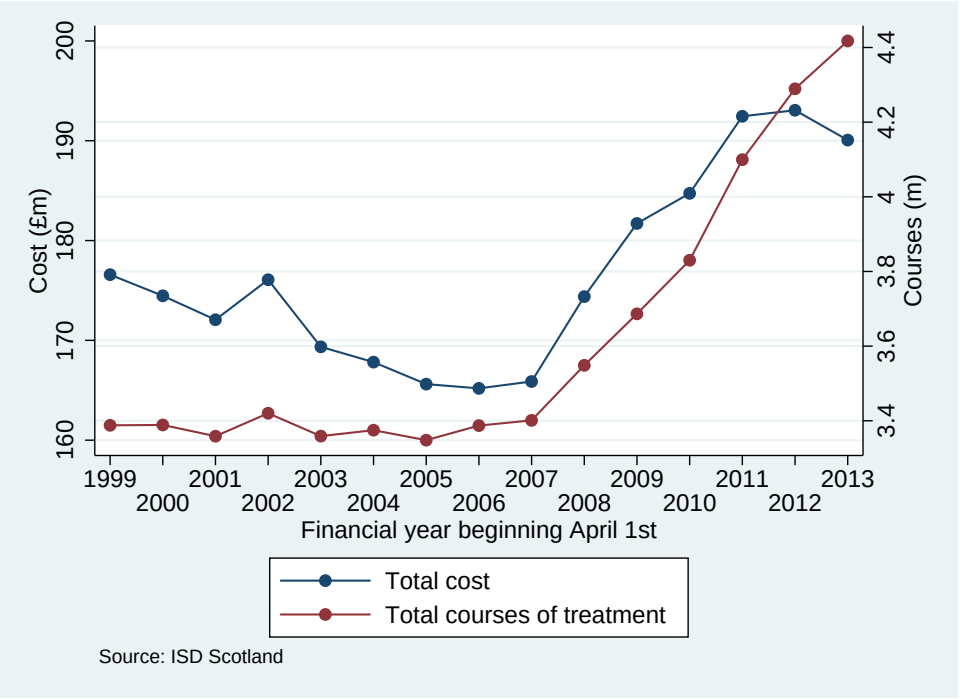


Figure 4.3: Total cost and number of courses of GDS treatment in each financial year beginning April 1st



ments accounted for about 14% of the total cost of GDS treatment in FY 1999-2000. Figure 4.4 shows that there was very little variation in the composition of the cost of treatment between FYs 2005-06 and 2013-14.

Appendix B reports the trends in GDS treatments by FY and the age and sex of patients.

4.3 Frequency of visits to public and private sector providers

Each Scottish Health Survey (SHeS) questionnaire consists of a core module of questions that are asked every year and a rotating module of questions that are asked every two years. The core module includes questions about oral health.

The rotating module includes questions on the duration since the respondent's last visit to a dentist and whether the treatment was provided by the public or private sector. Table 4.1 uses data from the latest SHeS, SHeS 2011, to report the duration since the respondent's last visit to the dentist and whether the treatment they received was provided by the public or private sector [34]. Less than 1% of adults had never been to a dentist, more than 50% of adults received only NHS treatment and 17.5% received only private treatment in the 12 months before the survey.

Figure 4.4: The composition of the cost of treatment by treatment category

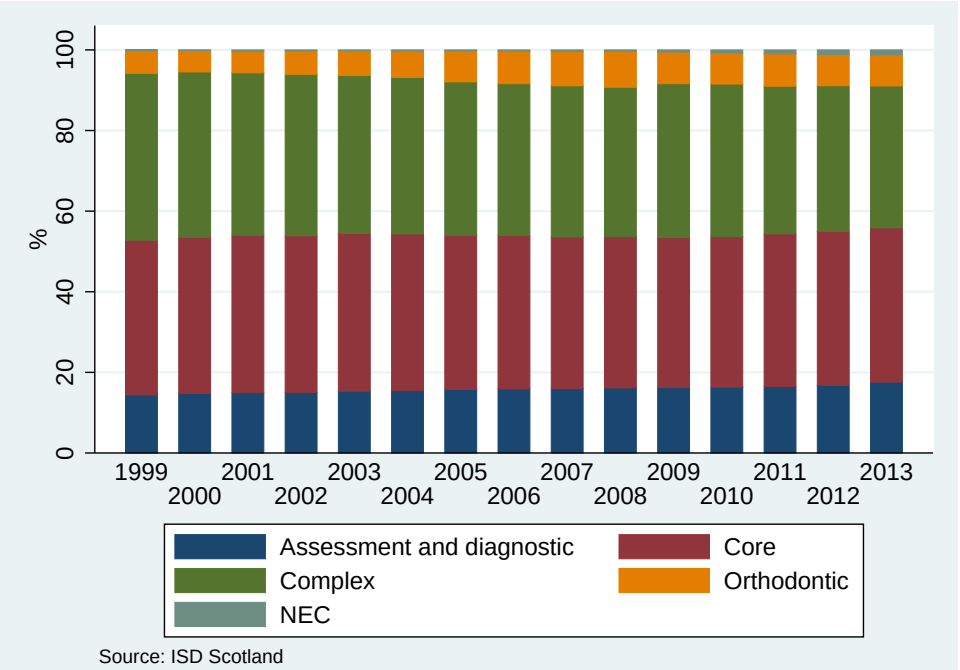


Table 4.1: Length of time since last dental visit by provider

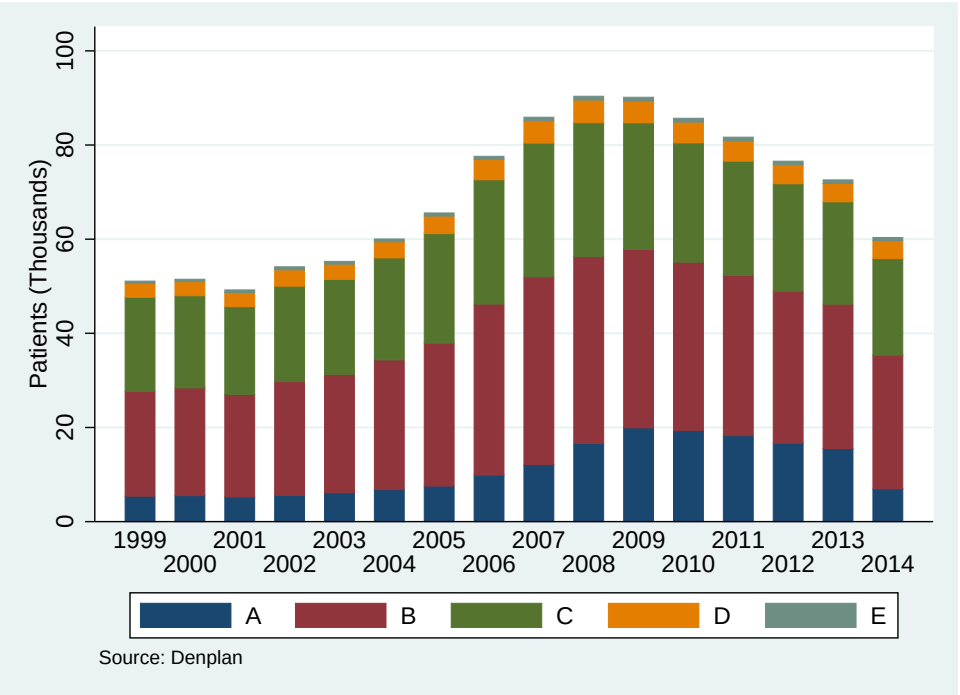
	NA	NHS	Private	Both	Don't know	Total
Don't know	0.00	0.00	0.00	0.00	0.00	0.00
NA	0.00	0.00	0.00	0.00	0.00	0.00
Less than a year ago	0.00	50.80	17.37	1.52	0.36	70.05
More than 1 year, up to 2 years ago	0.00	7.99	2.84	0.20	0.06	11.08
More than 2 years, up to 5 years ago	0.00	5.58	1.67	0.07	0.12	7.45
More than 5 years ago	0.00	8.59	1.27	0.10	0.56	10.52
Never been to the dentist	0.89	0.00	0.00	0.00	0.00	0.89
Total	0.89	72.97	23.15	1.89	1.10	100.00

4.4 Denplan registration

Unlike many other datasets, the data provided by Denplan give an indication of the oral health of its registered patients. After a patient registers with Denplan, a dentist conducts a detailed assessment of their oral health to establish their Denplan category (A, B, C, D or E). The Denplan category is mainly determined by the oral health and estimated future dental care needs of the patient: category A corresponds to relatively good oral health and low future dental care needs; and category E corresponds to relatively poor oral health and high future dental care needs.

Figure 4.5 reports the number of registered patients in each Denplan category between April 1999 and April 2014. Between April 2001 and April 2008, the number of patients registered with Denplan increased by 76% overall and by 206%, 78%, 42%, 63% and 64% for each Denplan category A to E, respectively. Between 2008 and 2014 the number of patients registered with Denplan decreased by 33%. The number of patients registered with Denplan in categories A to E decreased by 58%, 28%, 28% 20% and 20% respectively. In April 2014, the number of patients registered by Denplan in Scotland accounted for 1.13% of the mid-2013 population estimate for Scotland

Figure 4.5: Patients registered with Denplan by category



4.5 Summary

- The percentage of both children and adults registered with a GDS dentist continued to increase during the past two years with more than 91% of children and 83% of adults registered at the end of March 2014.
- At the end of March 2014 NHS Greater Glasgow and Clyde had a registration rate of 88.7% and NHS Grampian had a registration rate of 67.8%.
- According to the 2011 SHeS less than 1% of adults have never been to a dentist, more than 50% of adults received only NHS treatment and 17.5% received only private treatment in the previous 12 months before the survey.
- Between 2008 and 2013 the number of patients registered by Denplan in Scotland fell by 33%.

Chapter 5

Forecasts

This chapter calculates and compares forecasts of the supply of and demand for NHS General Dental Practitioners (GDPs). Section 5.1 reports four forecasts of the demand for NHS GDPs, which are driven by changes in the projected size and composition of the population. Section 5.2 reports three different forecasts of the supply of NHS GDPs. Section 5.3 compares the supply and demand forecasts.

5.1 Demand

5.1.1 Population forecasts

Figure 5.1 uses the latest 2012-based population projections from the General Register Office for Scotland (GROS) to illustrate the changes in the projected size and composition of the population during the 10-year forecast period. While 28% of the projected increase is accounted for by natural increase, 72% of the projected increase is accounted for by immigration.

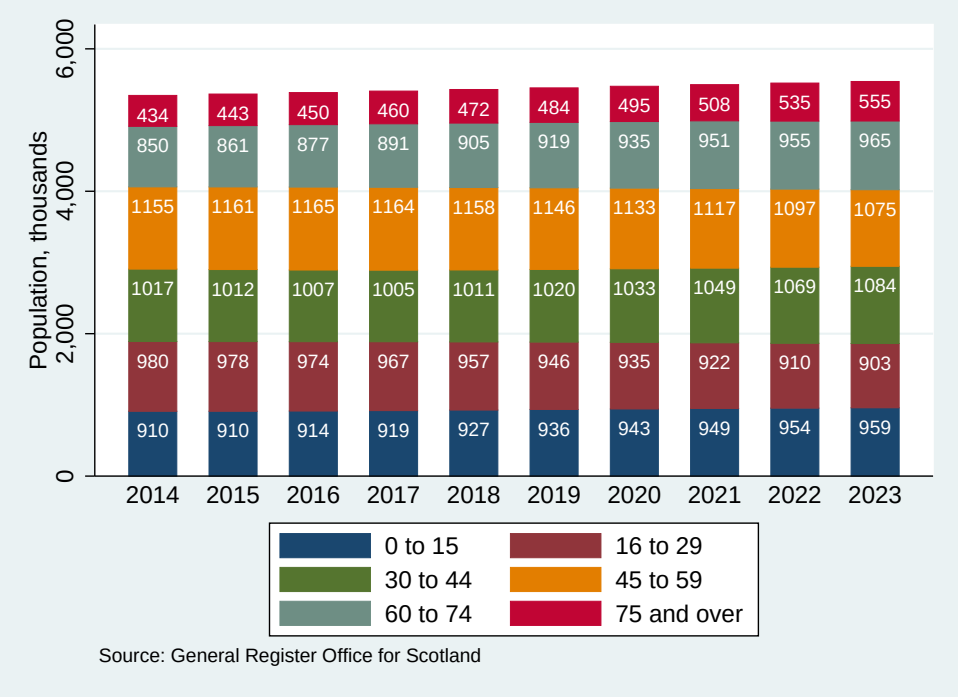
5.1.2 NHS GDP demand forecasts

Figure 5.2 reports four NHS GDP demand forecasts, each corresponding to a different potential objective.

DAP Registration illustrates the demand for NHS GDPs implied by the registration rates from the Dental Action Plan (DAP) Monitoring Forms for NHS Boards: 85% of children aged 0-17; 65% of adults aged 18-64; and 50% of adults aged 65 and over [35].

All children registered illustrates the demand for NHS GDPs implied by a registration rate of: 100% for children aged 0-17; 65% for adults aged 18-64; and 50% for adults aged 65 and over.

Figure 5.1: Population projections



100% registered illustrates the demand for NHS GDPs implied by a registration rate of 100% for children and adults.

Current registration illustrates the number of NHS GDPs required to produce the same registration rates as on September 30th 2013 and is equivalent to the number of NHS GDPs required to ensure the same dentist to population ratio as on September 30th 2013.

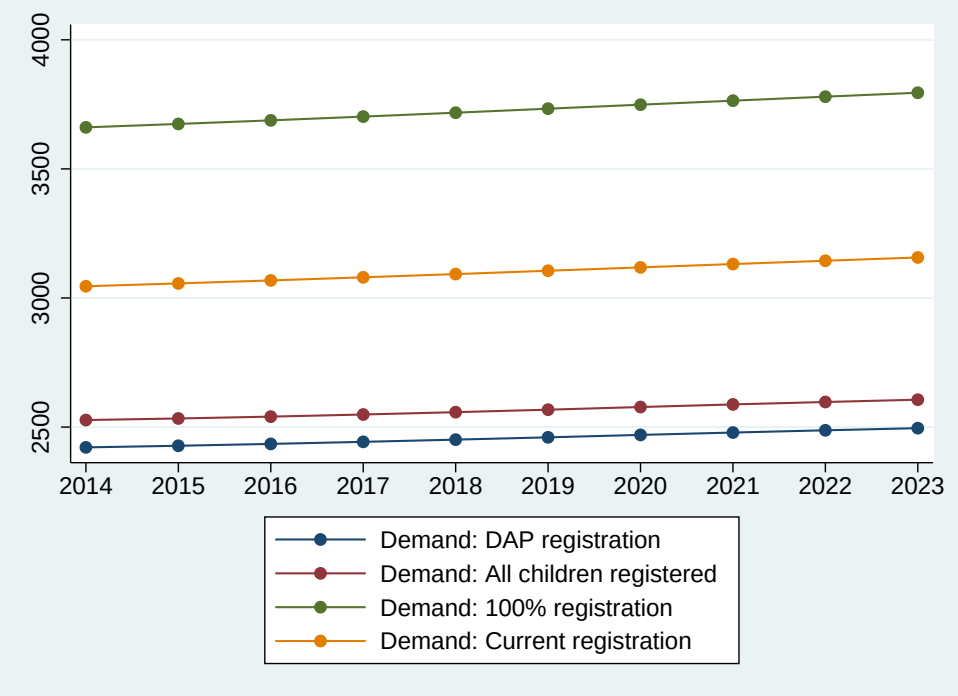
5.2 Supply

The objective of the NHS GDP supply forecast is to forecast the number of NHS GDPs. One way to generate a forecast is to extrapolate from the past. An alternative method is to use estimates of the future inflow and outflow of dentists.

5.2.1 Trends in the GDS outflow rate

Figure 5.3 reports the annual General Dental Service (GDS) outflow rate by age and sex in 2012. The outflow rate is relatively high for relatively young dentists, which may be an indication of career breaks. The outflow rate increases for

Figure 5.2: NHS GDP demand forecasts



dentists who are 55 and older. Higher estimated outflow rates give rise to a lower forecast for the number of NHS GDPs.

5.2.2 Trends in GDS inflows

Inflows from Dental Vocational Training

The forecast number of dentists who join after Dental Vocational Training (DVT) in Scotland depends on: the output of Bachelor of Dental Surgery (BDS) courses in Scotland; the relationship between the output of BDS courses in Scotland and the number of DVT places; and the rate at which Vocational Dental Practitioners (VDPs) enter the GDS. The following figures examine each of these factors in turn.

Figure 5.4 shows the relationship between the intake to and output from BDS courses in Scotland under the assumption that the intake targets for academic year (AY) 2014-15 continue. Changes in intake in any AY have an impact four, five and six years in the future because students at Aberdeen Dental School graduate in four or five years and students at Dundee and Glasgow dental schools graduate in five or six years (figure 2.9).

In the past the number of DVT places has been matched to the output of the Scottish dental schools. Figure 5.4 shows that if the number of DVT places continues to match the total output of the Scottish dental schools then

Figure 5.3: The proportion of dentists leaving the NHS GDP workforce in 2012

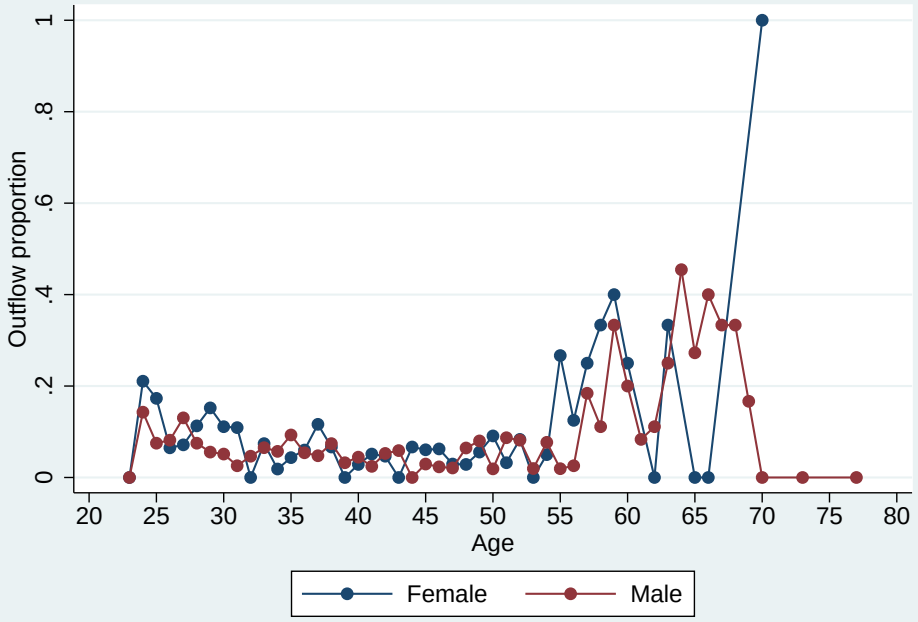
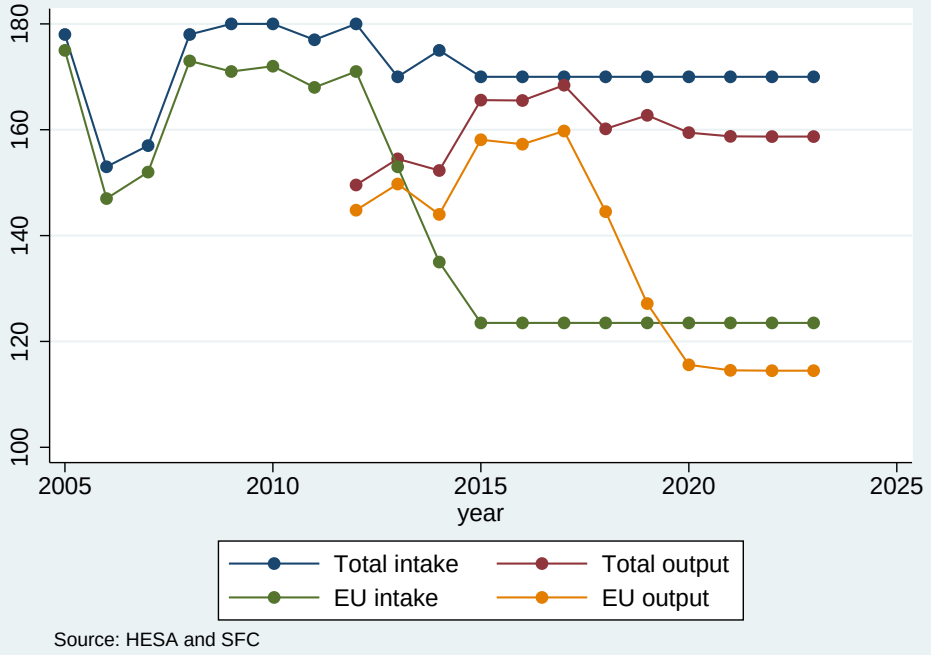


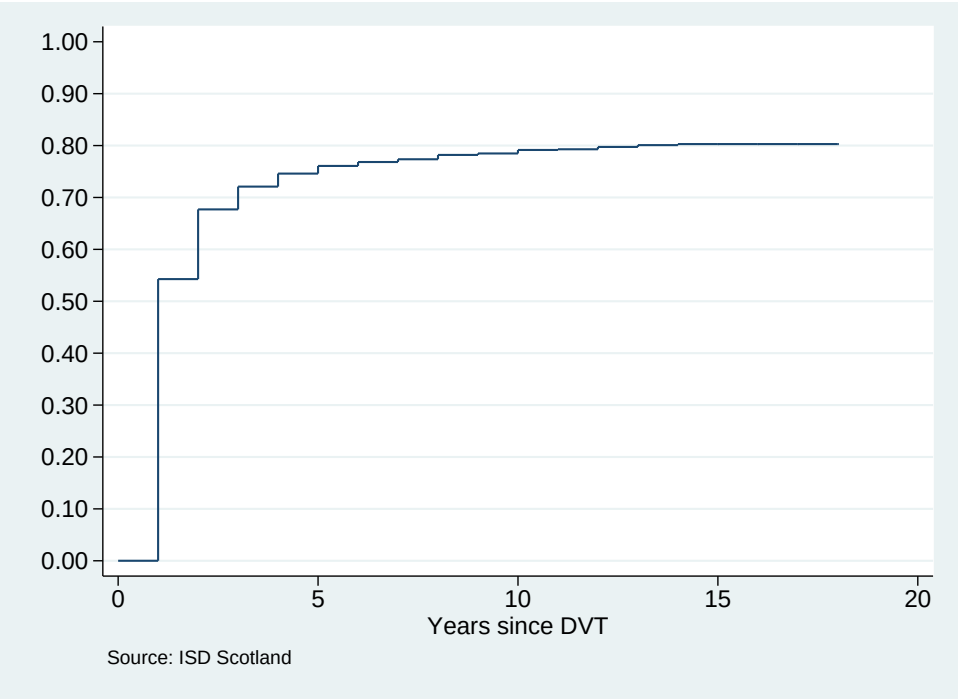
Figure 5.4: Actual and forecast intake to and output from BDS courses in Scotland



the number of DVT places will remain relatively high. This is because Scottish dental schools have been allowed to offset the recent reductions in the number of European Union (EU) students with non-EU students [15, 16]. By contrast, if the number of DVT places matches the output of EU students then there will be a considerable reduction in the number of DVT places and therefore the inflow into the GDS.

Figure 5.5 shows the probability that VDPs enter the GDS after DVT. The probability that dentists enter the GDS one year after DVT is 0.5 and the probability that dentists enter the GDS 10 years after DVT is 0.8.

Figure 5.5: The probability that VDPs enter the GDS in Scotland



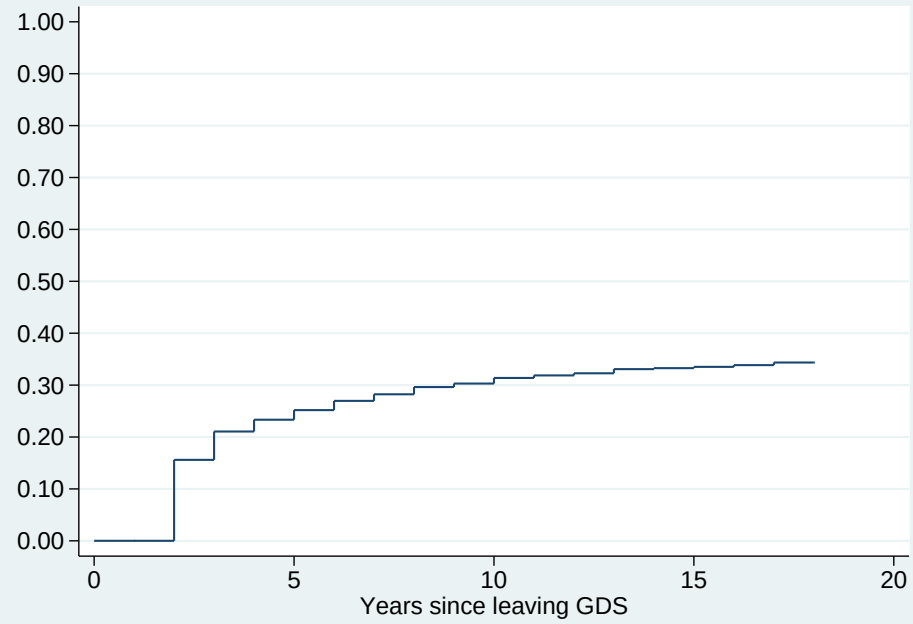
Higher estimated probabilities of entering the GDS following DVT lead to a higher forecast for the number of NHS GDPs.

Inflows from past NHS GDPs

Dentists who return to the GDS are a subset of the dentists who left the GDS in previous years. Figure 5.6 shows the probability of returning to the GDS after two years is about 0.15 and the probability of returning to the GDS within 10 years is about 0.3.

Higher estimated rates of inflow from past NHS GDPs give rise to a higher forecast for the number of NHS GDPs.

Figure 5.6: Probability of returning to the GDS



Inflows from other sources

Inflows from other sources consist of dentists who had not previously worked in the GDS and did not enter following DVT. Figure 5.7 reports the inflow from other sources by year. The inflow from other sources each year is closely related to the number of Vocational Training Numbers (VTNs) issued by NHS Education for Scotland (NES) excluding VTNs issued to dentists who completed DVT in Scotland (figure 2.13). Higher estimated inflows from other sources give rise to a higher forecast for the number of NHS GDPs.

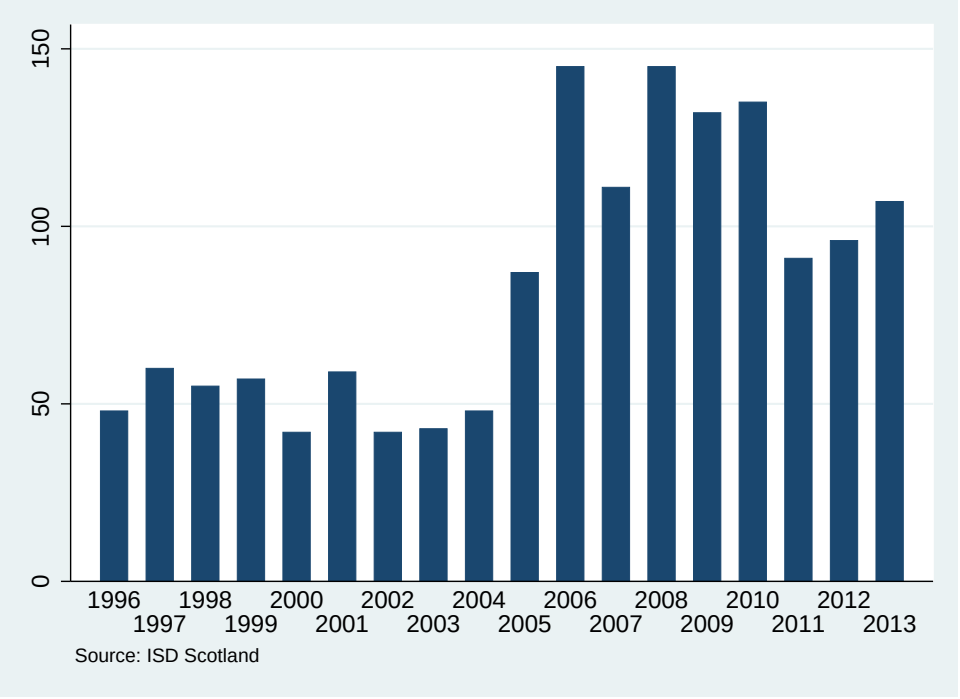
5.2.3 Supply forecasts

There are several possible models that could be used to forecast the number of NHS GDPs. Figure 5.8 illustrates three, which indicate the degree of uncertainty about the correct forecasting model:

H-W uses a Holt-Winters approach to smooth and extrapolate the annual NHS GDP series [36];

DVT=BDS output uses the inflow and outflow information during the entire sample period to forecast the number of NHS GDPs in each age-sex cell if the number of DVT places is matched to the output of Scottish dental schools; and

Figure 5.7: Inflows from other sources by year



DVT=BDS EU output uses the inflow and outflow information during the entire sample period to forecast the number of NHS GDPs in each age-sex cell if the number of DVT places is matched to the output of EU students from Scottish dental schools.

5.3 A comparison of the demand and supply forecasts

Figure 5.9 compares the supply and demand forecasts. During most of the 10-year forecast period there are likely to be more NHS GDPs than are necessary ensure that the current registration rates are maintained but fewer NHS GDPs than are necessary to ensure that everyone in Scotland is registered with the NHS. None of the demand forecasts account for the potential contribution of Dental Therapists (DThs) or the impact of direct access.

Figure 5.10 compares the supply and demand forecasts under the assumption that the number of new entrants to the GDS during the forecast period is the same as the period 1995-2004, which had relatively few new entrants. This assumption considerably lowers two of the supply forecasts.

Figure 5.8: The actual and forecast number of NHS GDPs

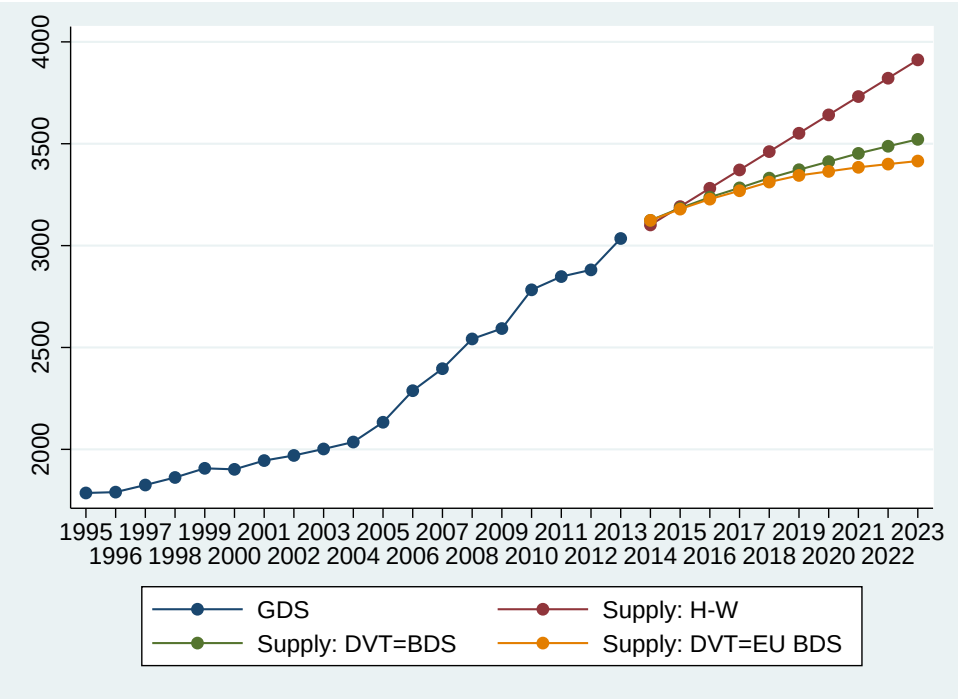


Figure 5.9: NHS GDP demand and supply forecasts

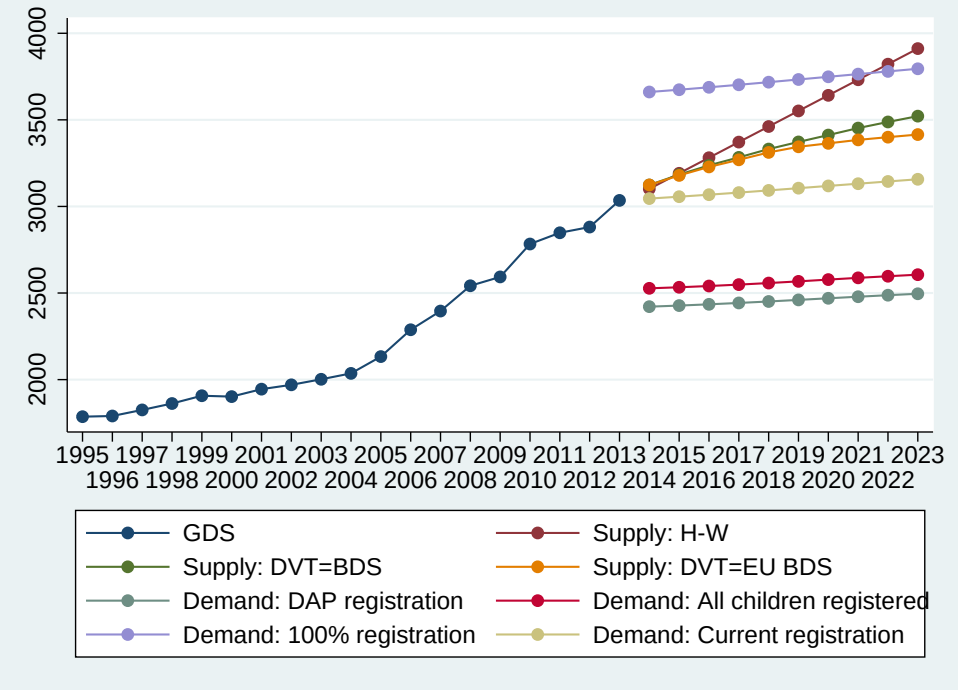
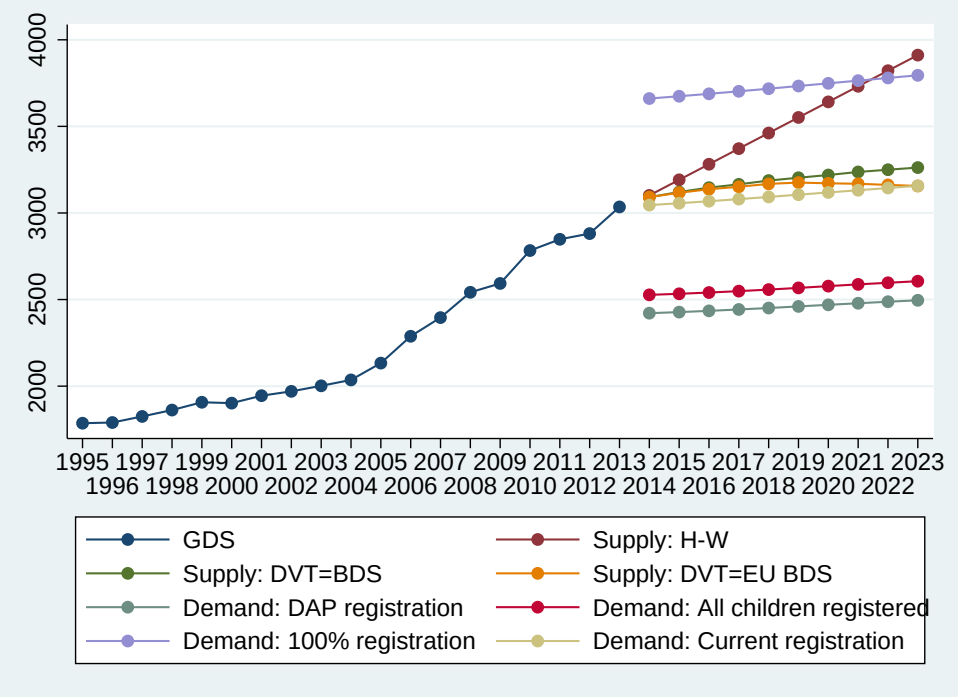


Figure 5.10: NHS GDP demand and supply forecasts



5.4 Summary

- If recent trends continue, there is forecast to be a relatively large increase in the supply of NHS GDPs during the next 10 years.
- The projected changes in the size and composition of the population are forecast to increase the demand for NHS GDPs during the next 10 years.
- During most of the 10-year forecast period there are likely to be more NHS GDPs than are necessary ensure that the current registration rate is maintained but fewer NHS GDPs than are necessary to ensure that everyone in Scotland is registered with the NHS.
- Changes in the assumptions of the supply forecast, such as a reduction in the number of VTNs issued to overseas dentists, have an immediate and relatively large impact on the forecast supply of NHS GDPs.
- Changes in the intake targets to dental schools in Scotland have a relatively small and delayed impact on the forecast supply of NHS GDPs.
- The reduction in the BDS intake targets for Scottish, Rest of UK (RUK) and EU students will have little effect on the dental workforce if the number of VDP posts offered is matched to the output of the Scottish

dental schools because dental schools have been allowed to offset the reduction in EU students with international students.

- The forecast demand for NHS GDPs does not account for the potential contribution of DThs or direct access.

Chapter 6

Avenues for future work

This report suggests several avenues for future work.

Chapter 2 showed that many dentists are trained in countries outside Scotland and many dentists leave Scotland to practise in other countries. Chapter 2 also showed that there has recently been an increase in the number of international students educated in Scotland. Therefore an important area of future work is to examine the interaction between the education, training and labour markets for dentists in other countries and those in Scotland.

Chapter 2 showed that between academic years (AYs) 2006-07 and 2013-14 the Dental Undergraduate Bursary Scheme (DUBS) cost £18.3m. While this report included a very simple assessment of the impact of DUBS a more sophisticated evaluation may be warranted in order to inform the design of future recruitment and retention incentives.

Chapter 3 found that there is still very little routinely collected data on the activity and labour market outcomes of Dental Care Professionals (DCPs). Changes in the General Dental Service (GDS) regulations that allow DCPs to claim for GDS treatments will address this lack of data and provide a useful source of information to assess the impact of DCPs.

Chapter 4 showed a considerable increase in GDS registration rates and a reduction in the number of people registered with Denplan. The next Scottish Health Survey (SHeS), which is due to be published in December 2014, should provide more recent estimates of the utilisation of public and private sector dental services in Scotland. These estimates may be used to estimate the extent of the substitution between public and private sector dental services in Scotland.

Chapter 4 showed that while access to the NHS has improved considerably there are still relatively large variations in the degree of access between NHS boards. Future work might seek to understand the reasons behind this variation.

Appendix A

Quality assuring the dental workforce data

A.1 Data sources

The dental workforce data are combined from four sources:

1. Scottish Workforce Information Standard System (SWISS) provides information on Hospital, Community and Public Health Service (HCHS) dental staff and dentists;
2. Management Information and Dental Accounting System (MIDAS) provides information on salaried and non-salaried General Dental Service (GDS) dentists;
3. NHS Board collections provide information on salaried GDS dentists; and
4. NHS Education for Scotland (NES) provides information on Vocational Dental Practitioners (VDPs).

A.2 GDC numbers

The Dental Workforce Project uses five fields to produce many of the figures and tables used in this report: General Dental Council (GDC) number, age, sex, country of qualification and sector. The key field is the GDC number, which is a unique identifier for each dentist. This allows the stock of dentists to be calculated correctly on September 30th each year and the flows to be calculated correctly between years.

Unfortunately, not all dentists captured from SWISS have a GDC number reported. In these cases, a SWISS-specific unique identifier, the SWISS ID, is used instead.

The additional quality assurance work conducted by the Dental Workforce Project is an attempt to replace these SWISS IDs with GDC numbers. As a

result of this work the number of dentists reported in table 2.1 differs from the National Statistics reported by Information Services Division (ISD).

In an attempt to replace SWISS IDs with GDC numbers, the details of dentists were checked against the NHSScotland dental workforce data, the Scottish Dental Vocational Training Equivalence and Certification Committee (SDVTECC) data and the GDC register.

A.3 Country of qualification, year of qualification, year of registration

Once the GDC number was quality assured, additional information from the GDC register was linked to the dental workforce data. This included the dentist's country of qualification, year of qualification and year of registration.

A.4 Internal consistency of data fields

Occasionally, either the date of birth, sex, or both, of dentists differs between years. These fields are made consistent during the sample period by replacing each observation with the modal observation for each dentist.

A.5 Generic salaried dentists

GDC numbers that were not associated with individual dentists were excluded.

Appendix B

General Dental Service treatment trends

Total cost is defined as the sum of salaried and non-salaried General Dental Service (GDS) treatment fees and is expressed in 2013-14 prices by using the Gross Domestic Product deflator, which is a measure of general inflation in the domestic economy.

Figures B.1 to B.5 illustrate recent trends in the cost per course of treatment by age category of patients, their sex and the type of treatment they received [2].

Figure B.1 shows that the cost of Assessment and Diagnostic treatments per course remained constant in financial years (FYs) 2011-12 and 2012-13. The cost of Assessment and Diagnostic treatments per course decreased with age for people aged 16 and over.

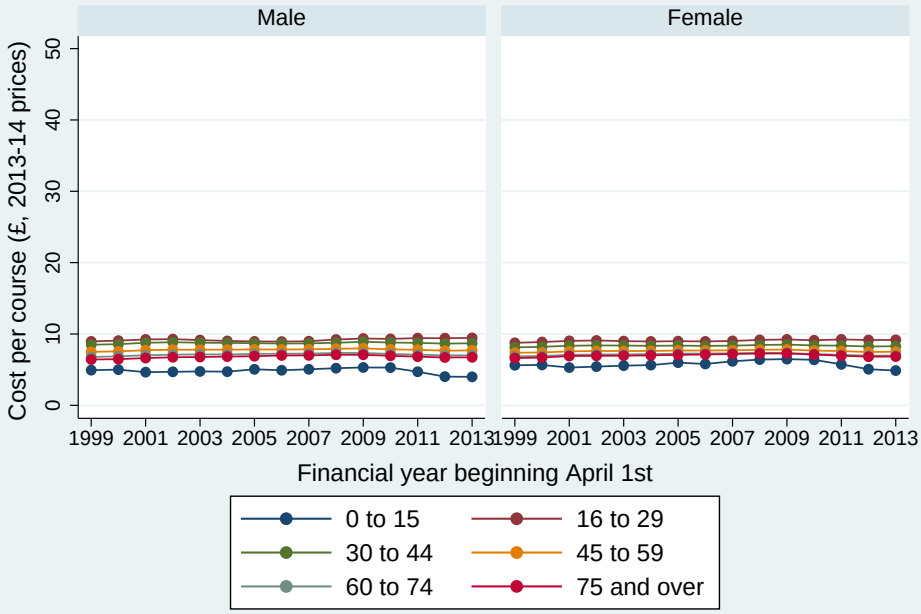
Figure B.2 shows that the cost of Core treatments per course decreased in FYs 2012-13 and 2013-14. The cost of Core treatments per course decreased with age for people aged 16 and over.

Figure B.3 shows that the cost of Complex treatments per course decreased in FYs 2012-13 and 2013-14. The cost of Complex treatments per course increased with age.

Figure B.4 shows that the cost of Orthodontic treatments per course increased for children aged 0 to 15 between FYs 2011-12 and 2012-13 but then decreased between FYs 2012-13 and 2013-14. The cost of Orthodontic treatments per course for people aged 16 to 29 in 2012-13 and 2013-14 was about the same as in 2011-12.

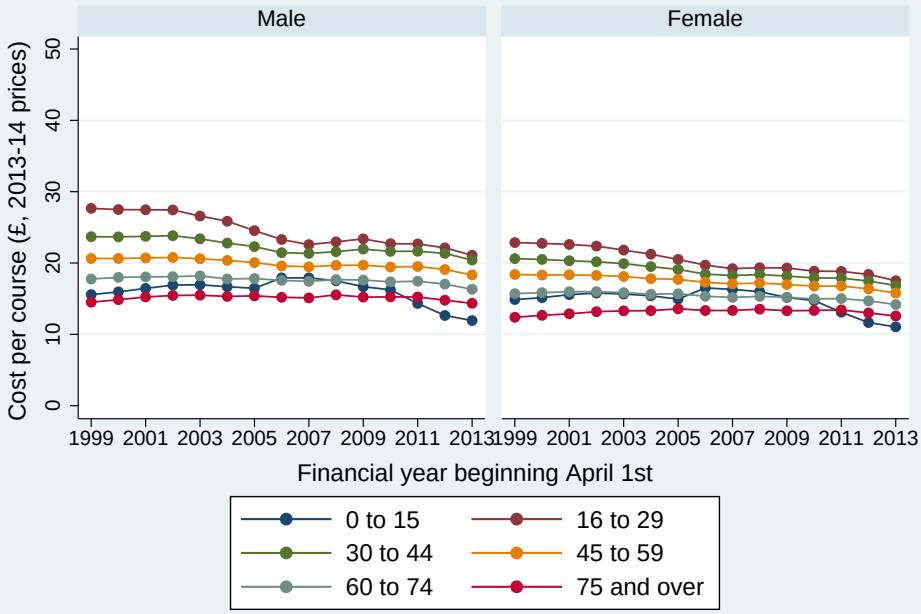
Figure B.5 shows that the cost of treatments Not Elsewhere Classified per course increased in FYs 2012-13 and 2013-14.

Figure B.1: Assessment and Diagnostic treatments



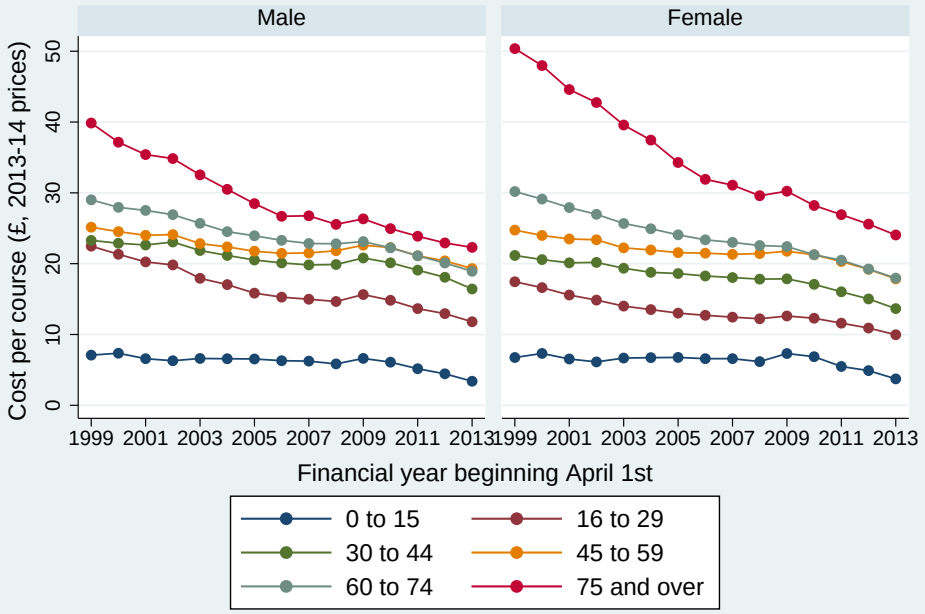
Source: ISD Scotland

Figure B.2: Core treatments



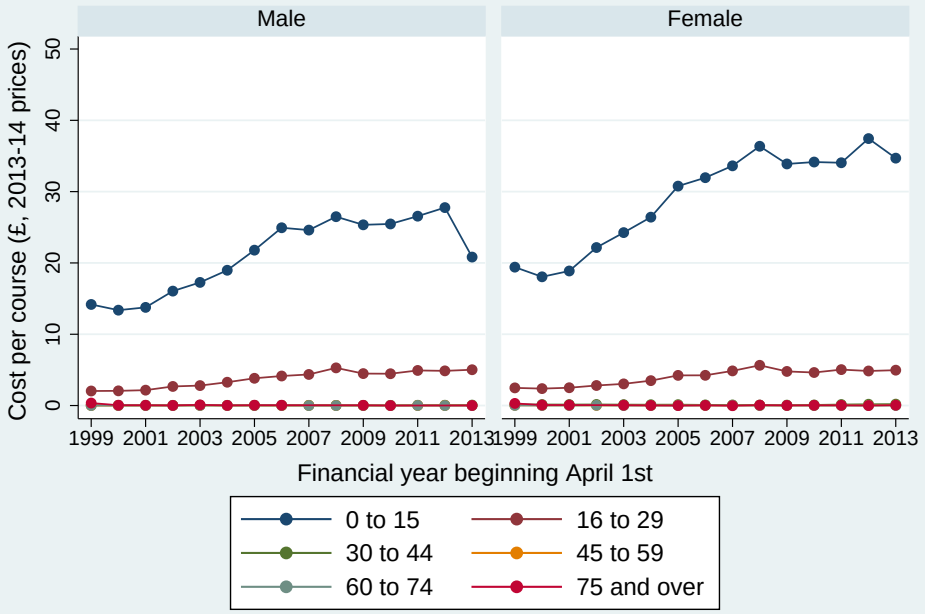
Source: ISD Scotland

Figure B.3: Complex treatments



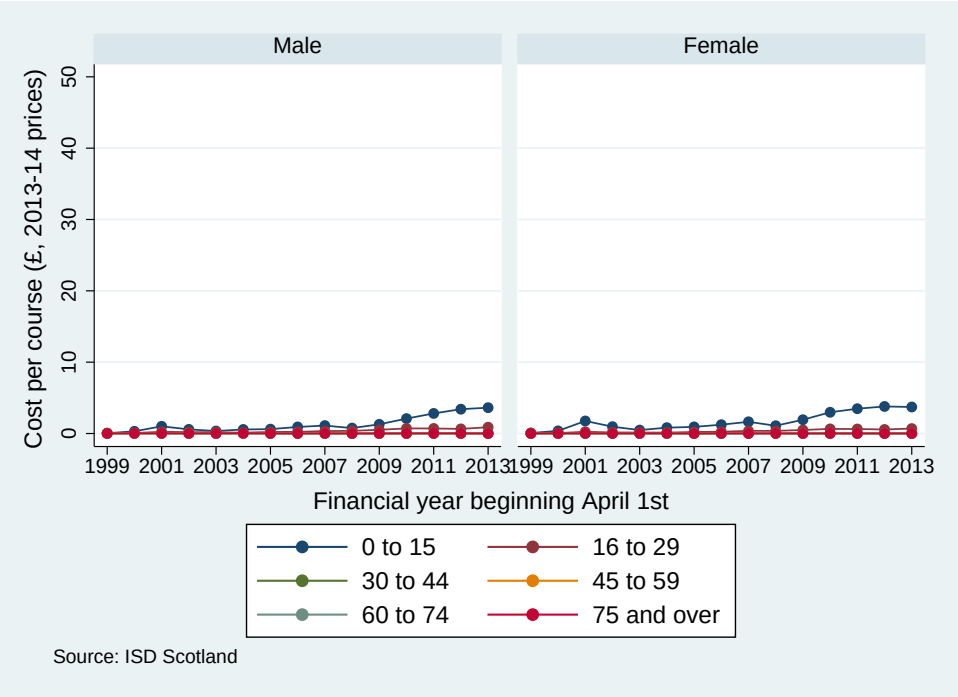
Source: ISD Scotland

Figure B.4: Orthodontic treatments



Source: ISD Scotland

Figure B.5: Treatments not elsewhere classified



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Abbreviations and acronyms

AA Annual Allowance

ACT (D) Additional Costs of Teaching (Dental)

AfC Agenda for Change

ASHE Annual Survey of Hours and Earnings

AY academic year

BDS Bachelor of Dental Surgery

BME Black and Minority Ethnic

BSc Bachelor of Science

CDS Community Dental Service

DAP Dental Action Plan

DCP Dental Care Professional

DN Dental Nurse

DTe Dental Technician

DUBS Dental Undergraduate Bursary Scheme

DVT Dental Vocational Training

EEA European Economic Area

EU European Union

GCU Glasgow Caledonian University

GDC General Dental Council

GDP General Dental Practitioner

GDS General Dental Service

GROS General Register Office for Scotland

HCHS Hospital, Community and Public Health Service

HDS Hospital Dental Service

HESA Higher Education Statistics Agency

HNC Higher National Certificate

HND Higher National Diploma

ISD Information Services Division

JA Jobseeker's Allowance

LTA Lifetime Allowance

MIDAS Management Information and Dental Accounting System

NEBDN National Examining Board for Dental Nurses

NES NHS Education for Scotland

NHSSSS National Health Service Superannuation (Scotland) Scheme

NSS NHS National Services Scotland

NVQ National Vocational Qualification

OHP Oral Health Practitioner

OHS Oral Health Science

PDA Professional Development Award

PDS Public Dental Service

RUK Rest of UK

SDVTECC Scottish Dental Vocational Training Equivalence and Certification Committee

SFC Scottish Funding Council

SG Scottish Government

SGHSCD Scottish Government Health and Social Care Directorates

SHeS Scottish Health Survey

SIMD Scottish Index of Multiple Deprivation

SOC Standard Occupational Classification

SQA Scottish Qualifications Authority

SVQ Scottish Vocational Qualification

SWISS Scottish Workforce Information Standard System

TUSE Total Uprated Superannuable Earnings

UCAS University and College Admission Service

UHI University of the Highlands and Islands

UK United Kingdom

VDP Vocational Dental Practitioner

VTN Vocational Training Number

WTE whole-time equivalent


NHS
Education
for
Scotland