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Skills for Health Workforce Review for Dental Services in Northern Ireland

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Executive Summary

The future of Dental services in Northern Ireland are facing a range of challenges which will require changes to the future Dental workforce. The changes in demand, the changing shape and availability of the current workforce, alongside financial challenges all point towards the need to ensure future challenges are met with the required workforce changes.

This paper maps the likely changes in demand for Dental services, assesses future models for the Dental workforce, highlights current workforce difficulties, and sets out recommendations for future action. The key finding are:

- The changing shape of the population, falling birth rates and people living longer, will drive the need for the primary dental care services to have sufficient staff with the appropriate skills to meet the significant challenges of providing dental care to older people.
- There are projected population changes from 2015 to 2025 and 2035. For children, a slight increase & then a fall back is projected. For adults <65, a slight fall is projected. For > 65s and > 85s, large increases are projected. The number of >85s is likely to more than double in the 20 years to 2035.
- Changes in ownership, location, scope and scale of practices in future may influence the shape of the future workforce. The role of corporates and practice takeovers may indicate a growing focus on efficiency and on a private offering to patients
- Option 3 suggests a need for an additional 30 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 247 headcount additional dentists by 2025. As a result there is a need for the Department of Health to ensure the current routes for the supply of dentists are maintained.
- The major impact on the projected numbers in the preferred option 3 is an increase in the number of required dental nurses by 148, based on their much greater role in prevention activities and the expansion of their roles and responsibilities. This will require, given the current education and training throughput for Dental Nurses, the DOH and partners to ensure there is a robust education pathway to deliver the future numbers required.
- It is clear there is shortage of dental nurses in Northern Ireland. The figures indicate that there are vacancies accounting for 10% of dental nurse positions. This is clearly a serious issue which poses challenges for future appropriate skill mix. It is recommended that both national and local bodies should explore the challenges regarding the supply of Nursing staff, including training provision, how to stimulate local supply, career development pathways, and how to make dental nursing an attractive role both locally and nationally.
- The provision of dental nurse training within Northern Ireland should provide a basis for ensuring any changes to the skill mix across the dental nurse workforce are potentially viable if education and training is developed locally which matches need. The DOH should explore the potential for current dental nurse training provision to encompass advanced practice to meet the skills likely required in the future.
- Many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result an additional 36 community dentists could be required by 2025, meaning a total number of 61 additional dentists to meet future demand. As a result, there is a need to explore the attractiveness and development of community dentistry roles in order to meet future demand.
- The prospect of a Foundation Degree in Dental Science should be fully explored to assess whether the likely increased costs of such courses would be justified by and provide the skill mix required within the dental nurse workforce set out in option 3 above. In particular, this should be a priority based on the likely lack of supply of hygienists, dental therapists etc.

Introduction

The challenges facing Dental services in Northern Ireland are many and varied. The combination of increasing complexity and volume of service demand, plus intense pressure on resources and workforce challenges has placed pressure on services to ensure they are ready to face the challenges of the future.
Workforce plans are required to ensure that people with the right skills, competences, values and behaviours are able to meet patient/client needs through innovative approaches to service delivery.

What is Workforce Planning?

Workforce Planning is about ensuring organisations have the people needed, when they are needed. It involves designing, developing and delivering the future workforce.

Workforce Planning Is:

Not Just	**It Is**
Predicting the future	Building a longer-term context for short-term decision making
An inventory of all positions	Focusing on positions where you need to be proactive or need time to react
Creating plans as a onetime "event"	Creating plans in response to changing strategies, whenever change is discussed
Creating reports that describe "what was"	Focusing on planning and looking ahead to what will be"

> "**Effective workforce planning will ensure that we have a workforce of the right size with the right skills and diversity organised in the right way, delivering the services needed to provide the best patient care**"
>
> (Skills for Health, 2014).

The Six Steps Methodology

In developing this plan, Skills for Health 'Six Steps Methodology to Integrated Workforce Planning' has been applied to examining the future workforce needs of dental services in Northern Ireland.

Figure 1 shows the outline of the six steps and the issues that are considered at each step of the process.

Figure 1: The Six Steps Methodology to Integrated Workforce Planning

Step 1: Defining the Plan

GOAL: TO DETERMINE THE PARAMETERS, SCOPE AND OBJECTIVES OF THE PLAN

Identify the rationale and scope of the plan and for whom it is intended. It must be clear why a workforce plan is required and what it will be used for. Including determining the scope of the plan: whether it will cover a single service area, a particular patient pathway or a whole health economy and, given this, be clear who is responsible for ensuring the plan is delivered and who else will need to be involved in the planning process.

1.1	PURPOSE – what's the rational for the plan, who needs to be involved
	• What are the aims/objectives of the plan? • What will a good workforce plan enable you to do? • Who initiated the plan and why? • Who will the plan impact upon?
	Dental services in Northern Ireland are facing challenges which require a strategic review of the current configuration and workforce profile of these services. This review encompasses as far has been possible the range of dental professional services currently provided. The DOH is seeking to use this review to inform decisions as to the future shape of dental service provision in Northern Ireland and decisions concerning future workforce requirements, workforce development and the commissioning of education and training. The first stage of this review focused on the current operation of dental services both in Northern Ireland and other relevant areas across the UK for comparison purposes, including current workforce structures, service provision and education and training. It includes profiling of the current dental workforce in Northern Ireland drawn from existing information sources, including trends and the strategic direction proposed for the future dental workforce in Northern Ireland and other parts of the UK. The final stage of the review presented here includes development of a workforce plan (including options) and associated workforce development implications, based on the findings in the first stage review. **The limitations** of this report are concerned with: • **Data**. The data available to Skills for Health was incomplete and, for some aspects of dental services, unavailable. The report is based on the data made available during the course of the review.

1.2	SCOPE – define the scope once you have clarity about the rationale and the decisions it supports
	• What geographical area is covered by the plan? • Identify the services and organisations it covers (e.g. include any satellite services provided) • Identify the staff groups that are covered? • What client groups does the plan cover?
	This workforce plan covers the whole of the Northern Irish dental workforce, with a particular emphasis on the GDS services and therefore the GDS workforce. This includes: • Dental Practitioners • Dental Nurses • Dental Technicians • Dental Hygienists • Dental Therapists The client group covered by the plan are all those utilising dental services across all age ranges and needs profiles.
1.3	OWNERSHIP
	• Who owns the Workforce Plan? • Who needs to be involved both internally and externally? • Who needs to be influenced if the plan is to be successful? • Do all stakeholders understand their part/contribution required & are signed up to achieving this plan? If not, what actions can be taken to engage stakeholders?
	This workforce plan has been produced by Skills for Health, with ultimate ownership held by DOH. A wide range of organisations and individuals have been involved, through a variety of means, including consultation on key documents, steering group meetings and facilitated workshop discussions. In order for the proposed development of the workforce to happen, there will need to be involvement from a range of stakeholders including dental practices, education and training providers, DOH, regulatory bodies and others. It will be for DOH to determine the most effective route for engagement regarding sharing the findings from this report.

Step 1 Key Findings and Recommendations

Key Findings

- The final stage of the review presented here includes development of a workforce plan (including options) and associated workforce development implications, based on the findings in the first stage review.
- This workforce plan covers the whole of the Northern Irish dental workforce, with a particular emphasis on the GDS services and therefore the GDS workforce.

Recommendations

- In order for the proposed development of the workforce to happen, there will need to be involvement from a range of stakeholders including dental practices, education and training providers, DOH, regulatory bodies and others. A steering group should be set up to help steer the implementation of a workforce plan, reflecting the range of stakeholders above.

Stage 2: Map the service change - Design the Future Shape of the Service

GOAL: TO DETERMINE THE MODEL AND SHAPE OF FUTURE SERVICES

2.1 GOALS/BENEFITS OF CHANGE

- The changing shape of the population, falling birth rates and people living longer, will drive the need for the primary dental care services to have sufficient staff with the appropriate skills to meet the significant challenges of providing dental care to older people.
- Changing consumer demands to increase the popularity of treatments not available under the Health Service.
- The need to ensure that appropriate technological developments are adopted in primary dental services.
- The need to use therapists/hygienists/dentists (subject to a full business case, cost benefit analysis and affordability review) to take preventive intervention to those who need it.
- With increased tooth retention, more dental treatment & maintenance are needed over a person's lifetime.
- The lack of equitable access to a GDS dentist across Northern Ireland and need to increase declining levels of registration in some parts of Northern Ireland.
- The dentistry has become a predominantly female profession.
- Although dentist to population ratios were higher in Northern Ireland in 2006 than other UK countries, there was considerable variation between the four Health & Social Services Boards within Northern Ireland.
- GDPs spend 86% of their working week in Health Service dentistry (based on a DOH survey in November 2004), estimated to decrease by 17% over the next ten years (a survey of GDPs in 2006 suggested this drop could be 35% if things remained unchanged). (N.B. This has now actually changed to around 75%, a drop of 11%).
- There were data limitations on the Dental Care Professional workforce. The strategy highlighted the potential for making greater use of this workforce the Northern Ireland primary dental care system.

2.2 CURRENT BASELINE SUMMARY

In order to be able to ensure that changes to service configuration achieve the desired benefits, it is important to understand current costs and current performance measures. What are the current costs and outcomes under the current models? What is the basis of the current service model that you will be building on?

- There has been a big improvement in children's dental health, largely due to community programmes. For example, the target for reduced dental decay in 5 year old children set in 2003 has been exceeded. (Risks: increased expectations may increase future demand on CDS services; further increase in prevention).
- There is a large decline in edentate adults from 1976 (33%) to 2009 (7%). Northern Ireland is now only just behind England. 77% of adults had 20 or more natural teeth in 2009, ahead of Wales & Scotland, just less than England. (Risks: this may increase demand on GDS services in later years due to increased levels of maintenance).
- 60% of adults are now going for regular check-ups, a big increase from 1988 to 2009. (Risks: this may increase demand on GDS services; there may be additional demand for preventive work).
- 64% of the Northern Ireland population attempted to make a Health Service appointment in the 3 years to 2009, higher than England & Wales. 92% were successful. (Risks: increased demand on GDS services).
- Large increases in registration levels 2009 to 2014 increased the registered population by 30%. (Risk: the effect will be to increase GDS workloads further (maintenance of adult teeth).
- Health inequalities are still present in NI. Risks of decay are higher for children in deprived areas, who are less likely to be registered at a dentist. However, the gap between most deprived and least deprived has narrowed from 2009 (19%) to 2014 (10%), due to improved access. (Risks: how to influence workforce distribution to reduce the deprivation gap further).
- There was a 36% increase in the numbers of >65s from 1991 to 2014, but the number of >65s fell in Belfast by 4%. There was an overall fall in the number of children of 8%, the highest falls in Belfast (16%) & Western (18%). Overall the population fell in Belfast by 1%, rose in Southern by 27%. (Risks: N/A, historical data).
- There are projected population changes from 2015 to 2025 and 2035. For children, a slight increase & then a fall back is projected. For adults <65, a slight fall is projected. For > 65s and > 85s, large increases are projected. The number of >85s is likely to more than double in the 20 years to 2035. (Risk: need to build up services for older people, which will have implications for General, Community and Hospital Dental Services; this may require additional DCPs).
- Increase in GDS workloads. (Risk: increased pressure may reduce morale & health service commitment).
- Increased demand for orthodontic services. (Risk: increased private sector workforce demand).
- A drive for practice efficiency. (Risk: potential increased demand for DCPs).

2.3 FUTURE MODEL DESIGN, the DRIVERS and CONSTRAINTS

What are the forces that support the service change? What are the forces that hamper change?

- To what extent and how will the new dental contracts in Northern Ireland influence the shape of the future dental workforce? The extent to which the new contract prioritises prevention could be significant in influencing different skill mix models. (Risks: the implications for GDS are uncertain; if GDS expenditure is reduced then there is a potential future risk of workforce oversupply).
- The new contract may impact on skill mix models used in GDS practices. (Risk: if new skill mix models are adopted this may increase demand for DCPs, but without the training capacity and reduce demand for GDPs).
- Budget constraints may affect GDS (GDS), which have overspent because of significant increases in registration levels from 63% of children and 42% of adults in 2009/10 to 75% of children and 57% of adults in 2015. (Risks: Further increases in adult registration levels are likely to increase treatment levels and hence GDS workforce demand, but will also increase spending unless managed within a new contract).
- Projected population changes (↑older people) may increase demand for hospital & community dental services.
- The burden of regulation might encourage the rise of corporates. (Risks: Health Service capacity may fall, but the extent of this is uncertain).
- Extensions to scope of practice for DCPs create new skill mix opportunities. (Risk: if new skill mix models are adopted this may increase demand for DCPs, but without the training capacity and reduce demand for GDPs).

Patient and practice preferences

Patient preferences

The changing consumer preferences of dental service patients could influence the shape of the future workforce, since these preferences may impact on location and the scope of practices. Increased demand for adult orthodontic and other treatments, which may not be provided by the Health Service, may impact on the dental workforce. Demand for adult orthodontic treatment is rising, which may be due to market competition. Adult orthodontic provision is largely outside the Health Service, although there is increasingly some HS provision. There appears to be sufficient private sector specialist orthodontic capacity to manage increased demand, potentially reducing the need for postgraduate orthodontic training for GDPs. Patients also appear to be demanding a more personalised GDS service and more engagement with their dentist, which may of course not be possible within the resource constraints of publicly funded GDS Health Service dentistry, similarly to other aspects of healthcare.

Practice preferences

Changes in ownership, location, scope and scale of practices in future may influence the shape of the future workforce. The role of corporates and practice takeovers may indicate a growing focus on efficiency and on a private offering to patients, which may require workforce changes to deliver to new requirements (e.g. the DCP workforce). The significant rise in the number of GDS dentists compared to a more modest rise in the number of GDS practices would point to a larger practice size model being utilised.

Corporates tend to employ associates, as do the vast majority of practices. Associates work fewer total hours than GDS principals, but their clinical commitment forms a higher proportion of their working week, as much less of their time is spent on administration and management.

Technology

Changes in technology create opportunities to increase the scope of care and, potentially, the quality of care. Such changes may affect the shape of the future dental care workforce. There is a need to ensure that these are adopted in primary dental services, which required both investment and training. There may be opportunities to use changing technologies to underpin new service models that could help community dental services manage the increased number of older people in the population of Northern Ireland.

The cost, and cost-effectiveness, of such technology will be important. The speed of change is also relevant, but it is uncertain how quickly change will come.

2.4 OPTIONS APPRAISAL

What different scenarios for service change have been considered?

Given the information contained within this workforce plan regarding the current workforce, the supply of the dental workforce, and the wider context of dental services in Northern Ireland it is possible to make some projections regarding the potential workforce required to meet future requirements. This section will take as its planning horizon as 2025. However, it is important to recognise that there are many 'unknowns' in this process. The exact demand for future services, the specific number of staff joining or leaving dental services, the progress of a possible new contract for Health Service dental services and so on, all contribute to a complex and changeable picture.
Nevertheless, it is possible to project broad trends which can allow us to paint 3 possible futures for the dental workforce. The first approach outlined below and include:

- the 'Steady state' option - sets out the likely workforce implications of a steady state approach i.e. assumes that the current context and configuration of the workforce and services are maintained, but looks at expansion of the workforce as the most appropriate method of meeting future needs.

- The second approach – the 'DCP development' option – looks at the implications of a revised approach to workforce structure and service delivery, particularly focused on prevention, in order to set out what impact this might have.
- The 'Dental Nurse extended practice' option, using many of the assumptions of option 2, focuses on the implications of much of the DCP prevention activity being potentially undertaken by extended practice Dental Nurses.

The assumptions underpinning these approaches will be set out below. It is important to note that these projections are not seen as 'right' or 'wrong' but are designed to stimulate further planning for the future of the dental workforce in Northern Ireland and flush out issues which can form part of a more comprehensive assessment of potential required actions.

Option 1 – Steady state

Assumptions
Recognises that there is a predicted population increase of 5% through to 2025 but assumes stable patterns of treatment
That the current contract for Health Service dental work remains in place
That there will be increasing levels of retirements (e.g. 217 dentists possibly required by 2025). For the DCP workforce there is limited data so an assumed attrition rate through retirement of 10% is assumed over the period to 2025
Feminisation of the dentist workforce will increase through to 2025 (based on training flows)
Assumes same broad model of HS activity as today with the vast majority of work undertaken in practice rather than in hospital or community settings
That the split of private/HS activity remains broadly stable

GDS Dentists

Numbers of Health Service GDS Dentists in Northern Ireland 2025 based on population increase 5%

GDS Dentists	2025	2015	2014	2013	2012	2011	2010	2009	2006
Total	1109	1057	1056	1049	1044	1020	902	853	790

Source: Northern Ireland GDS dentist numbers, HSC Business Services Organisation Northern Ireland

The table above shows, as a result of a 5% increase in population by 2025, a need for an additional 52 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 269 headcount additional dentists by 2025.

Registered DCPs in Northern Ireland

Staff category	2025	2015	2002
Orthodontic therapist	17	16	0
Dental therapist	32	30	11
Dental technician	207	197	216
Dental nurse	1997	1902	1103
Dental hygienist	120	114	64

Source: General Dental Council website 2015 and DOH Northern Ireland Primary Dental Care Strategy 2006

The table above shows the likely required increase in DCP roles based on a population increase of 5%. However, these figured do not include expected retirement levels – there is limited data available on the age profile of the DCP

workforce so it is difficult to ascertain the likely impact of retirement levels. However, an assumed rate of attrition of 5-10% is not unreasonable by 2025 and this should be factored into the figures above regarding required headcount to ensure a more accurate picture of the DCP workforce pending more detailed information on the current DCP workforce.

Community Dental Services

HSC Community Dental Service Workforce in Northern Ireland – Headcount

	2025	2015
	No.	No.
Dentists	**97**	**92**
DCPs	**12**	**11**
Oral Health	**8**	**7**
Dental Nurses	**143**	**136**
Total	**260**	**246**

Source: DOH Northern Ireland Annual HSC workforce census

We can see above that there is expected in this projection to be an increase of 14 community services staff members through to 2025. However, many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result an additional 36 community dentists could be required by 2025, meaning a total number of 41 additional dentists to meet future demand. There are also significant retirement issue for DCPs/Oral Health Promotion Professionals, 9 of whom could retire by 2025 (50% of the workforce). This implies an additional 11 DCP/Oral Health staff in order to meet future demand.

Hospital Dental Services

This includes 74 hospital dentists (31 consultants; 13 SAS Grade; 8 Specialty/Specialist Registrars; 22 Foundation/SHOs). Based on population growth to 2025 these are expected to increase to 78 by headcount. However, there is limited information on the age profile of the hospital dentist cohort which makes assumptions regarding attrition difficult to gauge. Nevertheless an assumption of 5-10% attrition through retirement is reasonable and should be factored in to the above figures.

Option 2 – **Therapist/Hygienists/Technicians** led change

Assumptions
Potential move to greater preventative treatment
Reduced funding as a result of wider budget pressures (linked to new model of HS contract)
Further reduction in time spent on GDS dentistry, following the recent downward trend, to 71% could result in need for 53 GDS dentists
Community services expand in response to increasingly elderly population by 2025 (over 65s up by 27%, over 85s up by 50%)
Increasing use of hub delivery models – increase workforce flexibility on new roles
Utilisation of greater numbers of DCP staff resulting in a move to wider UK averages of skill mix

The table below shows that the use made in Northern Ireland of dental hygienists and therapists is less than elsewhere in the UK. There are more dentists (and, therefore, dental nurses) per 100,000 population than in other countries in the UK. The relative use of skill mix may be a reflection of the contractual model used for GDS in Northern Ireland. However, dental health factors may account for the relatively high number of GDS dentists in Northern Ireland.

Staff	Northern Ireland		England		Wales		Scotland	
	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100,000 population
Orthodontic therapist	16	0.86	362	0.67	23	0.74	44	0.83
Dental therapist	30	1.6	2275	4.2	114	3.7	223	4.2
Dental technician	197	10.6	5422	10.1	265	8.5	548	10.3
Dental nurse	1902	102.8	43141	80	2578	83.2	5796	109.4
Dental hygienist	114	6.2	5558	10.3	275	8.9	614	11.6
Dentists	1548	86.7	31857	59.1	1677	54.1	3976	75.0

Nevertheless, this projection rests on the assumptions above which point towards an increasing emphasis on prevention, the expected large increase in the elderly population, changes in the amount of time spent on GDS activity, and greater use of skill mix across dental services. As a result, although difficult to predict with great certainty due to the various factors influencing the delivery of future services (not least of which is the proposed new contract for GDS activity) it is possible to make some central assumptions of the impact such trends may have on the dental workforce through to 2025 as a counterpoint to the 'maintenance' approach above. It is important to note that the figures presented below include the projected population increases and retirement profiles (where known) contained in the 'steady state' option.

GDS Dentists

Numbers of Health Service GDS Dentists in Northern Ireland 2025 based on population increase 5%

GDS Dentists	2025	2015	2014	2013	2012	2011	2010	2009	2006
Total	1087	1057	1056	1049	1044	1020	902	853	790

Source: Northern Ireland GDS dentist numbers, HSC Business Services Organisation Northern Ireland

We would expect to see a material, but relatively limited, change in the required number of future dentists under this projection as compared to the 'steady state' projection above. This is due to the expectation that we would see some displacement of activity based on greater use of a wider skill mix within dental services through greater use of hygienists, therapists and technicians and an emphasis on prevention potentially impacting by reducing demand for dentists' services. This has to be seen alongside a reduction in the time spent on GDS services by dentists from 75% to 71% by 2025 (thereby reducing capacity) and the increase in the population by this time. As a result a major shift in the numbers of dentists required is unlikely. The table above shows, as a result of a 5% increase in population by 2025, a need for an additional 30 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 247 headcount additional dentists by 2025.

Registered DCPs in Northern Ireland

Staff category	2025	2015	2002
Orthodontic therapist	17	16	0

Dental therapist	43	30	11
Dental technician	207	197	216
Dental nurse	1997	1902	1103
Dental hygienist	158	114	64

Source: General Dental Council website 2015 and DOH Northern Ireland Primary Dental Care Strategy 2006

The DCP workforce is potentially the area of the dental workforce where the largest impact would be felt of a move to a greater emphasis on prevention. Using the wider skill mix figures across the UK above, we can make a central assumption regarding the development of the DCP workforce in Northern Ireland by 2025. This assumption does not look to replicate the skills mix seen elsewhere in the UK as it is recognised that differences are partly due to geographical and population differences between areas. However, taking the mid-point of difference between the wider UK skill mix figures and the current situation in Northern Ireland we can project figures for the DCP workforce indicating the potential impact this would have. In particular, the main implications are for the Dental Therapist and Dental Hygienist roles which see a relatively large increase as compared to other DCP roles which remain largely unchanged from the 'maintenance' projections.

Community Dental Services

HSC Community Dental Service Workforce in Northern Ireland – Headcount

	2025	**2015**
	No.	**No.**
Dentists	**117**	**92**
DCPs	**25**	**11**
Oral Health	**11**	**7**
Dental Nurses	**160**	**136**
Total	**313**	**246**

Source: DOH Northern Ireland Annual HSC workforce census

Given the dramatic increase in the elderly population in Northern Ireland expected by 2025 Community Dental Services is the area of service expected to be most affected within this projection. There is significant historical and projected growth in the frail older population (65+ increasing by 37%, 85+ increasing by 50%). These changes are likely to require new models of delivery, using integrated care partnerships with other services. More time is needed to care for older people, and care has to be patient focused. The community may be best placed to deliver care to some older people, but skill mix may become more of an issue due to the difficulties regarding access to services and the nature of services provided to this cohort. The likely increase in care home numbers will pose challenges for community dental services, and again new models of care & technologies will need to be considered.

We can see above that there is expected in this projection to be an increase of 67 community services staff members through to 2025. However, many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result an additional 36 community dentists could be required by 2025, meaning a total number of 61 additional dentists to meet future demand. There are also significant retirement

issue for DCPs/Oral Health Promotion Professionals, 9 of whom could retire by 2025 (50% of the workforce). This implies an additional 27 DCP/Oral Health staff in order to meet future demand.

Hospital Dental Services

This includes 74 hospital dentists (31 consultants; 13 SAS Grade; 8 Specialty/Specialist Registrars; 22 Foundation/SHOs). Based on population growth to 2025 these are expected to increase to 78 by headcount. Given the specialist nature of these services this projection does not anticipate material difference between the earlier 'maintenance' projections. However, again, there is limited information on the age profile of the hospital dentist cohort which makes assumptions regarding attrition difficult to gauge. Nevertheless an assumption of 5-10% attrition through retirement is reasonable and should be factored in to the above figures.

Option 3 – 'Dental Nurse Extended Practice' led change

Assumptions
Potential move to greater preventative treatment linked to changing needs of the population
Reduced funding as a result of wider budget pressures (linked to new model of HS contract)
Further reduction in time spent on GDS dentistry, following the recent downward trend, to 71% could result in need for 53 GDS dentists
Community services expand in response to increasingly elderly population by 2025 (over 65s up by 27%, over 85s up by 50%)
Increasing use of hub delivery models – increase workforce flexibility on new roles
Utilisation of greater numbers of Dental Nurses staff resulting in a move to more efficient and effective skill mix

The table below shows that the use made in Northern Ireland of dental nurses is significantly higher than in England and Wales. There are more dentists per 100,000 population than in other countries in the UK. The relative use of skill mix may be a reflection of the contractual model used for GDS in Northern Ireland. However, dental health factors may account for the relatively high number of GDS dentists in Northern Ireland.

Staff	Northern Ireland		England		Wales		Scotland	
	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100,000 population
Orthodontic therapist	16	0.86	362	0.67	23	0.74	44	0.83
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Dentists	1548	86.7	31857	59.1	1677	54.1	3976	75.0

Nevertheless, this projection rests on the assumptions above which point towards an increasing emphasis on prevention, the expected large increase in the elderly population, changes in the amount of time spent on GDS activity, and greater use of skill mix across dental services. As a result, although difficult to predict with great certainty due to the various factors influencing the delivery of future services (not least of which is the proposed new contract for GDS activity) it is possible to make some central assumptions of the impact such trends may have on the dental workforce through to 2025 as a counterpoint to the 'Steady state' and 'DCP led' approaches above. It is important to note that the figures presented below include the projected population increases and retirement profiles (where known) contained in the 'Steady state' option.

GDS Dentists

Numbers of Health Service GDS Dentists in Northern Ireland 2025 based on population increase 5%

GDS Dentists	2025	2015	2014	2013	2012	2011	2010	2009	2006
Total	1087	1057	1056	1049	1044	1020	902	853	790

Source: Northern Ireland GDS dentist numbers, HSC Business Services Organisation Northern Ireland

We would expect to see a material, but relatively limited, change in the required number of future dentists under this projection as compared to the 'steady state' projection above. This is due to the expectation that we would see some displacement of activity based on greater use of a wider skill mix within dental services through greater use of extended practice nursing roles and an emphasis on prevention potentially impacting by reducing demand for dentists' services. This has to be seen alongside a potential reduction in the time spent on GDS services by dentists from 75% to 71% by 2025 (thereby reducing capacity) and the increase in the population by this time. As a result a major shift in the numbers of dentists required is unlikely. The table above shows, as a result of a 5% increase in population by 2025, a need for an additional 30 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 247 headcount additional dentists by 2025.

Registered DCPs in Northern Ireland

Staff category	2025	2015	2002
Orthodontic therapist	17	16	0
Dental therapist	35	30	11
Dental technician	200	197	216
Dental nurse	2050	1902	1103
Dental hygienist	120	114	64

Source: General Dental Council website 2015 and DOH Northern Ireland Primary Dental Care Strategy 2006

The dental nurse workforce is potentially the area of the dental workforce where the largest impact would be felt of a move to a greater emphasis on prevention, where extended practice is utilised more widely. Using the wider skill mix figures across the UK above, we can make a central assumption regarding the development of the DCP workforce in Northern Ireland by 2025. This assumption does not look to replicate the skills mix seen elsewhere in the UK as it is recognised that differences are partly due to geographical and population differences between areas. The major impact on the projected numbers in this option is an increase in the number of required dental nurses based on their much greater role in prevention activities and the expansion of their roles and responsibilities. As a result the number of DCPs, compared to option 2 above, is subsequently reduced due to any needs being primarily met through the extended dental nurse role.

Community Dental Services

HSC Community Dental Service Workforce in Northern Ireland – Headcount

	2025	2015
	No.	**No.**
Dentists	**117**	**92**
DCPs	**13**	**11**

Oral Health	**9**	**7**
Dental Nurses	**174**	**136**
Total	**313**	**246**

Source: DOH Northern Ireland Annual HSC workforce census

Given the dramatic increase in the elderly population in Northern Ireland expected by 2025 Community Dental Services is the area of service expected to be most affected within this projection. There is significant historical and projected growth in the frail older population (65+ increasing by 37%, 85+ increasing by 50%). These changes are likely to require new models of delivery, using integrated care partnerships with other services. More time is needed to care for older people, and care has to be patient focused. The community may be best placed to deliver care to some older people, but skill mix may become more of an issue due to the difficulties regarding access to services and the nature of services provided to this cohort. The likely increase in care home numbers will pose challenges for community dental services, and again new models of care & technologies will need to be considered.

We can see above that there is expected in this projection to be an increase of 67 community services staff members through to 2025. In this option the bulk of the increase is made up of dental nurses with the underlying assumption that extended practice will allow nurses to perform a greater share of activity which would otherwise be undertaken either by dentists or DCP staff. However, many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result, an additional 36 community dentists could be required by 2025, meaning a total number of 61 additional dentists to meet future demand. There are also significant retirement issue for DCPs/Oral Health Promotion Professionals, 9 of whom could retire by 2025 (50% of the workforce).

Hospital Dental Services

This includes 74 hospital dentists (31 consultants; 13 SAS Grade; 8 Specialty/Specialist Registrars; 22 Foundation/SHOs). Based on population growth to 2025 these are expected to increase to 78 by headcount. Given the specialist nature of these services this projection does not anticipate material difference between the earlier 'maintenance' projections. However, again, there is limited information on the age profile of the hospital dentist cohort which makes assumptions regarding attrition difficult to gauge. Nevertheless, an assumption of 5-10% attrition through retirement is reasonable and should be factored in to the above figures.

Step 2 Key Findings and Recommendations

Key Findings

- The changing shape of the population, falling birth rates and people living longer, will drive the need for the primary dental care services to have sufficient staff with the appropriate skills to meet the significant challenges of providing dental care to older people.
- With increased tooth retention, more dental treatment & maintenance are needed over a person's lifetime.
- There are projected population changes from 2015 to 2025 and 2035. For children, a slight increase & then a fall back is projected. For adults <65, a slight fall is projected. For > 65s and > 85s, large increases are projected. The number of >85s is likely to more than double in the 20 years to 2035.
- The proposed new GDS contract may impact on skill mix models used in GDS practices.
- Budget constraints may affect GDS, which have overspent because of significant increases in registration levels from 63% of children and 42% of adults in 2009/10 to 75% of children and 57% of adults in 2015.
- Changes in ownership, location, scope and scale of practices in future may influence the shape of the future workforce. The role of corporates and practice takeovers may indicate a growing focus on efficiency and on a private offering to patients

Recommendations

The preferred Option 3 – 'Dental Nurse Extended Practice' led change suggests the following workforce changes:

- A need for an additional 30 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 247 headcount additional dentists by 2025. As a result there is a need for the DOH to ensure the current routes for the supply of dentists are maintained.
- The major impact on the projected numbers in this option is an increase in the number of required dental nurses by 148 WTE based on their much greater role in prevention activities and the expansion of their roles and responsibilities. This will require, given the current education and training throughput for Dental Nurses, the DOH and partners to ensure there is a robust education pathway to deliver the future numbers required.
- Many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result an additional 36 community dentists could be required by 2025, meaning a total number of 61 additional dentists to meet future demand. As a result, there is a need to explore the attractiveness and development of community dentistry roles in order to meet future demand.
- There are also clear issues for the DCP workforce in Community Services due to increases in demand alongside significant retirement issue for Oral Health Promotion Professionals, 9 of whom could retire by 2025 (50% of the workforce). Again, as a result of this future demand, assessing the attractiveness of Community Service DCP roles, and ensuring the appropriate skills are in place, should be a priority for DOH.

Step 3: Defining the required workforce - Workforce Demand

GOAL: IDENTIFY THE WORKFORCE NEEDED, THE SKILLS AND THE TYPE/NUMBER OF STAFF REQUIRED TO DELIVER THE NEW SERVICE MODEL (WORKFORCE DEMAND)

This step involves identifying the workforce needed to deliver the reconfigured services, the skills needed by the workforce and the types and numbers of staff required. Planning workforce demand needs to be done as an integral part of the wider service and financial planning process.

Workforce demand will be driven by the planned delivery of services but workforce is also a limited resource, like finance, which may constrain the services that can be delivered.

3.1 ACTIVITY ANALYSIS

Need and demand for current and future dental services in Northern Ireland

Dental health and access

2006 Primary dental care strategy

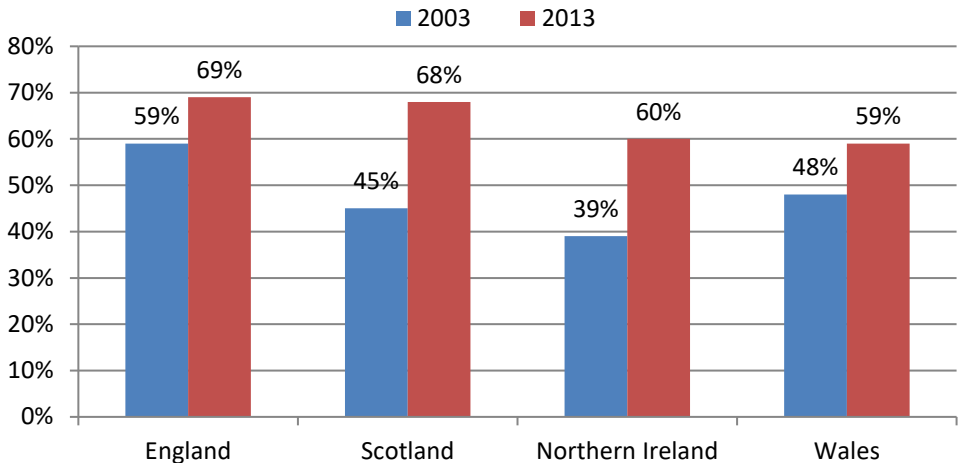
The 2006 Primary Dental Care Strategy stated that the Northern Ireland population as a whole had at that time the worst oral health in the UK, related to lifestyle and deprivation, with some improvement achieved up to 2006 but scope for substantial improvement. The Strategy indicated the need for a new GDS primary care dental contract to provide a better basis for commissioning dental services to meet local need and to an emerging access problem in some parts of Northern Ireland.

Children's dental health

(1) Proportion of children with obvious dental decay

The Northern Ireland government set a target for at least 50 per cent of 5 year-old children to be free from obvious dental decay in primary teeth by 2013. The *Children's Dental Survey* monitors this at the ages of 5 and 8. Graph 1 has been compiled from the 2003 and 2013 surveys. It shows that in 2003, 61 per cent of 5 year olds had some obvious dental decay by the age of 5. This was the highest proportion of the UK nations. Whilst the figures for 2003 and 2013 are not directly comparable, the data does show that the 50 per cent target in Northern Ireland has been exceeded by 10 per cent. Improvements are thought to be largely due to community programmes, including fluoride toothpaste and outreach campaigns.

Graph 1: 5-year old children with no obvious decay experience in primary teeth by nation



Source: Children's Dental Health Surveys, 2003 and 2013. Health and Social Care Information Centre

Mean number of teeth in five-year old children with obvious decay

The second target for Children's teeth concerned the mean number of teeth with obvious decay experience per child among 5-year-olds. The 2013 target was that the mean number should be less than 2.0. The able below shows that good progress has been made, with the mean number in Northern Ireland falling from 2.5 per child to 1.4 per child. This is a change of over 1 tooth on average per child, a bigger improvement than in both England and Wales.

Mean number of teeth in five-year old children with obvious decay

	2003	2013	Change
Northern Ireland	2.5	1.4	-1.1
Wales	1.9	1.5	-0.4
England	1.5	0.9	-0.6

Source: Children's Dental Health Survey 2003 and 2013. Health and Social Care Information Centre

(3) Percentage of children with no obvious decay in permanent teeth

The next target concerns the percentage of 12 year-old children with no obvious decay in permanent teeth. The proportion of children in Northern Ireland with no obvious decay in permanent teeth in 2003 was 27 per cent. The target was for this proportion to be at least 40 per cent by 2013. The table below shows that this target has been met and exceeded – 43 per cent have no obvious decay in permanent teeth.

Percentage of children with no obvious decay in permanent teeth

	2003	2013	Change
Northern Ireland	27%	43%	+16%
Wales	46%	48%	+2%
England	59%	68%	+9%

Source: Children's Dental Health Surveys, 2003 and 2013. Health and Social Care Information Centre

(4) Mean number of permanent teeth with obvious decay

The table below shows the mean number of teeth in 12-year old children with obvious decay experience. The target is for this number to be less than 2.2 by 2013. The latest Children's Dental Survey does not present data for the same metric. However, data *is* available for the mean number of permanent teeth with *clinical* decay experience. Although the closest metric, it is important to recognise that this represents a wider criterion for caries measurement. However, 'Visual enamel caries excluded' is considered to be the closest to the 2003 metric, including visual dentine caries but excluding clinical caries in enamel. The table below shows that, as with the other indicators, Northern Ireland has met its 2013 target.

Mean number of permanent teeth in children with obvious decay

	2003	2013	Change
Northern Ireland	2.7	1.9	-0.6
Wales	1.4	1.5	+0.1
England	1	0.8	-0.2

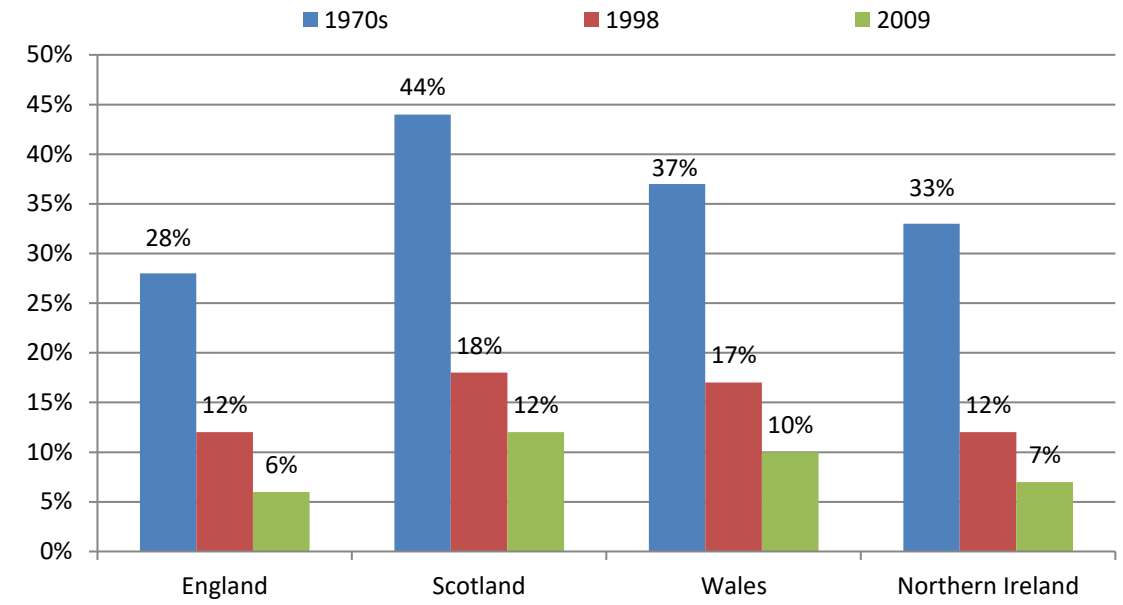
Source: Children's Dental Health Surveys, 2003 and 2013. Health and Social Care Information Centre

Adult dental health in Northern Ireland

(1) Proportion of edentate adults

Overall, 94 per cent of adults are dentate, i.e. having at least one natural tooth. Graph 2 shows the large declines in edentate adults in all four home nations between the 1970s and the present day. The decline in Northern Ireland has been steep, from a third of adults in 1976 to only 7 per cent in 2009. The 2009 figure is the second lowest of the home nations, and is only 1 per cent behind England. It is important to note that this is 2009 data, and the position may have improved further since.

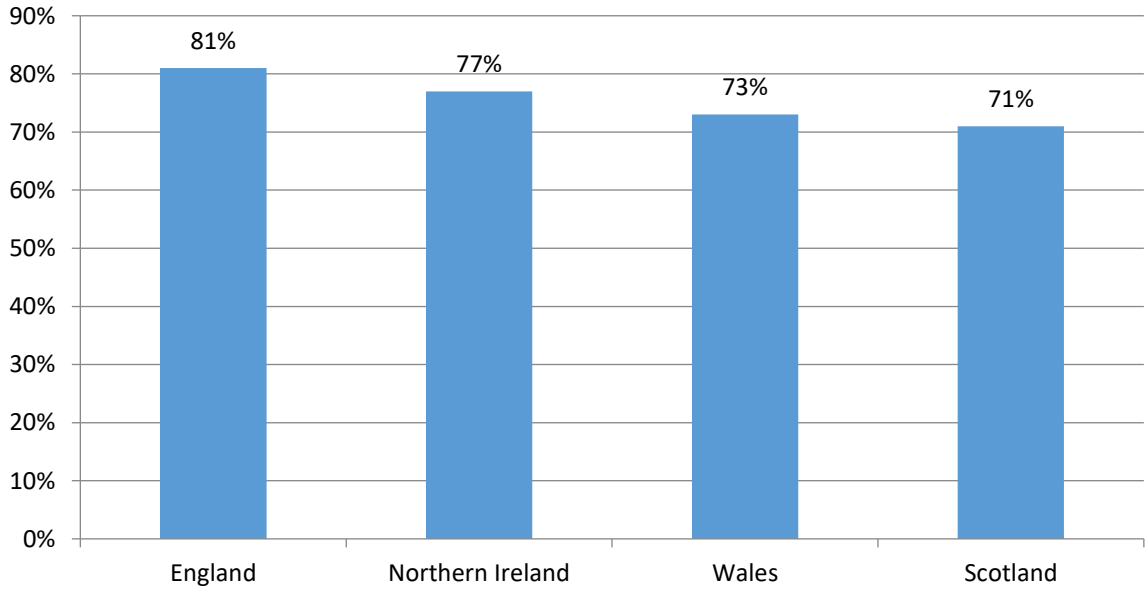
Graph 2 Proportion of edentate adults by country over time



Source: Adult Dental Health Surveys, 1998 and 2009. Health & Social Care Information Centre. (Northern Ireland 1979; Scotland 1972; England is 1978)

(2) Proportion of adults with 20 of more natural teeth

Graph 3 Proportion of adults by country with 20 or more natural teeth, 2009



Source: Adult Dental Health Surveys, 2009. Health & Social Care Information Centre.

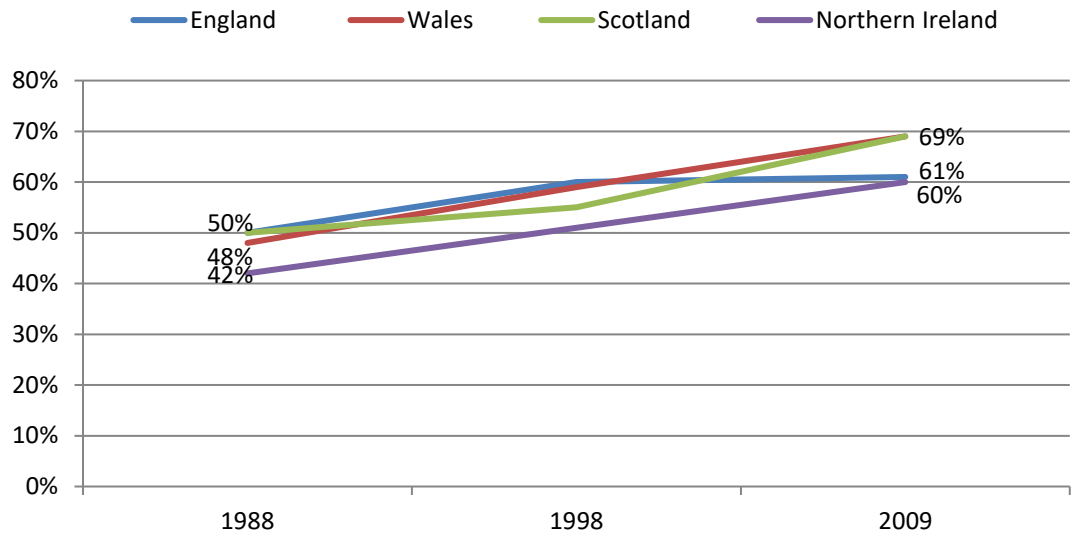
Graph 3 shows the proportion of adults with 20 or more natural teeth. Northern Ireland has a higher proportion than Scotland or Wales, but lower than England. The overall mean number of teeth among dentate adults across all home nations in 2009 is 25.7. In Northern Ireland, this figure is 25.1, up from 21.9 in 1979. The average dentate adult in Northern Ireland now has 15.8 sound teeth, compared to 11.4 in 1979. This has potential implications for increased dental treatment and maintenance for adults in the future.

(3) Proportion of adults going for regular check-ups

The proportion of adults going for regular check-ups increased significantly from 1988 to 2009, illustrated in Graph 4. In Northern Ireland, the proportion has increased from 42 per cent in 1988 to 60 per cent in 2009. This proportion

is slightly lower than for the other home nations, marginally lower than England; this is based on 2009 data and the position may have improved further since then.

Graph 4 Proportion of dentate adults going for regular check-ups by country and time



Source: Adult Dental Health Surveys, 1988, 1998 and 2009.

Access to dental services

(1) Obtaining a health service appointment

Although evidence suggests accessing a dentist is a problem in some parts of Northern Ireland, the Adult Dental Health Survey shows most people who attempt to get a dental appointment can. The table below shows that about 2/3 of people in Northern Ireland reported attempting to make an NHS dentist appointment in the three years to 2009.

%age of population who tried to make a health service dental appointment in previous 3 years

	Yes	No
Northern Ireland	64	36
Wales	57	43
England	58	42

Source: Adult Dental Health Surveys, 1998 and 2009.

The next table shows that 92 per cent of people in Northern Ireland who attempted to make an NHS appointment successfully made one (1% didn't attend). This is almost identical to the other home nations – in each case, only 7 per cent reported that they could not make an appointment.

Percentage of successful attempts at making a Health Service appointment

	Yes, and went	Yes, but didn't go
Northern Ireland	91	1

Wales	91	2
England	92	1

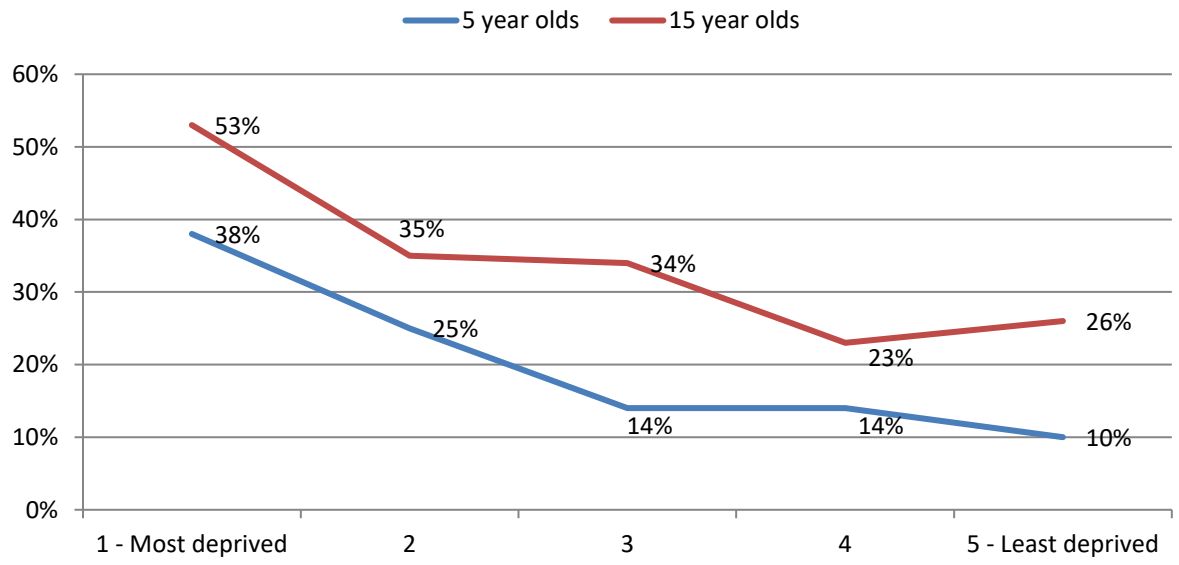
Source: Adult Dental Health Surveys, 1998 and 2009.

(2) Health inequalities

Regional variations in the above data are not available for Northern Ireland. However, it is possible to look broadly at health inequalities by looking at the difference between the most and least deprived areas.

For children, Graph 5 shows the percentage of 5 to 15 year olds with any severe or extensive dental decay by deprivation levels. It shows that, whilst severe or extensive decay is clearly not found just in the most deprived places, the risks appear to be much higher where there is deprivation. Graph 5 shows that severe or extensive dental decay is more commonly experienced by both 5 and 15 year olds living in the more deprived areas compared to the more affluent areas.

Graph 5 Percentage of 5 and 15 year olds with any severe or extensive dental decay, by 2010 Northern Ireland Multiple Deprivation Measure quintiles

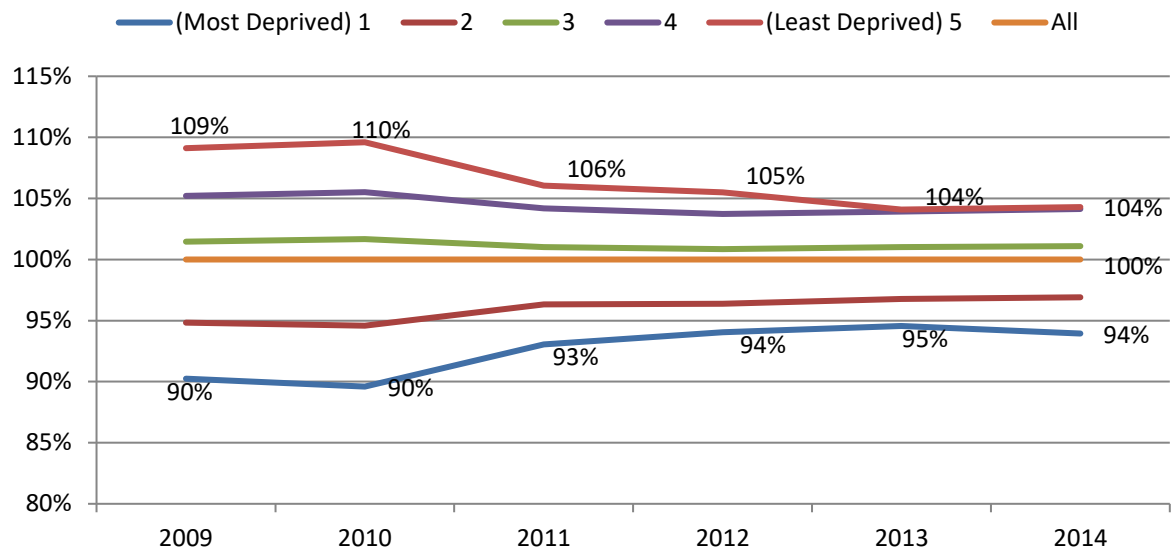


Source: Children's Dental Health Survey 2013.

For adults, the Standardised Dental Registration[1] data shows that whilst the 'inequality gap' of dental registrations in 2014 has decreased from 20 per cent in 2010, those in the most deprived areas are still 10 per cent less likely to be registered at a dentist than those in the most deprived areas.

Graph 6 Standard Dental Registration in Northern Ireland (Adults)

[1] Standard Dental Registrations, HSCIMS, 2014.



Source:

Standard Dental Registration data, HSCIMS, 2014.

The key question is what impact not having access to services has on heath inequalities. There is evidence to suggest that improvements in other health indicators for deprived areas, such as reductions in hospital admissions, shows that access to services is an issue where indicators are persistently worse. The reduction in the gap between the most and least deprived for dental services could be a result of better access. Recent evidence from the British Dental Association shows that the most effective approaches for increasing dental attendance in families from deprived areas are a mobile dental unit at a school premises and a dental access centre[2]

Population demographics

This table shows historical population growth in Northern Ireland. The most dramatic change has been the 36% increase in the over 65s, compared to 16% overall. The number of children has fallen by 8% since 1991.

Historical population growth in Northern Ireland

Age	Children 0-15		Adults 16-64		Older 65+		All ages	
Year	No.	Change from 1991	No.	Change from 1991	No.	Change from 1991	No.	Change from 1991
2014	383,783	-8%	1,170,799	+19%	285,916	+36%	1,840,498	+14%
2010	379,959	-9%	1,165,239	+18%	259,635	+23%	1,804,833	+12%
2005	378,770	-9%	1,114,058	+13%	234,905	+12%	1,727,733	+7%
2000	405,189	-3%	1,062,507	+8%	223,248	+6%	1,684,944	+5%
1995	418,452	0%	1,021,687	+4%	216,972	+3%	1,651,126	+3%
1991	418,530		986,464		210,265		1,609,286	

Source: Northern Ireland Neighbourhood Information Service Population Estimates 1991-2014

These changes were anticipated in the 2006 Primary Dental Care Strategy, and the projected increases in population have largely happened. The composition of the population in HSCT areas in 2014 is shown in this table:

Population by HSCT area 2014

Age	Children 0-15	Adults 16-64	Older 65+	All ages

[2] *Increasing dental attendance by poor families or families from deprived areas. BDA,* February 2015

HSCT 2014	No.	% total NI	No.	% total NI	No.	% total NI	No.	% total NI
Belfast	67,143	17%	230,683	21%	53,728	18%	351,554	19%
Northern	96,179	25%	296,027	24%	76,845	26%	469,051	25%
S Eastern	71,396	19%	219,928	18%	60,977	20%	352,301	19%
Southern	84,234	22%	233,601	20%	51,556	20%	369,391	20%
Western	64,831	17%	190,560	16%	42,810	16%	298,201	16%
Total	383,783	100%	1,170,799	100%	285,916	100%	1,840,498	100%

Source: Northern Ireland Neighbourhood Information Service Population Estimates 1991-2014

The number of children in Belfast and Western fell by 16% & 18% respectively from 1991 to 2014. In Belfast the number of older people has fallen by 4% from 1991, with large increases elsewhere. The overall population of Belfast has fallen by 1% since 1991, with increases in every other HSCT area, notably Southern (27% up on 1991).

Projected population increases to 2035 are shown in the table below. The total population is projected to increase 7% to 5% to 2025 and 8% to 2035, but the projected change in population mix is most striking. The number of children is projected to go up slightly by 2025 (+3%) and then down again by 2035, indicating a slightly reduced need for paediatric dentistry. The population age 16-64 is projected to fall slightly, but over 65s are projected to increase 27% by 2025 & 62% by 2035. The >85 population is projected to grow 50% to 2025 and 136% to 2035. There are serious implications for dental services planning of the increase in numbers of older people, with an increasing need for geriatric dentistry. The second table shows that the projected changes will be felt more strongly in Southern.

Projected population growth 2015 to 2035

Age	Children 0-15		Adults 16-64		Older 65+		All ages		85+	
Year	No.	+/- % from 2015	No.	+/- % from 2015	No.	+/- % from 2015	No.	+/- % from 2015	No.	+/- % from 2015
2035	371,509	-3%	1,152,330	-2%	473,372	+62%	1,997,211	+8%	85,100	+136%
2030	384,244	0%	1,165,030	-1%	425,337	+45%	1,974,611	+7%	69,010	+91%
2025	396,284	+3%	1,174,618	0%	371,802	+27%	1,942,704	+5%	54,226	+50%
2020	397,795	+4%	1,175,363	0%	327,235	+12%	1,900,393	+3%	43,956	+22%
2015	384,399		1,174,083		293,091		1,851,573		36,107	

Source: Northern Ireland Neighbourhood Information Service Population Projections 2012 - 2037

Projected population by HSCT area 2035 (showing %age changes from 2015)

Age	Children 0-15		Adults 16-64		Older 65+		All ages	
HSCT 2035	No.	Change	No.	Change	No.	Change	No.	Change
Belfast	65,584	-3%	218,175	-5%	79,705	+48%	363,464	+3%
Northern	88,372	-8%	280,379	-5%	126,182	+64%	494,933	+5%
S Eastern	68,860	-3%	216,331	-2%	102,018	+67%	387,209	+10%
Southern	91,457	+9%	263,033	+12%	91,577	+77%	446,067	+21%
Western	57,236	-11%	174,412	-8%	73,890	+72%	305,538	+3%
Total	371,509	-3%	1,152,330	-2%	473,372	+65%	1,997,211	+8%

Source: Northern Ireland Neighbourhood Information Service Population Projections 2012-2037

Workload and registrations

General Dental Service (GDS) surgeries in Northern Ireland provide assessment and treatment services to registered patients. They are contracted to provide services in line with the Statement of Dental Remuneration, and claims for

payment are made to the Business Services Organisation in accordance with this Statement. The number of GDS dental treatments across Northern Ireland is shown in the table below:

GDS workload in Northern Ireland 2008/9 to 2013/14

Age	Children 0-15			Adults 16-64			Older 65+		
Year/Treatments	**Fillings**	**Ext'ns**	**X Rays**	**Fillings**	**Ext'ns**	**X Rays**	**Fillings**	**Extr'ns**	**X Rays**
08/9 treatments	85,731	23,171	7,587	416,290	64,806	218,684	67,052	14,880	21,852
09/10 treatments	82,970	22,181	6,260	423,454	66,282	225,301	70,008	15,528	23,042
10/11 treatments	83,689	23,198	5,600	476,059	73,755	252,590	80,650	17,643	26,601
11/12 treatments	82,776	22,206	5,822	497,137	77,299	270,122	87,935	18,785	29,518
12/13 treatments	77,589	23,261	5,988	502,290	77,861	277,802	94,035	19,256	31,184
13/14 treatments	74,447	22,164	6,068	508,225	79,538	287,974	101,971	20,966	34,806
Workload increase	**-13%**	**-4%**	**-20%**	**+22%**	**+23%**	**+32%**	**+52%**	**+41%**	**+59%**
%age ↑ Pop'n 09-14	**+1%**			**+0.5%**			**+10%**		
Registered Pop'n 2014 /Total Pop'n 2009	**+12%**			**+13%**					
Registered Pop'n 2014 /Registered Pop'n 2009	**+30% (this is the "real" increase in patient numbers for GDS dentists)**								
%age increase in GDS dentist numbers 2009-14	**+24%**								

Source: Northern Ireland GDS dental treatments, HSC Business Services Organisation Northern Ireland.

The number of fillings carried out on children in Northern Ireland is falling, although extractions are relatively unchanged, reflecting improvements in the dental health of children. Adult, particularly older adult, treatments have increased by more than the corresponding population increase, because of the large rise in registrations. The registration period increased from 15 months to 2 years in 2009, resulting in fewer lapses in registrations. Registrations increased from 63% of children and 42% of adults in 2009/10 to 75% of children and 57% of adults in 2015. Increases in registration levels and in population appear to account for much of the increase in workload. However, the higher workload increase for the over 65s suggests that the ageing population itself creates a significant increase in workload. This factor is likely to become more significant in future.

Comparison of the increase in GDS dentist numbers to the number of registered patients and to the increase in the number of treatments is a crude indicator that average GDS workloads have increased since 2009. This takes no account of treatment complexity or time spent per patient (which may be higher for patients over 65).

GDS dental registration levels vary between Health & Social Care Trust areas, with higher adult registration levels in Northern, South Eastern & Southern at 58%, with Belfast at 55% and Western at 52%. Children's registration levels vary similarly. Dental registrations are higher in the least deprived areas, but the deprivation gap between the most

and least deprived areas narrowed between 2003 and 2011. The number of dental treatments per 1000 patients varies between HSCT areas, reflecting differences in age/gender structures and demand for dental health.

Analysis of community and hospital dental services workload data has not proved to be feasible, since data is not readily available. Population increases would suggest that there have increases in workload, based on significant increases in the number of older people since 2009, a trend which will accelerate over the next 20 years.

Key issues and risks – need and demand

Big issues & risks:

- There has been a big improvement in children's dental health, largely due to community programmes. For example, the target for reduced dental decay in 5 year old children set in 2003 has been exceeded. (Risks: increased expectations may increase future demand on CDS services; further increase in prevention).
- There is a large decline in edentate adults from 1976 (33%) to 2009 (7%). Northern Ireland is now only just behind England. 77% of adults had 20 or more natural teeth in 2009, ahead of Wales & Scotland, just less than England. (Risks: this may increase demand on GDS services in later years due to increased levels of maintenance).
- 60% of adults are now going for regular check-ups, a big increase from 1988 to 2009. (Risks: this may increase demand on GDS services; there may be additional demand for preventive work).
- 64% of the Northern Ireland population attempted to make a Health Service appointment in the 3 years to 2009, higher than England & Wales. 92% were successful. (Risks: increased demand on GDS services).
- Large increases in registration levels 2009 to 2014 increased the registered population by 30%. (Risk: the effect will be to increase GDS workloads further (maintenance of adult teeth).
- Health inequalities are still present in NI. Risks of decay are higher for children in deprived areas, who are less likely to be registered at a dentist. However, the gap between most deprived and least deprived has narrowed from 2009 (19%) to 2014 (10%), due to improved access. (Risks: how to influence workforce distribution to reduce the deprivation gap further).
- There was a 36% increase in the numbers of >65s from 1991 to 2014, but the number of >65s fell in Belfast by 4%. There was an overall fall in the number of children of 8%, the highest falls in Belfast (16%) & Western (18%). Overall the population fell in Belfast by 1%, rose in Southern by 27%. (Risks: N/A, historical data).
- There are projected population changes from 2015 to 2025 and 2035. For children, a slight increase & then a fall back is projected. For adults <65, a slight fall is projected. For > 65s and > 85s, large increases are projected. The number of >85s is likely to more than double in the 20 years to 2035. (Risk: need to build up services for older people, which will have implications for General, Community and Hospital Dental Services; this may require additional DCPs).
- Increase in GDS workloads. (Risk: increased pressure may reduce morale & health service commitment).
- Increased demand for orthodontic services. (Risk: increased private sector workforce demand).
- A drive for practice efficiency. (Risk: potential increased demand for DCPs).

3.2 TYPES AND NUMBERS OF STAFF REQUIRED (Workforce Demand)

The options for workforce demand have articulated in 2.3.

3.3 PRODUCTIVITY AND NEW WAYS OF WORKING

Have productivity implications been considered based on technology, patterns of working, service models, skills mix and/or redistribution of tasks?

Practice Networks

It has been acknowledged that the network or confederation model has not developed in Northern Ireland to the extent expected. The primary source of dental services is by Independent Contractors, however, some Independent Contractors own several practices in a number of towns. Large organisations have been expanding their number of practices and use independently contracted, self-employed dentists. It was reported that the average dentist is now earning approximately 35% less in real terms over the last 10 years and associate dentists seeing a reduction of £20,000 in real terms over the same period. Dentists have invested heavily in developing practices and are now working longer to pay off loans etc.

Many opportunities to make change happen will require practices to work collaboratively. These opportunities should be taken into account during discussions about objective setting for collaboration or network approaches and could include:

- Standardised roles, to underpin the flexible deployment of staff across practices.
- Inter-operable IT systems to support flexibility.
- Centralising and sharing back office functions.
- Improving skill mix, linked to scale.
- Standardised training across practices

1.	**Values, culture, vision, to test purpose and fit (discussions should start here)**
2.	**Why collaborate?**
	a) **A review of each practice's situation. What issues need to be resolved, are these issues shared for the most part?**
	b) **Objectives for collaboration can then be agreed by all practices taking part, using "SMART" criteria (Specific, Measurable, Achievable, Realistic, Timely)**
3.	**Potential structures can then be assessed against how they might help achieve agreed objectives. Which structures are likely to enable achievement of which objectives? Do some structures enable achievement of some types of objective but not others?**
4.	**An outline of the resources (time and money) needed to obtain advice, plan & implement collaboration need to be agreed, together with each practice's respective contribution.**
5.	**Practices should then obtain appropriate independent advice (to cover legal, financial, building issues, as required), which can be shared on an agreed basis**
6.	**A detailed project plan can then be prepared, revisiting resource issues, and identifying risks & mitigation and project management. It is likely that a project steering group will be established, responsible for agreeing the final plan and overseeing implementation**
7.	**Plans should include a communication plan (to inform staff, patients, other stakeholders), including the permissions needed for collaboration (if any)**

8. **Project implementation, probably by a small group with oversight by the project steering group**
9. **Evaluation at all stages to ensure achievement of objectives**

Summary

Evidence of how collaboration has worked in practice and key messages, including:
➢ **The need to determine function before form, the why before the how**
➢ **The need to plan sustainable forms of collaboration**
➢ **Collaboration should protect the core values of dental practices**
➢ **The need for a clear, shared vision of the rationale for collaboration**
➢ **The importance of trust and transparency**
➢ **Planning to collaborate and implementation require time and commitment**
➢ **The need for independent professional advice and support**
➢ **The importance of effective governance**
Potential structures for collaboration (suitability, implications, advantages, disadvantages):
➢ **Agreements/contracts between practices**
➢ **A new organisation, jointly owned by practices**
➢ **Practice merger**
Planning to collaborate
Implementation of plans, with examples of collaboration in action
Risks, risk management, governance

Foundations of collaboration

Determine function before form.

A clear message in the literature is "don't start with structures". Goals & ambitions should determine legal form. Function must be agreed first, as practices clarify what they hope to gain from collaboration. Benefits must exceed costs, whether financial or otherwise (transactions costs increase as the organisation required to support collaboration becomes more formal). Agreed objectives must therefore fit "SMART" criteria (Specific, Measurable, Achievable, Realistic & Timely). Potential tensions between ensuring engagement/local sensitivity and achieving scale/active management/risk reduction must also be taken into account in the development of objectives.

Vision, values and culture

Collaboration requires clearly defined shared purpose, vision & values, consistently promoted by all practices taking part in collaboration to set the basis for the culture required. The collaboration needs identity, although practice identity must also be clearly retained & highlighted in the greater whole.

High quality practice & improved care should be at the heart of dental practice collaboration. The issue of whether the collaboration organisation will generate surpluses for distribution to practice owners (i.e. is the collaboration "for profit"?) must be addressed early, since this may influence the structure of the collaboration. However, practices will

not collaborate unless it is in the interests of the partners and staff, therefore "self-interest" must also be incorporated into the shared vision.

Trust, transparency, mutual respect and fairness

Decisions about development & management of collaboration must be perceived by all parties as transparent, inclusive & fair. This requires mutual trust and respect, which may of course be influenced by history between practices. Trust and respect are fundamental in circumstances where resources, staff and facilities are shared. The need for trust and respect should be addressed by practices early in the development of collaboration, to ensure fairness and that arrangements are not undermined by continual challenge.

Size and membership of collaboration

The collaboration must be big enough to enable it to achieve goals.

Which practices should join the collaboration? Evidence indicates that collaboration is best achieved geographically (virtually all collaborations have a geographical foundation). Practices who intend to collaborate must be compatible and have common interests, and relationships between practices and people must be conducive to working together.

Leadership, management and communication

Clear, consistent leadership behaviour is fundamental to the success of collaboration, & the time commitment must be properly resourced. Weak leadership will allow differences between practice agendas to undermine collaboration. In turn, good collaboration needs high quality management & infrastructure. It is important to build management & leadership capacity & capability across the collaboration, both during development & subsequent delivery.

Governance

Robust governance arrangements must be agreed early in development of collaboration. Effective clinical & organisational governance is fundamental to success in collaboration, information to underpin good governance will be required, and this may have implications for IT systems.

Development, provision and quality of services

Services to be provided in the collaboration must be identified, together with any changed design requirements. There should be a focus on purpose, outcomes and location from a service user perspective. Investment funds needed must be identified clearly and at an early stage. Quality must be at the heart of any collaboration, embedded in vision, values, governance & objectives of collaboration.

Planning and project management

A project team (and, probably, a project manager) is normally needed, membership being determined with the support & trust of all practices. This requires time commitment by practice staff, particularly practice managers & dental staff.

Managing risk

The evidence indicates that it is good practice for risks to be identified clearly, and appropriate mitigation actions should be designed. Collaboration is likely to incur risks in:

- Service delivery, where continuity and quality in early stages may be a challenge (mitigated through effective planning and communication).
- Finance, when there is new investment (mitigated by effective financial planning and budget management).
- Public perception, managed through effective engagement and communication.

The “scale” achievable in collaboration gives practices the opportunity to spread, share and reduce their risks.

IT infrastructure

Collaboration is likely to create a need for shared access to records, interoperability. Data related to outcomes may also be needed for effective performance review. Evidence indicates that both require IT infrastructure actions to be agreed, planned and budgeted for at the development stage.

Dental Nurse Extended Practice

Alongside the potential for practice networks to support innovation through scale, new ways of working have focused on the ability of dental nurses to extend their practice in order to undertake an increasing range of roles. The specific tasks practice nurses may extend into will depend on individual practices but a range of activity could potentially be undertaken through enabling a more effective skill mix.

Additional skills a dental nurse could develop during their career include:

- Further skills in oral health education and oral health promotion
- Assisting in the treatment of patients who are under conscious sedation
- Further skills in assisting in the treatment of patients with special needs
- Intra-oral photography
- Shade taking
- Place rubber dam
- Measuring and recording plaque indices
- Pouring, casting and trimming study models
- Removing sutures after the wound has been checked by a dentist
- Applying fluoride varnish as part of a programme which is overseen by a consultant in dental public health or a registered specialist in dental public health
- Constructing occlusal registration rims and special trays
- Repairing the acrylic component of removable appliances
- Tracing cephalographs

Additional skills on prescription

- Taking radiographs to the prescription of a dentist
- Applying topical anaesthetic to the prescription of a dentist
- Constructing vacuum formed retainers to the prescription of a dentist
- Taking impressions to the prescription of a dentist or a Clinical Dental technician (CDT)

Step 3 Key Findings and Recommendations

Key Findings

- There has been a steady increase in the dental health of the population in Northern Ireland, across both adults and children, alongside greater take up of dental services. As a result, future dental service demand will be increasingly focused on preventing and maintaining dental health rather than extractions, fillings etc.
- Projected demographic changes indicate a large increase in the elderly population (27% by 2025, 62% by 2035 against a 2015 baseline) with a commensurate increase in the projected workload for GDS services.

Recommendations

- Practice networks will increasingly cement their place in the landscape of Northern Irelands dental service provision. The scale of practice networks could be an important factor in enabling the workforce development and flexibility of the future workforce through allowing role and staff development not necessarily feasible for single practices. The DOH and partners should explore how such practice networks could be supported to increase workforce flexibility.

Step 4: Workforce Supply

GOAL: IDENTIFY CURRENT AND FUTURE STAFF AVAILABILITY BASED ON CURRENT PROFILE AND DEPLOYMENT (WORKFORCE SUPPLY)

This step involves describing the existing workforce in the areas under consideration, its existing skills and deployment, plus assessing any problem areas arising from its age profile or turnover.

4.1 CURRENT WORKFORCE (Workforce Supply)

What are the characteristics of the current workforce? Describe the current workforce in terms of numbers of certain types of: staff, skills, services?

The Dental Care Professional workforce

There is limited information available about numbers, age & gender for this part of the workforce (GDC data shows that most of those registered in Northern Ireland, excluding dental technicians, are female, which is the case across the UK). Hygienists make up only 3% of the dental workforce (5% in Wales & Scotland; 6% in England). This table shows registered dental professionals with the General Dental Council in Northern Ireland:

Registered DCPs in Northern Ireland

Staff category	2015 all	2015 male	2015 female	2002
Orthodontic therapist	16	0	16	0
Dental therapist	30	0	30	11
Dental technician	197	150	47	216
Dental nurse	1902	10	1892	1103
Dental hygienist	114	0	114	64

Source: General Dental Council website 2015 and DOH Northern Ireland Primary Dental Care Strategy 2006

Shopper survey data from the Chief Dental Officer suggests 46% of 380 practices offering health service dentistry employ a hygienist. However, Health Service hygienist care is only offered by 3% of GDS practices with a hygienist (only 1.6 wte hygienist in total across all GDS practices in Northern Ireland), and is mainly a private care offer. In addition, Dental Care Professionals are employed within community services: (4.03 wte dental therapists; 3.73 wte dental hygienists; 4.16 wte oral health promotion staff; 25.05 wte dental nurses; all female). In addition, 1.1 wte tutors are employed in hospital services from the suspended SODH programme.

There is much debate about the extent to which skill mix, which might mean increased numbers of Dental Care Professionals delivering services, will change in future. It is argued that the contractual arrangements of dentists offering Health Service care crowds out skill mix, leaving fewer openings for Dental Care Professionals, although DCPs have a smaller scope of practice and may be working privately. This may change with the new GDS contract (see 6.1 below), depending partly on the extent to which preventive services are prioritised. It appears that the use of clinical dental technicians is increasing.

Skill mix models need to make business sense to practices, and have not been adopted widely so far. Private services have changed skill mix to a greater extent, making heavier use of Hygienists and Orthodontic Therapists (of whom there are 16 in Northern Ireland), but there is no local training. Protection and indemnity costs are high as a percentage of pay for DCPs working in GDS, particularly for part-time staff who pay the same fee as full timers and also for nurses, often practices pay the fees.

The increasing population of over 65s (and particularly over 85s) require consideration of how best these challenges might be met. As noted this may require new models of delivery and skill mix to deliver dental care in the community, involving more Dental Care Professionals than now.

Dental workforce in Northern Ireland compared to rest of UK

Between 2007 & 2015 GDS dentist numbers increased in Northern Ireland by 31%. Over the same period, English GDS dentist numbers in England increased by 19%, in Wales by 26% and in Scotland by 16%.

Population and GDS dentist numbers in UK

GDS dentists/population	N. Ireland	England	Wales	Scotland
Dentists with GDS activity 2015	1,057	23,947	1,439	2,871
Children (million)	0.38	12.2	0.6	1.1
Adults (million)	1.47	41.1	2.5	4.2
Total population (million)	1.85	53.9	3.1	5.3
GDS dentists per 100,000 2015	57.1	44.5	47.0	54.0
GDS dentists per 100,000 2006	44.7	37.4	34.9	41.9
%age of children registered with NHS dentist	75%	N/A	N/A	93%
%age of adults registered with NHS dentist	57%	N/A	N/A	87%

Source: Dentist & population numbers UK 2014, DoH England, Scottish Govt, Welsh Assembly, HSCB NI, GDC registration data

The table above indicates that Northern Ireland has more GDS dentists in relation to population (57.1 per 100,000) than all other countries in the UK. Such comparisons do not, however, take account of the number of health service sessions offered by each dentist, which may not be uniform around the UK. Higher GDS dentist/population ratios in Northern Ireland & Scotland may also reflect greater need for dental services, discussed further in Section 5.1.

The percentage of population seen by a GDS dentist in 2015 was 56% in England, 58% in Wales and 66% in Scotland. 60% of the Northern Ireland population was registered with a Health Service dentist, most of whom are likely to have all seen by their dentist.

The proportion of children registered with a health service dentist in Northern Ireland (75%) is around 10% higher than the numbers of children in England & Wales seen by a dentist.

The table below shows that the Northern Ireland GDS dentist workforce is more likely to be female than the other UK countries and is marginally younger.

GDS dentists by age and gender in UK 2015

Dentists 2015	N. Ireland		England		Wales		Scotland	
Male %age	48.1%		52.9%		56.1%		53.5%	
Female %age	51.9%		47.1%		43.9%		46.5%	
<35	374	35%	8,677	36%	565	39%	1,227	43%
35-44	328	31%	6,677	28%	401	28%	717	25%
45-54	259	25%	5,128	21%	281	20%	593	21%
>55	96	9%	3,465	15%	192	13%	334	11%
Total	1,057	100%	23,947	100%	1,439	100%	2,871	100%
Median age	39.9		40.6		39.9		40.0	

Source: Dentist workforce gender UK, DoH England, Scottish Govt, Welsh Assembly, HSCB NI

The table below shows that the use made in Northern Ireland of dental hygienists and therapists is less than elsewhere in the UK. It has already been seen that there are more dentists (and, therefore, dental nurses) per 100,000 people than in other countries in the UK. The relative use of skill mix may be a reflection of the contractual model used for GDS in Northern Ireland. Dental health factors may account for the relatively high number of GDS dentists in Northern Ireland (and Scotland). The ratio of dental nurses to dentists in Northern Ireland is 1.23, lower than the other UK countries, whole time equivalent ratios (not available) would be more meaningful.

GDC All registered dental staff UK 2015

Staff	Northern Ireland		England		Wales		Scotland	
	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100,000 population	No.	Per 100 popula
Orthodontic therapist	16	0.86	362	0.67	23	0.74	44	0.8
Dental therapist	30	1.6	2275	4.2	114	3.7	223	4.2
Dental technician	197	10.6	5422	10.1	265	8.5	548	10.
Dental nurse	1902	102.8	43141	80	2578	83.2	5796	109.
Dental hygienist	114	6.2	5558	10.3	275	8.9	614	11.
Dentists	1548	86.7	31857	59.1	1677	54.1	3976	75.

Source: General Dental Council website

Comparison between Northern Ireland and other UK countries in respect of the Community and Hospital Dental Services workforce has not been possible, due to data not being available from other parts of the UK.

Private dental services in Northern Ireland

In total 1,548 dentists with Northern Ireland addresses are registered with the GDC. Of these, 1,057 are GDS dentists, with an additional 166 dentists employed in community or hospital services (total 1,223). The remaining 325 registered dentists with Northern Ireland addresses are either working elsewhere in the UK, private only dentists, retired or not working in dentistry (temporarily or permanently).

General Dental Service (GDS) surgeries in Northern Ireland provide assessment and treatment services to registered patients. These surgeries are also able to provide services to patients privately.

Surveys of dental working hours (Health & Social Care Information Centre, 2010, 2012 and 2014) provide evidence of hours worked by GDS dentists in Northern Ireland. These surveys indicate:

- The average GDS dentist in Northern Ireland spent 9.5 hours per week (25% of time) on private work in 2013/13 (4%, or 1.9 weekly hours, less than England & Wales, 2%, or 1.4 weekly hours, more than Scotland), but worked more 0.8 hours in total on dentistry than England & Wales (0.6 fewer than Scotland).

The private component of Northern Ireland GDS dentistry time equates to approximately 250 wte private dentists. A recent British Dental Association Report (*The State of General Practice in 2013*) finds Northern Ireland has a small number of fully private practitioners.

Denplan provides cover to 36,000 patients and 160 member dentists in Northern Ireland (Denplan website). This is proportionately considerably lower at 2.4% of the adult population than Denplan's private dental patient coverage in England (2 million, patients 6500 member practices) at 4.9% of the adult population.

Supply of Dental Care Professional (DCP) staff

Hygienists & therapists are used sparingly at present in the Northern Ireland health service, hardly any in GDS and very few in Community Dental Services. The need for future supply of dental hygienists & therapists in Northern Ireland will depend upon the impact of potential skill mix changes in Community Services and the viability of employing more of such staff in GDS practices. This depends in turn on commissioning decisions after decisions on the attractiveness of changing skill mix to GDS practices, and on the evidence base for preventive interventions at an individual level.

A study by the Centre for Workforce Intelligence (*Securing the Future Workforce Supply – Dental Care Professionals Stocktake*, 2014) on the English dental care professional workforce concluded that demand for dental hygienists, therapists, & nurses will be likely to exceed supply by 2025. The risk of undersupply was found to be significant, although this conclusion is based on nurses, hygienists and therapists taking on an increasing proportion of direct patient care. The study also found a potential risk of oversupply for orthodontic therapists by 2025. Projections for changing skill mix in the study are tentative and, of course, unprovable.

General Dental Council data indicates that 99% of General Dental Professionals in the UK had originally qualified in the UK, and non EU overseas supply sources are therefore not significant.

The role of dental Therapist/Hygienists/Technicians within Northern Ireland has not been developed in line with other areas of the UK. The Dental Hygienist course has not been in operation since 2009 and there is no evidence of demand for this course in the near future. The service delivery model which utilises the range of skills across dentists, extended nurse practice, therapist, hygienists and technicians may be a more cost effective way of delivering future services especially in a climate where financial constraints are in place upon services. There will of course always be treatments that can only be delivered by the dentist and that the decision in relation to what treatment is required is fundamental in any patient's treatment plan and this cannot be cascaded down to nurses, therapists, hygienists or technicians.

As a result, and given the challenges regarding the supply of Therapist/Hygienists/Technicians, it is likely to be more achievable to revise skills mix through the use of extended practice dental nurses rather than through the use of Therapist/Hygienists/Technicians given their limited available in terms of supply.

4.2 OPTIONS FOR CHANGING SUPPLY

- **Attracting people to dentistry:** For GDPs, pay has declined by more than 20% over the last 5 years, and the viability of the single handed practitioner model is very much under threat. Pay for dental nurses has been viewed as not attractive. Staff like the flexible work patterns that are available in larger practices but conversely smaller practices are not able to offer the same degree of flexibility and this is making it difficult for these practices to attract staff. Overall, working conditions for dental staff (apart from the decreasing pay for GDPs) have improved. Corporate bodies are trend

setters in terms of pay and conditions. Corporate bodies are driving down associate's income and introducing shift patterns to ensure that expensive dental equipment is used for a greater number of hours per week.

- **Retirement trends among practitioners:** It is hard to sell a dental practice today and fewer young dentists want to be practice owners. Many dentists increased private provision in the 90s and early 00s meaning that their superannuation contributions were low so they are now having to extend their careers in order to bring their pension pot up to the desired level. Some will take 24 hour retirement and then return to work. The effect of this is longer careers and a greater number of older dentists in the workforce.

- **Attracting dentists to rural areas:** Many young dentists do not appear to be as interested in the financial end of dentistry and therefore offering more money in rural practices does not necessarily attract them. There is a recognised tendency for new graduates to remain close to the city in which they trained. This makes it harder to recruit to rural practices. The problem is compounded by the quality of the road network in NI which increases travelling times and reduces the viability of living in Belfast while working in a rural/remote area.

- **Issues associated with dental nurses:** Practice owners are finding additional costs associated with these staff members due to indemnity and GDC registration fees. There are two types of training scheme for dental nurses and one of these requires the practice to provide significant amounts of input into the training programme. This includes the completion of a detailed portfolio. This is off-putting for some practices and a barrier to the training of dental nurses. Against this there appears to be sufficient theory courses provided at local Technical Colleges to provide appropriate geographical spread. In addition, there are now a number of enhanced training opportunities which enable career progression, making the job more interesting and rewarding.

It is clear that the **Dental Nurse supply** is critical to the continued delivery of HSC dental services and is equally important for the private sector. NIMDTA has provided details of where dental nurse training is currently being delivered. There are currently several providers across Northern Ireland and most students fund their own training with a nominal amount of support available from the Department. As part of this review it was decided that looking at the dental nurse current vacancies and potential vacancy numbers could inform the discussion as to whether there is sufficient dental nurse training available. As dental nurses are generally paid close to the minimum wage, turnover of staff can be high as there is little or no career progression currently available. HSCB agreed to undertake an exercise to capture dental nurse vacancy numbers.

Dental Nurse Survey

A survey letter on Dental Nurse availability was issued to all Practice Principals on 18 October 2017 with responses requested by 25 October via email, post or telephone. 174 responses were received.

Responses:

UNFILLED POSITIONS			
None	**One**	**Two**	**Three+**
118	39	11	6
68%	22%	6%	3%
Total Replies			**174**
% Reponses			**45.79**

Below are comments received by telephone, email and returned survey letters.

- Has had to use trainees in the past due to recruitment difficulties.
- One of the dentists has had a nurse in training as their assistant. Practice has had difficulty attracting applicants for the role of Dental Nurse in the last few years.
- Has taken on a Trainee Nurse as there seems to be a scarce supply of qualified nurses.
- No current vacancies - though has 3 trainee dental nurses. Few who are qualified are applying for available positions
- Hygienist recruitment is a challenge. Especially with no course in NI.
- Staff moving on to hospital service. Little interest from recruitment exercises
- Positions difficult to fill.
- Very difficult to get qualified nurses - would appreciate more help to train nurses.
- When practice does have vacancies it is extremely difficult to get a qualified Dental Nurse and so they usually take on trainees.
- One practice which has currently no vacancies (using trainees) highlighted difficulties it has had in the past. Also expressed some concerns about the pass rate on the Belfast Met course.
- Another practice, again with no current vacancies but using trainees, has expressed concerns about the difficulties around the recruitment and retention of qualified dental nurses. They are currently using online training via the Dental Nurse Academy http://www.dentalnurseacademy.com/ which to date has proved to be effective and easier in terms of administrative support. They suggested that it would be worthwhile checking how many nurses are registered versus the number of dental practices in NI.
- Concerns re availability of places at the Met and questioned pass rate
- Experience is that there are no qualified nurses available. Practice has trained and sourced a course for new recruits placing high costs on the practice. Feels that dental nursing is not being promoted as a suitable career option for 17 year olds and that there is a shortage of good dental nursing courses available with very little support given to the employer during this process.
- Email received from a course provider for the Diploma in Dental Nursing and the Oral Health Education certificate. Opinion is that the shortage of Dental Nurses is due to the fact that 90% of students are self-funded and are receiving minimum wage. Queried if there is any funding available to support training.

An individual who wishes to practice as a dental nurse must be registered with the General Dental Council. In order to be eligible for registration, that person must hold an approved qualification. Of the nine currently approved qualifications only one, the **National Examining Board for Dental Nurses' National Diploma in Dental Nursing**, is offered in Northern Ireland (five training providers) and the Republic of Ireland (two training providers), from where it might be expected that most of the dental nurse workforce might arise. The Board's website states that its professional qualifications are not currently in the Qualifications Framework, but that their Diploma in Dental Nursing is broadly equivalent to a Level 3 qualification.

The Department of Health has provided funding for certain dental nurse education courses in Northern Ireland following the transfer of dental nurse training and education policy from the former Department of Employment and Learning.

The five training providers in Northern Ireland were approached earlier this year to provide basic details on the format of the courses that they offer and the number of students participating at August 2017. The courses range from one to two years' duration and are in full-time, part-time or part-time (e-learning) formats. North West Regional College and Southern Regional College also provided information on courses that had been run as pilot level 3 apprenticeship programmes. We can see that NIMTDA have also identified another pilot level 3 apprenticeship programme provider, South West College. When the research was carried out, this College's website did not show that a dental nursing course was being offered, presumably because their apprenticeship pilot had ended by then.

1. When this information was obtained, no decision had been made on whether those apprenticeship programmes would run in 2017/2018 (although Southern Regional College did provide student numbers over two years, suggesting they would continue to offer this course). The uncertain status of the apprenticeship programme relates to the fact that the National Examining Board for Dental Nurses' National Diploma in Dental Nursing is not included at the moment as an approved qualification in Northern Ireland's Apprenticeship Framework. While the currently approved qualification is the City & Guilds Level 3 Diploma in Dental Nursing, the National Examining Board's qualification seems to be the preferred dental nursing qualification amongst the profession in Northern Ireland.

2. Interestingly, as this information was being gathered the Belfast Metropolitan College asked how the Department would view the provision of a Foundation Degree in Dental Science (a Level 5 qualification) for existing dental nurses. In light of discussions in the Steering Group about extending the practice of dental nurses and creating valid career paths for them, perhaps this proposal does merit some further consideration. However, it is likely to be more costly to provide than the existing Diploma level qualifications and may consequently result in a request for increased supportive funding from this Department. Ultimately any decision on the provision of this course should be based on its ability to have a significant, positive impact on the dental health of the population, sufficient to outweigh any additional financial costs associated the new qualification.

The information below representations updated information on the NEBDN course providers and number of students:

There are 6 providers registered for the NEBDN diploma in dental nursing in Northern Ireland:

1. Harriet Ellis Training & Recruitment Group Ltd - Belfast Titanic Suites Belfast 55 - 59 Adelaide Street: This is an online distance course with no maximum capacity of students, the delegates must already be working in a dental practice. Commencement can be at any time of the year. They currently have 800 students UK wide

2. Belfast Metropolitan College Titanic Quarter Northern Ireland: They provide two courses one course part time 40 students and one course full time 40 students: currently have 80 enrolled could take up to 100 students however do not have the capability to mark 100 ROE's.
3. Bangor School for Dental Nurses Mc Donough & Garrett Dental Care 107 Hamilton Road: This is a part time course with the capacity for 20 students they currently have 13 enrolled.
4. Southern Regional College - Portadown Southern Regional College 36-44 Lurgan Road, Portadown: They offer two part time courses, one in Newry and one in Portadown. Capacity for 22 students in each and both classes currently filled.
5. South West College – Enniskillen campus. They have been running this as a pilot apprentice scheme with a capacity for 10 however now only have 6 students attending.
6. North West Regional College – Strabane campus. Part time 2 year course. Unable to get confirmation of course running this year.

There are also 2 centres in the south of Ireland. Co. Dublin and Co. Louth offering the NEBDN examination and Letterkenny college offers a Higher Certificate in Science in Dental Nursing 2 year course.

It is clear from the above information that there is shortage of dental nurses in Northern Ireland. The figures returned regarding vacancies (extrapolated assuming a representative sample) indicates that there are vacancies accounting for 10% of dental nurse positions. This is clearly a serious issue which indicates, in the absence of firm figures on dental nurse supply, there are issues which need to be explored further. In addition, the qualitative responses indicate a dearth of qualified and experienced dental nurses in the labour market, given the consistent feedback that many positions were only filled by employing trainees rather than the experience staff many practices indicated they were wishing to attract. Again, this indicates a further issue within the supply of dental nurses where experienced qualified staff are difficult to attract for many practices. However, the provision of dental nurse training within Northern Ireland should provide a basis for ensuring any changes to the skill mix across the dental nurse workforce are potentially viable if education and training is developed locally which matches need.

Step 4 Key Findings and Recommendations

Key Findings

- Northern Ireland has more GDS dentists in relation to population (57.1 per 100,000) than all other countries in the UK
- The use made in Northern Ireland of dental hygienists and therapists is less than elsewhere in the UK
- In total 1,548 dentists with Northern Ireland addresses are registered with the GDC. Of these, 1,057 are GDS dentists, with an additional 166 dentists employed in community or hospital services (total 1,223)
- Hygienists & therapists are used sparingly at present in the Northern Ireland health service, hardly any in GDS and very few in Community Dental Services

Recommendations

- The role of dental Therapist/Hygienists/Technicians within Northern Ireland has not been developed in line with other areas of the UK. The Dental Hygienist course has not been in operation since 2009 and there is no evidence of demand for this course in the near future. As a result it is not recommended that the DOH prioritise the provision of training for these roles relative to dentist and dental nurse provision.
- It is clear that there is shortage of dental nurses in Northern Ireland. The figures indicate that there are vacancies accounting for 10% of dental nurse positions. This is clearly a serious issue which poses challenges for future appropriate skill mix and needs to be explored more fully to determine possible solutions.
- The provision of dental nurse training within Northern Ireland should provide a basis for ensuring any changes to the skill mix across the dental nurse workforce are potentially viable if education and training is developed locally which matches need. The DOH should explore the potential for current dental nurse training provision to encompass advanced practice to meet the skills likely required in the future.

Step 5: Action Planning

Goal: PLAN TO DELIVER THE REQUIRED WORKFORCE WITH THE RIGHT SKILLS, IN THE RIGHT PLACE (NEW SKILLS IN NEW LOCATIONS) WITH MILESTONES AND TIMESCALES TO MANAGE THE CHANGE

A plan for delivering the right staff, with the right skills in the right place needs to be developed with milestones and timescales. It should also include in your plan an assessment of anticipated problems and how it will build a momentum for change, including clinical engagement.

5.1	PRIORITY PLANNING (To increase supply or reduce demand)
	What are the most significant areas for change (to reduce the gap in Supply & Demand)? What are the least significant areas for change (to reduce the gap in Supply & Demand)? What is the cost?

It is clear that there are a range of implications from the modelling undertaken for dental services in Northern Ireland and the dental workforce. Below are the main issues arising from the work undertaken:

- Any move to a more varied skill mix in dental services where greater use of DCPs is expected will need to be carefully managed given the limited development and training routes for such roles. In particular, if community services are to expand to meet the needs of an increasingly elderly population there will be a need to plan how these roles can be filled through career development
- However, the option of employing or developing extended practice among the dental nurse workforce would lessen the demand for hygienists, dental therapists etc. Given that there are few development routes within Northern Ireland for these latter roles, the route of developing increasing numbers of dental nurses with extended skills may well prove the most cost effective and sustainable route. However, this will need to take account of the points made earlier regarding difficulty in practice nurse recruitment and levels of skills.
- The large proportion of community dentists due to retire is a major issue in the medium term with the need for a plan to ensure that these roles can be filled even before taking into account any increase in total numbers projected in these projections
- The attractiveness of community roles is a potential barrier to ensure the required delivery of services in the future. Methods to attract and retain staff in these roles will need to be part of any comprehensive workforce development approach
- The number of GDS dentists, although increasing, should not prove to be problematic given the current throughput of newly qualified dentists both within and external to Northern Ireland. However, again, levels of expected retirements do need to be taken account of alongside potentially increasing demand
- Any move towards a greater use of skill mix in staffing will to some degree depend on the progress made with the introduction of a new contract for GDS activity. Careful consideration will need to be given to the final outcome of negotiations and their potential impact
- Linked to the new contract, the financial sustainability of services will be impacted by changes to service models and skill mix. Changes will need to be achieved within a financial envelope while not prohibiting required workforce changes where possible (e.g. investment in education and training)
- The prospect of a Foundation Degree in Dental Science should be fully explored to assess whether the likely increased costs of such courses would be justified by and provide the skill mix required within the dental nurse workforce set out in option 3 above. In particular, this should be a priority based on the likely lack of supply of hygienists, dental therapists etc.

5.2 GAP ANALYSIS

Has a gap analysis been undertaken of each scenario? What changes are needed to the current workforce? (Gaps between supply and demand)
Has the gap analysis identified any new skills, knowledge and competences required for the current and future workforce?

The gap between the current workforce and the potential future workforce across the 3 options presented in section 3.1 presents the possible gaps between the various roles delivering dental care across Northern Ireland.

The skills and knowledge gaps are primarily represented in the discussion on dental nurse supply in section 3.3 and 4.2.

Step 5 Key Findings and Recommendations

Findings

- The attractiveness of community roles is a potential barrier to ensure the required delivery of services in the future. Methods to attract and retain staff in these roles will need to be part of any comprehensive workforce development approach
- The number of GDS dentists, although increasing, should not prove to be problematic given the current throughput of newly qualified dentists both within and external to Northern Ireland. However, again, levels of expected retirements do need to be taken account of alongside potentially increasing demand
- The large proportion of community dentists due to retire is a major issue in the medium term with the need for a plan to ensure that these roles can be filled even before taking into account any increase in total numbers projected in these projections

Recommendations

- Given that there are few development routes within Northern Ireland for dental therapists, hygienists etc, the route of developing increasing numbers of dental nurses with extended skills may well prove the most cost effective and sustainable route.
- The prospect of a Foundation Degree in Dental Science should be fully explored to assess whether the likely increased costs of such courses would be justified by and provide the skill mix required within the dental nurse workforce set out in option 3 above. In particular, this should be a priority based on the likely lack of supply of hygienists, dental therapists etc.
- The DOH will need to work with local education providers to ensure appropriate training and education routes are available for dental nurses extended practice. However, this will need to be looked at in relation to the expected skills required.

Step 6: Implement, monitor and refresh

Goal: Implementation of the plan, processes to measure progress and refresh the plan as determined

The plan must be delivered effectively and will need periodic review and adjustment. The plan will have been clear about how success will be measured and may have tried to anticipate any unintended consequences of the changes. However, there needs to be periodic monitoring and review so that any corrective action can be taken.

6.1	IMPLEMENTATION
	What are the key milestones of your plan? Progress against the plan is to be monitored? What are the lines of responsibility? Key milestones will need to be agreed depending on the proposed actions taken on the basis of the information provided within this plan, which will in turn determine the responsibilities and involvement of key stakeholders. As a result, Step 6 in its entirety will need to be determined once those decisions are taken and cannot be answered as part of this plan.
6.2	MEASURING PROGRESS
	How are the outcomes and unintended consequences going to be measured?

6.3	REFRESHING YOUR PLAN AND ACTIONS
	What is the process for revisiting your plan and refreshing any requirements?
6.4	CONTINUOUS IMPROVEMENT

	Step 6 Key Findings and Recommendations
	• An implementation plan will need to be developed by DOH and kay stakeholders once a decision has been made on the future direction of dental services

Recommendations

Education and Training

- The major impact on the projected numbers in this option is an increase in the number of required dental nurses by 148 WTE based on their much greater role in prevention activities and the expansion of their roles and responsibilities. This will require, given the current education and training throughput for Dental Nurses, the DOH and partners to ensure there is a robust education pathway to deliver the future numbers required.
- The role of dental Therapist/Hygienists/Technicians within Northern Ireland has not been developed in line with other areas of the UK. The Dental Hygienist course has not been in operation since 2009 and there is no evidence of demand for this course in the near future. As a result it is not recommended that the DOH prioritise the provision of training for these roles relative to dentist and dental nurse provision.
- The provision of dental nurse training within Northern Ireland should provide a basis for ensuring any changes to the skill mix across the dental nurse workforce are potentially viable if education and training is developed locally which matches need. The DOH should explore the potential for current dental nurse training provision to encompass advanced practice to meet the skills likely required in the future.
- Given that there are few development routes within Northern Ireland for dental therapists, hygienists etc, the route of developing increasing numbers of dental nurses with extended skills may well prove the most cost effective and sustainable route.
- The prospect of a Foundation Degree in Dental Science should be fully explored to assess whether the likely increased costs of such courses would be justified by and provide the skill mix required within the dental nurse workforce set out in option 3 above. In particular, this should be a priority based on the likely lack of supply of hygienists, dental therapists etc.
- The DOH will need to work with local education providers to ensure appropriate training and education routes are available for dental nurses extended practice. However, this will need to be looked at in relation to the expected skills required.

Recruitment

- A need for an additional 30 GDS dentists by headcount. However, once expected retirements are factored in (an expected loss of 217 dentists) this rises to an expected total number of 247 headcount additional dentists by 2025. As a result there is a need for the DOH to ensure the current routes for the supply of dentists are maintained.
- It is clear that there is shortage of dental nurses in Northern Ireland. The figures indicate that there are vacancies accounting for 10% of dental nurse positions. This is clearly a serious issue which poses challenges for future appropriate skill mix and needs to be explored more fully to determine possible solutions.

Demographics

- Many of the 92 experienced Community Services dentists are approaching retirement, with up to 40% potentially retiring by 2025. As a result an additional 36 community dentists could be required by 2025, meaning a total number of 61 additional dentists to meet future demand. As a result, there is a need to explore the attractiveness and development of community dentistry roles in order to meet future demand.

• There are also clear issues for the DCP workforce in Community Services due to increases in demand alongside significant retirement issue for Oral Health Promotion Professionals, 9 of whom could retire by 2025 (50% of the workforce). Again, as a result of this future demand, assessing the attractiveness of Community Service DCP roles, and ensuring the appropriate skills are in place, should be a priority for DOH
Networks
• Practice networks will increasingly cement their place in the landscape of Northern Irelands dental service provision. The scale of practice networks could be an important factor in enabling the workforce development and flexibility of the future workforce through allowing role and staff development not necessarily feasible for single practices. The DOH and partners should explore how such practice networks could be supported to increase workforce flexibility.
Engagement
• In order for the proposed development of the workforce to happen, there will need to be involvement from a range of stakeholders including dental practices, education and training providers, DOH, regulatory bodies and others. A steering group should be set up to help steer the implementation of a workforce plan, reflecting the range of stakeholders above.