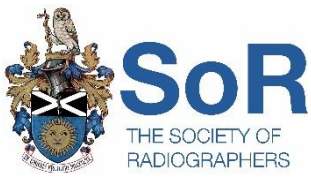
# Department of Health

# Workforce Review Report

# Therapeutic Radiography

# 2019 – 2029






North West
Cancer Centre

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## Foreword

Since October 2016, Health and Social Care workers and the Department of Health have been cooperating to deliver the transformation set out in ***Health and Wellbeing 2026: Delivering Together***. This ambitious ten-year plan was our response to the report produced by an Expert Panel led by Professor Bengoa, who were tasked with considering how best to re-configure Health and Social Care Services in Northern Ireland.

The aim is a health and social care system that helps people to stay well for longer, with services delivered in the community or at home, where possible. Allied Health Professions (AHPs) will play a key part in responding to this challenge, particularly as we expand the role of innovative, multidisciplinary teams across a range of integrated care pathways within health and social care settings. No matter how or where AHP staff work, they will continue to maintain their clear professional focus: ensuring that people, who are ill, have disabilities or special needs, can live the fullest lives possible.

Since these AHP Workforce reviews commenced the landscape across Health and Social Care has changed considerably. Opportunities for AHPs have been created across a range of primary care multi-disciplinary teams. These are to be welcomed but it is important to have the highly skilled workforce required to take these opportunities as they arise. This series of workforce reviews are written with a view to identifying and quantifying the workforce required to meet these challenges and help drive the transformation agenda forward.

The AHP Workforce reviews will help to address one of the immediate priorities set out in the "New Decade New Approach" document published at the time of the establishment of the new NI Executive. The commitment being that the Executive will transform HSC services through reconfiguration of services.

The Covid-19 pandemic challenged us in many ways including the immense pressures placed on our workforce, but there are others pressures challenging us to think and act differently and to consider as to how we currently work and as to how we may work in the future.

In this changing environment, it is even more essential that we have an understanding of our workforce needs, so that we can plan effectively to maintain and develop our services into the future. This was recognised in ***Health and Wellbeing 2026: Delivering Together*** and appears as a key theme in the associated ***Health and Social Care Workforce Strategy 2026: Delivering for Our People.*** Recognising that the HSC is a changing environment and will continue to evolve, this series of workforce reviews are "living documents" which will be reviewed throughout the period of the reviews.

This report and the clear recommendations it contains are the result of a wider Workforce Review Programme covering all thirteen AHPs in Northern Ireland. Since March 2017, Project Groups comprising representatives from across the health and social care service, professional bodies, staff side representatives and the Department of Health have been meeting regularly to consider how these professions / services are likely to develop in the period 2018 – 2028. Their work has been overseen by the AHP Workforce Review Programme Steering Group and applies the ***Regional HSC Workforce Planning Framework's*** six-step methodology.

This process and its resulting workforce review reports are the products of active co-design and co-production, delivering together to ensure the workforce needs of the HSC are met. Project Groups have engaged with their stakeholders including service users and carers, both in formal engagement events and through ongoing involvement with relevant individuals and organisations. Their input has been invaluable in producing this final document and its recommendations. We would like to thank everyone who has contributed to the work of the AHP Workforce Review Programme.

Our vision is that to Northern Ireland has an AHP workforce that has the capacity and capability to deliver the best possible care for patients and clients and has the leadership skills and opportunities to lead and transform services to improve population health. This Review Report and its recommendations set us on course to do just that for this profession.

**Professor Suzanne Martin**
**Chief AHP Officer**
**Department of Health**

**Philip Rodgers**
**Director of Workforce Policy**
**Department of Health**

## Executive Summary

The Therapeutic Radiography Workforce Review has been initiated, guided and endorsed by the Department of Health (DoH) and co-produced by Therapeutic Radiographers from the Belfast Health and Social Care Trust and the Western Health and Social Care Trust in collaboration with the Public Health Agency (PHA).

The aim of the review is to ensure that adequate numbers of Therapeutic Radiographers are trained at undergraduate level to meet the anticipated demands for the profession over the next 5-10 years.

A range of methods were employed over the period of the review including gathering and analysing statistical data, conducting a range of workshops, surveys, focus groups and meetings with stakeholders across the Health and Social Care (HSC) system, and reviewing relevant policies and strategies to identify proposed service developments or changes over the next number of years.

It is evident that the Therapeutic Radiography profession, like all Allied Health Professions (AHPs), faces a number of challenges in terms of having a staffing resource with the capacity to manage the anticipated increase in demand in the service areas it currently operates. These areas are clearly highlighted in the review content. In doing so, the profession is mindful of the need to ensure the delivery of safe and effective services that continue to meet the needs of service users.

The review outlines a number of key recommendations in order to achieve objectives, which are outlined within the Terms of Reference (ToR) in Appendix 2.

## Abbreviations

**AFC:** Agenda for Change

**AHP:** Allied Health Professional

**CSSR:** Clinical Site Specialist Radiographer

**CT:** Computed Tomography

**DIBH:** Deep Inspiration Breath Hold

**DoH:** Department of Health

**DoHNI:** Department of Health for Northern Ireland

**ECG:** Education Commissioning Group

**HCPC:** Health and Care Professions Council

**HSC:** Health and Social Care

**HSCB:** Health and Social Care Board

**I&S:** Information and Support

**IGRT:** Image Guided Radiotherapy

**IM&T:** Information Management and Technology

**IMRT:** Intensity Modulated Radiotherapy Treatment

**JCCO:** Joint Collegiate Council for Oncology

**LCG:** Local Commissioning Group

**SL:** Sick Leave

**ML:** Maternity Leave

**MRI:** Magnetic Resonance Imaging

**MRSim:** Magnetic Resonance Simulator

**NI:** Northern Ireland

**PHA:** Public Health Agency

**PPI:** Personal and Public Involvement

**R&D:** Research and Development

**RCR:** Royal College of Radiologists

**ROI:** Republic of Ireland

**SABR:** Stereotactic Ablative Radiotherapy

**SOR:** Society of Radiographers

**TBI:** Total Body Irradiation

**TIG:** Tumour Interest Group

**TSET:** Total Skin Electron Treatment

**UK:** United Kingdom

**UU:** Ulster University

**VERT:** Virtual Environment for Radiotherapy Training

**VMAT:** Volumetric Arc Therapy

**WLB:** Work Life Balance

**WTE:** Whole Time Equivalent

## 1. Introduction

Therapeutic Radiographers are the only AHP profession who have undergone specific training to be able to deliver treatment to and work directly with cancer patients from undergraduate level.

Therapeutic Radiographers, regulated with the Health and Care Professions Council (HCPC) are entitled to hold this protected title. They are responsible for planning and treating patients with cancer employing complex imaging techniques to ensure that radiotherapy treatment is delivered correctly, using hi-tech machines called linear accelerators (linacs). Caring for cancer patients is at the heart of the Therapeutic Radiographer's role. Good communication skills and a compassionate approach are essential qualities for every radiographer.

Cancer affects one in three people and radiotherapy is a key component of both radical and palliative treatment options. Of patients cured from cancer, it is estimated that radiotherapy contributes in 40% of cases either alone or in combination with other treatments. ***(A Vision for Radiotherapy 2014-2024 CRUK 2014).***

This workforce review incorporates the Radiotherapy Service in Northern Ireland (NI), which employs 138 Therapeutic Radiographers at the Northern Ireland Cancer Centre (NICC) based at Belfast City Hospital and the North West Cancer Centre (NWCC) based at Altnagelvin Hospital.

### a) Drivers for Change

The main purpose of the Therapeutic Radiography workforce review was to ensure services across NI are both sustainable and delivered to a high standard. The range of challenges faced by the HSC system has reinforced the need to ensure that the Therapeutic Radiography workforce is balanced correctly in terms of numbers, skills and the banded profile of the workforce. This will ensure that an adaptive Therapeutic Radiography workforce is deployed in the right way and that services provide timely support for patients at both population and specialist levels.

The strategic direction for transformational change within the HSC has been clearly outlined in ***'Health and Wellbeing 2026 – Delivering Together'***, ***'Systems not Structures: Changing Health and Social Care – Expert Panel Report' and the future Cancer Strategy***. These inform and describe the need to change in order to ensure services can meet the predicted demographic needs and challenges facing the region over the next decade and beyond.

These strategic drivers:

- Recognise the changing needs of Health and Social Care service users, the complexity of these needs and the necessity to provide safe, high quality care in response to those complex needs

- Acknowledge a link between the needs of the population and the changing demography across the NI population, with a greater emphasis on a preventative, supporting and empowering approach to shared care

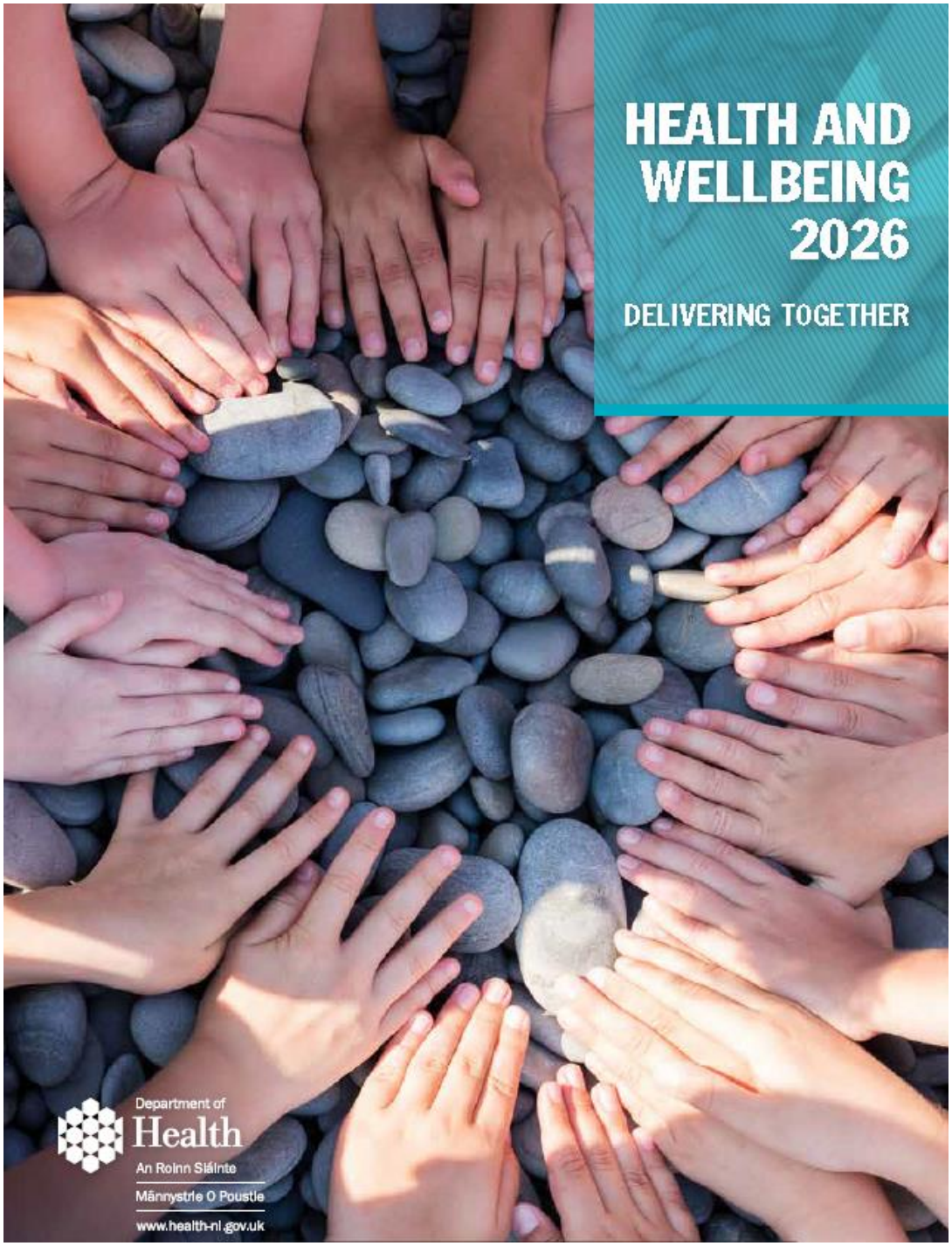
- The need for revised service delivery models with the ability to provide a sustained model of care in response to demand and service development predictions, to meet the needs of patients and clients, carers and families and health and social care staff

- Patient safety and quality of care

- Ensure affordability of services given the challenging financial context for all organisations across the region of NI

- The need to connect workforce issues with the overall strategic direction of HSC in NI e.g. Delivering Together, Delivering for our People-HSC Workforce Strategy 2026, Cancer Strategy and the importance of investing in our workforce, providing opportunities to develop their skills and find suitable career paths at all levels.

**'We must invest in our staff and provide the environment to allow them to do what they do best – provide excellent high quality care'** – *'Health and Wellbeing 2026 – Delivering Together'*



### b) Radiotherapy Specific Drivers

Alongside these, there are a number of specific drivers which directly impact the Radiotherapy service:

- **NI Cancer Strategy**

  After many years, there was an acknowledgment that a Cancer Strategy for NI is required. Policy direction has been set, and work is progressing. It is anticipated that the findings of this workforce review will inform the overall response to the finalised Cancer Strategy.

- **Review of Non-Surgical Oncology**

  Since commencing this workforce review, the Transformation Implementation Group (TIG) approved a review of non-surgical oncology services. This transformation project will focus on providing a high quality, stable and sustainable service, and will develop a medically led and supported service model which is delivered by Advanced Practitioners and Consultant Radiographers.

- **Population demography**

  The patient population requiring radiotherapy is changing, life expectancy is increasing with a greater proportion of the population being diagnosed with long term conditions, particularly cancer.

  Of those diagnosed with cancer, an increasing proportion are now offered radiotherapy as part of their Multi-Disciplinary Team management plan, of both curative and palliative intent. In the period of April 2015 – March 2016, 4295 radiotherapy referrals were generated to the NICC, steadily increasing to 4398 referral generated in the April 2019 – March 2020 period.

  With improvements in cancer care, cancer patients are surviving longer and living well with cancer, with some patients often having repeated courses of radiotherapy.

There is also evidence that the aging demography of our population and improvements in cancer care, is resulting in increasing numbers of patients with more than one cancer diagnosis, requiring additional radiotherapy.

Radiotherapy as a treatment modality is often the treatment of choice for older patients, patients with co morbidities or multiple diagnoses.

- **Public Health remit, Health Promotion and lifestyle management.**

  As a long term condition, people need to be informed and educated on how to live with cancer. Therapeutic Radiographers are ideally placed to educate patients, passing on their knowledge and expertise at key teachable moments. In recent years there has been a change in focus to improve functional aspects of a patient's treatment journey, with Therapeutic Radiographers engaged in pre-treatment aspects to prevent post-treatment events.

- **Patient Expectations and Feedback**

  Co-production within radiotherapy is especially important given the emotive nature of cancer, the media attention it attracts and the public perception of such a service. Co-production and design drives changes to the provision of the radiotherapy service i.e. patient choice regarding where they have treatment and also feedback about the service they have received.

  ***(Health and Wellbeing 2026: Delivering Together**; https://www.health-ni.gov.uk/sites/default/files/publications/health/health-and-wellbeing-2026-delivering-together.pdf*
  ***SOR Published Guidance: Patient, Public and Partnerships within Imaging and Radiotherapy: Guiding Principals;** https://www.sor.org/sites/default/files/document-versions/guiding_principles_final_proofed_0.pdf )*

- **Northern Ireland Cancer Centre (NICC) / North West Cancer Centre (NWCC) Radiotherapy service profiles**

  In regards to capacity, patient choice and staffing, consideration must be given to the fact that, as the service model in North West Cancer Centre changes, requirements may change for both centres. Capacity for North West Cancer Centre is unique as it is also influenced by ROI requirements, not just UK context.

- **Technology and Artificial Intelligence**

In radiotherapy this is evolving at an ever growing pace making it difficult to predict required staffing levels to resource future equipment. As technology evolves, the development of a highly skilled, and therefore higher banded, Therapeutic Radiography team is crucial to delivering advanced treatments. Radiotherapy treatments have become significantly more sophisticated in the last decade, with the increasing role of treatments to improve survival or decrease long term toxicity. There is a constant requirement for Therapeutic Radiographers to expand their pre-treatment planning training and gain experience in different areas e.g. MRI in order to facilitate the next wave of new technologies.

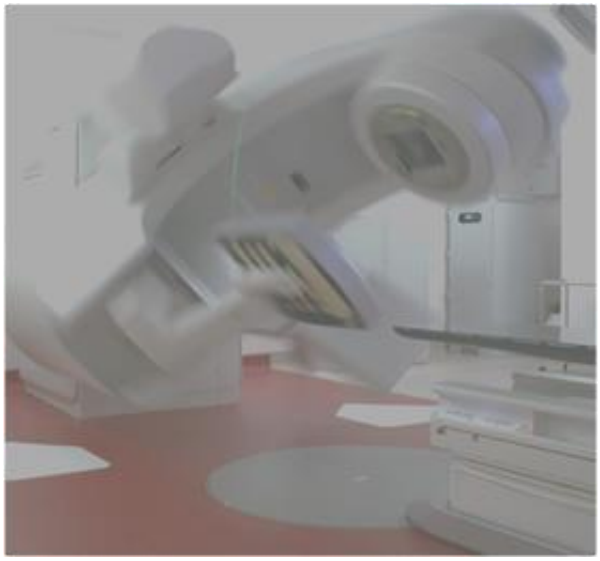


**Figure 1: Linear Accelerator - machine used to deliver Radiotherapy treatment**

***(A Vision for Radiotherapy 2014-2024 CRUK 2014).***

The recent publication of the Cancer Workforce Plan ***(Cancer Strategy 2021)*** depicts how innovation and advances in technology will change workforce requirements in the future. Staff competence and training must be developed in line and keep pace with technological developments. Departments must have the capacity to maintain routine service delivery and train radiographers to deliver complex treatments with new equipment.

- **Radiotherapy Clinical Trials (National and International)**

Research provides evidence for safer and more effective radiotherapy treatments which are often more complex. The developmental work involved in implementing trials impacts upon training and machine capacity ***(SOR Published Guidance: 2016-2021 Society and College of Radiographer Research Strategy)***.

- **Increasing Complex Cancer Treatments**

  The ambition to improve patient survival from cancer, drives ever increasing complex treatment regimes, including complex radiotherapy treatments for which greater Therapeutic Radiography capacity and skill is required. Delivering clinical and technical complex radiotherapy treatment regimens requires more radiotherapy treatment machine time and more Therapeutic Radiography capacity per patient than for less complex treatment regimes. The demand/evidence for complex treatments has expanded and is expected to continue.

- **Predominately female workforce**

  The Therapeutic Radiographer workforce is predominantly female (89%) with 82% below the age of 50. This has resulted in a high number of staff on maternity leave and an increase in work life balance requests from radiographers returning from maternity leave. These WLB requests often have a consequential impact on career progression and succession planning.

- **Recruitment/Retention**
  - Widening the 'pool' / marketing NI Therapeutic Radiography Services. HSC NI is facing recruitment challenges within a number of other professional groups. There is a drive to increase recruitment within nursing and physiotherapy, for example, which may result in the Therapeutic Radiography workforce being neglected.
  - With only **two radiotherapy centres in NI**, staff are limited to where they can work. This may impact staff who live a distance from Altnagelvin or Belfast and potentially deter them from applying to work in either of the two centres.
  - Retention of staff may prove difficult as they may take up employment in either centre to commence their career and then move to the other centre, closer to home. Some radiographers leave the profession to seek employment closer to their home.

- Expansion of Radiotherapy services within the Republic of Ireland has resulted in hospitals actively approaching and recruiting both staff and students from NI. This is an attractive option as rates of pay are higher in the Republic of Ireland.

- **BREXIT**

  It remains uncertain how the exit from the European Union will impact our ability to recruit and retain staff from outside the UK. There are a number of staff in both North West Cancer Centre and Northern Ireland Cancer Centre who live in border regions. It may also affect patient resources and it is essential that communication pathways and services with partners across the border are maintained.

- **COVID-19**

  During the COVID-19 pandemic, the Therapeutic Radiography workforce was depleted in senior provision in response to shielding advice from the Department of Health, coupled with self-isolation. In order to ensure service continuity throughout the pandemic, staff in advanced practice roles were redeployed within the department. This has highlighted the need to re-profile the workforce to ensure adequate experienced senior cover is available at all times.

**This is not an exhaustive list but gives a sense of the workforce journey.**

### c) Strategic Content

The Therapeutic Radiography Workforce Review has been initiated, guided and endorsed by the Department of Health (DoH) and co-produced by Therapeutic Radiographers from the Belfast Health and Social Care Trust and the Western Health and Social Care Trust in collaboration with the Public Health Agency (PHA).

The aim of the review is to ensure that adequate numbers of Therapeutic Radiographers are trained at undergraduate level to meet the anticipated demands for the profession over the next 5-10 years.

A range of methods were employed over the period of the review including gathering and analysing statistical data, conducting a range of workshops, surveys, focus groups and meetings with stakeholders across the Health and Social Care (HSC) system, and reviewing relevant policies and strategies to identify proposed service developments or changes over the next number of years.

It is evident that the Therapeutic Radiography profession, like all Allied Health Professions (AHPs), faces a number of challenges in terms of having a staffing resource with the capacity to manage the anticipated increase in demand in the service areas it currently operates. These areas are clearly highlighted in the review content. In doing so, the profession is mindful of the need to ensure the delivery of safe and effective services that continue to meet the needs of service users.

The review outlines a number of key recommendations in order to achieve objectives, which are outlined within the Terms of Reference (ToR) in Appendix 2.

### d) Workforce Plan Methodology

The Therapeutic Radiography workforce review was completed in line with the 6 step methodology outlined within the Regional HSC Workforce Planning Framework as denoted in the diagram below. This allowed a sequenced framework to be adopted to complete all aspects of the workforce review within the set 1 year period which ended in March 2021.

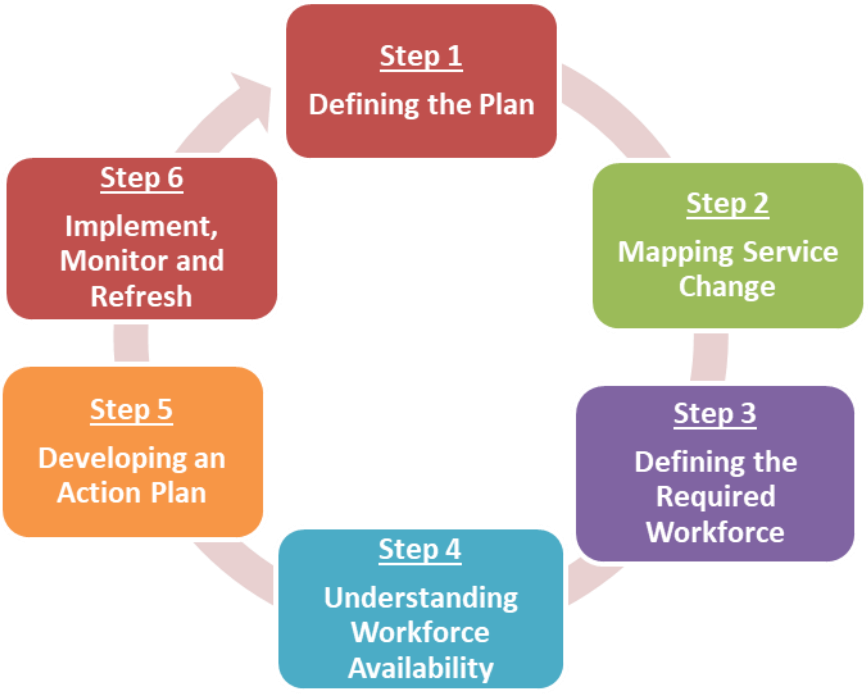



**Figure 2 - Skills for Health - Regional HSC Workforce Planning Framework**

A key component for the successful completion of the Therapeutic Radiography Workforce Review was to obtain relevant stakeholder engagement. In the initial stages of the review a regional professional sub-group was established with relevant stakeholders. This group agreed and worked through specific actions outlined within the Programme Plan, and clear reporting lines were set and communicated to the AHP Workforce Review Programme Steering Group at regular intervals. (Refer to Appendix 1 for Workforce Review Programme Steering Group and Professional Sub-group membership and Appendix 2 for terms of reference).

To effectively achieve this vision a number of key actions have been set within the Terms of Reference this includes:

- Recommendations:
    - On measures, including structures, workforce profile, skills and banding, to re-profile the Therapeutic Radiography workforce to assist with HSC wide transformation;
    - To the DoH via the AHP Workforce Steering Group regarding the commissioning of pre-registration training;
    - Regarding post-registration training requirements;

    - On the recruitment processes to ensure service sustainability and maximum capacity to deliver services;
- Developing a shared understanding of the core elements of effective workforce planning;
- Providing greater clarity of roles and responsibilities, processes, structures and governance;
- Providing an understanding of how organisations and individuals can contribute effectively in a mixed economy;
- Encouraging partnership working both within and between organisations; and;
- Enabling better-informed education commissioning decisions.

### e) Assumptions and Constraints

A number of identified assumptions, constraints and/or risks were identified early in the process of this Therapeutic Radiographer workforce review; these are listed below (Table 1) with the measures taken to help manage and reduce their implications throughout the process of the review.

| Assumptions | Constraints |
|---|---|
| North West Cancer Centre will deliver at full capacity | North West Cancer Centre's transitioning service profile |
| Population of NI will have access to advanced evidenced based best practice | Lack of a full service review |
| Demography of the population of NI is aging with a greater demand on Radiotherapy | Timeframe and Professional capacity to complete workforce review |
| Training of Therapeutic Radiographers will continue in NI | Lack of baseline to enable workforce benchmarking |
| Advanced Practice amongst Therapeutic Radiographers is required | No formal currency for radiotherapy commissioning to predict demand |
| Review of Non-Surgical Oncology will support the introduction of Advanced Practice to include Consultant Radiographers | |
| The role of therapeutic radiography particularly skill mix to include advanced practice and consultant practice radiography will be reviewed within the Cancer Strategy | |

**Table 1: Assumptions and Constraints associated with Therapeutic Radiography workforce**

## 2. Defining the Plan

### a) Purpose, aims and objectives, guiding principles and scope of the workforce review

The main purpose of the Therapeutic Radiography workforce review was to ensure services across NI are both sustainable and delivered to an appropriate standard. The range of challenges faced by the HSC system has reinforced the need to ensure that the Therapeutic Radiography workforce is balanced correctly in terms of numbers and skills. This will ensure that an adaptive Therapeutic Radiography workforce are deployed in the right way and ensure services provide timely support for clients at both population and specialist levels.

To effectively achieve this vision a number of key actions have been set within the Terms of Reference this includes:

- Making recommendations on measures, including structures and skills, to re-profile the Therapeutic Radiography workforce to assist with HSC wide transformation;
- Making recommendations to the DoH via the AHP Workforce Steering Group regarding the commissioning of pre-registration training;
- Making recommendations regarding post-registration training requirements;
- Developing a shared understanding of the core elements of effective workforce planning;
- Make recommendations on the recruitment processes to ensure service sustainability and maximum capacity to deliver services;
- Providing greater clarity of roles and responsibilities, processes, structures and governance;
- Providing an understanding of how organisations and individuals can contribute effectively in a mixed economy;
- Encouraging partnership working both within and between organisations; and; enabling better-informed education commissioning decisions.

### b) Ownership

Relevant professional and workforce leads were identified as nominated members of the AHP Workforce Review Programme Steering Group and the Therapeutic Radiography Sub-group. This included nominations from relevant organisations such as DoH, Human Resources Directors in HSC Trusts, Therapeutic Radiography Heads of Service from each of the HSC Trusts where radiotherapy services are delivered, Public Health Agency (PHA), AHP Leads from the HSC Trusts, Directors/Leads from Health and Social Care Board (HSCB), Staff side, the Society of Radiographers (SCoR) and service user involvement, in line with requirements of the Public and Personal Involvement (PPI) legislative frameworks.

## 3. Mapping Service Change/Future Impacts

### a) Population demographics, health profile and statistics

NI 2017 mid-year statistics estimate the population to be 1.874million and the population projections anticipate a rise of 4.68% to 1.961m by 2027. Information and population statistics available suggest there will be varied levels of increases by 2027 across each of the Local Commissioning Group (LCG) areas, ranging from 2.5% to 9.8% in the same period.

Currently, the highest proportion of the population is aged between 40-64 years (31.9%), followed by those aged between 16-39 years (31.1%). It is predicted that by 2027, the over 65 population is expected to increase by 28%, representing 19.9% of the overall population. This will have a significant impact in terms of service demand/pressure across the health and care system; as people grow older the likelihood of illness and disability typically increases.

A more detailed breakdown of predicted population growth to 2027 by Trust and region is outline in the table (Table 2) below:

| Age Band (Yrs) | Belfast | Northern | South Eastern | Southern | Western | NI |
|---|---|---|---|---|---|---|
| **0-15** | 71,444 | 94,325 | 71,608 | 92,045 | 63,124 | 392,546 |
| **16-39** | 119,079 | 135,866 | 101,364 | 125,295 | 87,591 | 569,195 |
| **40-64** | 109,928 | 155,448 | 117,888 | 128,516 | 97,681 | 609,461 |
| **65+** | 66,201 | 104,691 | 85,183 | 73,207 | 60,757 | 390,039 |
| **All ages** | **366,652** | **490,330** | **376,043** | **419,063** | **309,153** | **1,961,241** |
| **%** | **18.7%** | **25.0%** | **19.2%** | **21.4%** | **15.8%** | **100.0%** |

**Table 2: NI Resident populations by Local Commissioning Group – 2027**

**Statistics:**

During 2015, 15,548 deaths were registered in NI, which is an increase of 5.9% from 2014 and is the highest number recorded since 1999. Almost 2 out of every 3 deaths recorded were people aged 75 or over. The main cause of death was Cancer accounting for 28% of deaths in NI (4,353). This figure has increased to 15,758 in 2019.

### b) Regional Service Profile of Radiotherapy

Patients should not have to travel for more than 1-1½ hours to avail of radiotherapy treatment at one of the two centres in NI.

The regional radiotherapy service operates 5 days per week (Monday – Friday). At the Northern Ireland Cancer Centre primarily between the hours of 8.30am – 5.00pm however service delivery can operate between the hours of 8.00am – 8.00pm, while at the North West Cancer Centre between the hours of 8.30am – 4.30pm. Across the region, an out of hours service is offered to those requiring emergency treatments. In line with RCR and NICE guidelines, to avoid any unnecessary gaps in the management of particular patient groups, a service is provided to cover Bank Holidays.

Service demand required a second Radiotherapy service within NI, with **79,703** treatments being delivered in 2019/20, utilising 13 Linear accelerators. This is an

increase of more than 15,000 treatments from 2016/2017, when 64,024 treatments were delivered.

Patient referrals are processed based on clinical need in accordance with RCR guidance, with consideration applied to Cancer Access Standards. Neither centre actively holds a waiting list, however fluctuations in referrals and unpredicted downtime related to equipment may result in temporary waiting lists being created.

There are no independent sector radiotherapy centres in NI although private patients can avail of services at either centre. However, in regard to radiotherapy planning and treatment, patients are treated as NHS, none of the Therapeutic Radiography workforce in NI deliver private practice. Patients may continue to be reviewed by their Consultant Clinical Oncologist as a private patient throughout their treatment.

There are 138 Therapeutic Radiographers across the region, who provide care across the entire patient treatment journey from the point of referral to post treatment review.

The following table (Table 3) refers to the range of equipment and specialist Therapeutic Radiographer roles within the region of NI:

| | Northern Ireland Cancer Centre | North West Cancer Centre |
|---|---|---|
| **Pre-treatment Equipment** | 3 x CT Scanners<br><br>(2 during replacement programme) | CT Simulator |
| **Number of treatment machines** | 10 Linear Accelerators<br><br>(9 during replacement programme) | 3 Linear Accelerators<br><br>(4th treatment room available, no machine currently) |
| **Brachytherapy** | 1 x Flexitron machine | N/A |
| **Superficial Unit** | N/A | 1 |
| **Annual Treatments** | 64217 (2019/2020) | 15486 (2019/2020) |
| **Number of Therapeutic Radiographers** | 103 (HC) | 35 (HC) |
| **Therapeutic Radiographer Specialist Practice** | Information and Support (I&S)<br><br>2 x Quality Assurance (QA)<br><br>Education and Professional Development (EPD)<br><br>Information Management and Technology (IM&T)<br><br>3 x Brachytherapy<br><br>Research and Development (R&D)<br><br>Clinical Tutor<br><br>7 x Clinical Site Specialist Radiographers (CSSR) some of whom are also non-medical supplementary prescribers (NMP)<br><br>(Lung, Gynae and Breast, 2 x Urological, Haematology and Sarcoma, Gastrointestinal and Head and Neck) | Clinical Software Specialist<br><br>Practice Educator<br><br>IGRT<br><br>Quality Specialist<br><br>Clinical Specialist Radiographer (NMP)<br><br>Treatment Review Specialist (NMP) |
| **Specialised Techniques** | Cranio-stereotactic (SRS)<br><br>Total skin electron therapy (TSET)<br><br>Fractionated Total Body Irradiation (TBI) | MRI Planning |

| | | |
|---|---|---|
| | Lung Stereotactic Ablative Radiotherapy (SABR)<br><br>Prostate SABR | |
| **Regional Services** | Prostate Brachytherapy<br><br>Gynae Brachytherapy<br><br>Paediatric<br><br>Gynae<br><br>SABR | |
| **Quality Standard** | ISO 9001:2015 | QMS ISO 9001:2015 certification<br><br>CHKS accreditation<br><br>MPACE accreditation (for service areas which overlap with radiotherapy physics e.g. VSim, daily QA) |

**Table 3: Regional Radiotherapy Profile**

- In 2019/2020, there were 138 Therapeutic Radiographers working in the Northern Ireland Cancer Centre and 35 North West Cancer Centre (125.94 WTE)
- Predominantly female workforce:

| | **Headcount** | **Male : Female ratio (%)** |
|---|---|---|
| **Northern Ireland Cancer Centre** | 103 | 11:92<br><br>(10.7%:89.3%) |
| **North West Cancer Centre** | 35 | 4:31<br><br>(11.4%:88.6%) |
| **TOTAL** | 138 | 15:123<br><br>(10.9%:89.1%) |

**Table 4: Therapeutic Radiographer Workforce Profile**

Neither NICC nor NWCC employ bank or agency staff.

Based on the 2019/2020 statistics, on average there were 6 vacancies actively in recruitment across both centres.

## c) Workforce Profile for NI for the 2019/2020

Radiotherapy staff across both North West Cancer Centre and Northern Ireland Cancer Centre are funded from Band 5 to Band 8B, the following illustrates the number of WTE staff in each Band for the year 2019/2020:

| Grade/Title/Band | WTE Staffing |
|---|---|
| Band 5 | 40.5 |
| Band 6 | 40.76 |
| Band 7 | 29.68 |
| Band 8A | 13 |
| Band 8B | 2 |
| Band 8C | 0 |

**Table 5: Therapeutic Radiography Workforce Profile in Banding**

The current model of the NI Therapeutic Radiographer workforce profile is illustrated below, alongside the national model of banding across the UK as detailed in the Society of Radiographers Radiotherapy Radiographic Workforce UK Census 2019. The UK model clearly aligns with a predicted model of staffing required to address safe and effective treatment planning and delivery, increasing complexity, which necessitates that staff experience, knowledge, and skills are in abundance.

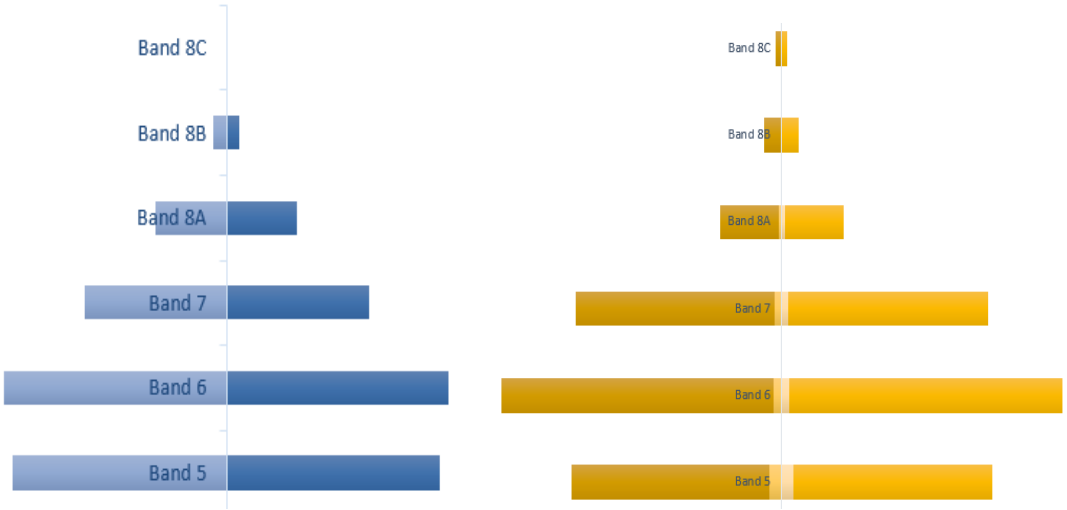


**Figure 3: Current NI (left) and UK (right) models of Therapeutic Radiography Workforce**

Re-profiling of the NI workforce is required to address the high percentage of staff working at band 5 level. This will bring the NI model into line with the recommended profiling model represented across the rest of the UK and may create vacancies for Therapeutic Radiography students. Successful re-profiling would enable a greater emphasis on higher graded, i.e. band 6 and above Therapeutic Radiographers in response to increasing complexity.

## d) Service Development

As an established service, the following table (Table 6) illustrates WTE Funded Service in Northern Ireland Cancer Centre over 5 years, which is increasing in line with increased referrals to Radiotherapy (please note the following table excludes the North West Cancer Centre):

| Year | WTE Funded Service Level |
|---|---|
| **2017** | 98.69 |
| **2018** | 98.39 |
| **2019** | 98.39 |
| **2020** | 98.92 |
| **2021** | 103.93 |
| **Average** | 99.66 |

**Table 6: Northern Ireland Cancer Centre Funded Service Level**

Based on the increase of 5.24 WTE funded service level between 2017 and 2021 in response to new technology and complexity of treatment techniques, 1 additional WTE funded service level staff for each centre are required each year to maintain service

delivery as complexity and technology continue to dominate radiotherapy treatment delivery. (Status quo based on figures for Northern Ireland Cancer Centre only).

In conjunction with advancements in technology, demand for more complex radiotherapy has increased, requiring more time on the treatment machines and staff training to ensure the ability to deliver these services. In the absence of regional data being available, the following graph visually displays how complexity has changed and increased at the Northern Ireland Cancer Centre over a 5 year period.

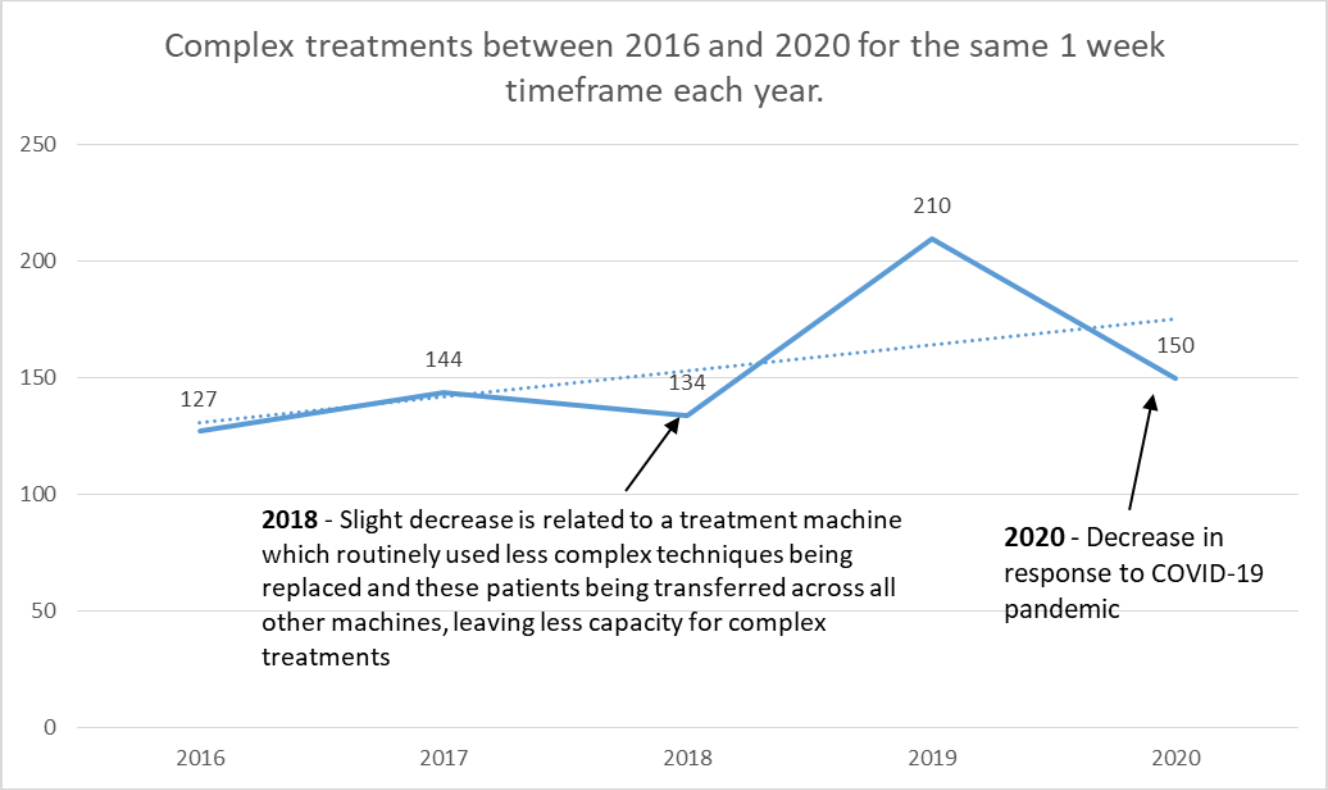



**Figure 4: Complexity of Radiotherapy treatment techniques**

Complex treatments require additional training for Therapeutic Radiographers in regards to treatment technique, imaging and sometimes equipment, which can be difficult if required to 'free up' staff to undertake and become competent. Core teams are often established initially, with a mixture of Band 5, 6 and 7 staff, for complex treatments with cascade training to follow, meaning that it can be some time before all staff are trained. Additional staff would mean that training could be undertaken on a supernumerary basis, decreasing the length of time taken to upskill all staff and the ability to increase the number of complex treatments being delivered. The group

proposes that an additional 5 Therapeutic Radiographers at Bands 6 and 7, would be required to facilitate training on a supernumerary basis. This requirement may be dependent on machine replacement and advancements in technology and techniques.

Radiotherapy is very research driven and some recent cancer clinical trials have examined the overall treatment length (fractionations) of some treatments, resulting in some being reduced. There is an assumption that this reduction in a patient's overall treatment length would save appointment slots and increase capacity on the treatment units. However, although these slots are saved, they then become filled with more complex patients and techniques which take longer to deliver. In practice, the increase in complexity and the need to continually treat patients has not released any capacity.

It is anticipated that the increasing demand in complexity, increasing ageing population and the assumption that patients will have access to advanced technology will have significant impact on future machine (linac) capacity and therefore the number of machines required.

To help ensure national targets are met, the radiotherapy departments in NI work within Royal College of Radiologists (RCR) recommended guidelines for the commencement of radiotherapy. These national guidelines have been set to ensure patients commence radiotherapy treatment in a timely manner, whilst also placing emphasis on safe, high quality treatment planning and delivery.

| Patient Group | Waiting times for Radiotherapy | |
|---|---|---|
| | Good Practice | Maximum acceptance delay |
| A Urgent | 24 hours | 48 hours |
| B Radical | 14 days | 28 days |
| C Palliative | 2 days | 14 days |
| D Post-Operative | - | 28 days |

**Table 7: Joint Collegiate Council for Oncology (JCCO): Radiotherapy treatment guidelines**

Radiotherapy patients generally commence treatment within the RCR guidelines, however there is increasing pressure to reduce pathways and timeframes from the point of referral to treatment, based on clinical trials and outcomes. This brings risk that targets will not be met and additional Therapeutic Radiographer resource would be required to facilitate completion of tasks within the guidelines.

The radiotherapy service also reports on patients who have breached the Cancer Access Standard targets which are often relating to late referrals from another Trust, although there are occasions where targets have breached along the radiotherapy pathway. Additional staff would help to streamline processes and ensure targets are being met consistently.

### e) Unmet need models of service delivery

There are a number of areas of unmet need within radiotherapy. Measures are being taken in an attempt to address some of these areas within the next 5-10 years, however all of these take a considerable amount of time, effort and workforce to implement.

As some are being implemented, other new areas are being developed and proposed, resulting in an ever-growing list of unmet need as demonstrated in Table 8:

| **Areas of unmet need within radiotherapy:** |
|---|
| Superficial skin service has not yet been implemented at the North West Cancer Centre – due to treat first patient May 2021 |
| MRSim – implemented for prostate and H&N at NWCC |
| Brachytherapy- ability to treat other sites such as skin |
| Availability of fiducial markers as standard of care |
| Availability of SpaceOAR as standard of care |
| Immunotherapy |

| |
|---|
| Consistency of treatment equipment e.g. 6 DoF couches etc. |

**Table 8: Areas of unmet need within Radiotherapy**

## f) Sickness absence, Maternity and Paternity Leave

The Therapeutic Radiography workforce is predominately female (89%) as illustrated below:

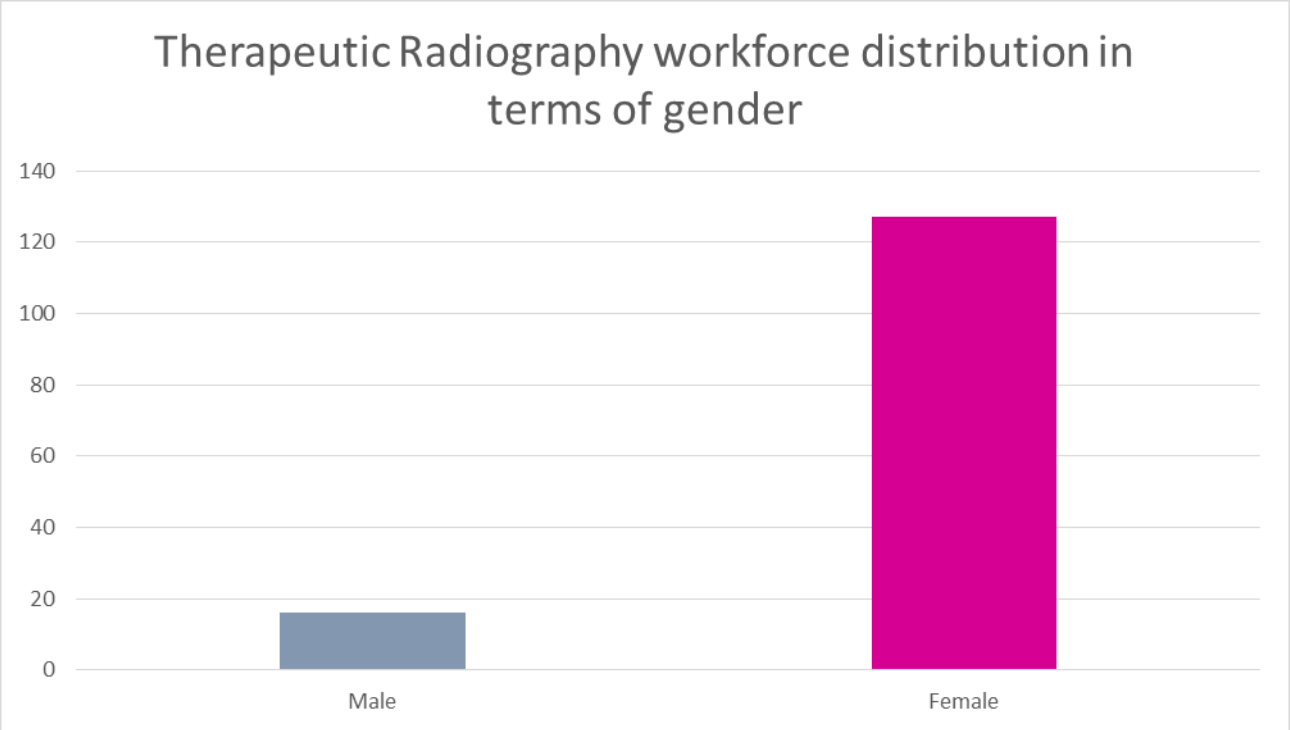



**Figure 5: Therapeutic Radiographer Gender Workforce Profile**

As a relatively young workforce, with 92% below the age of 50, understandably absence relating to maternity/paternity leave is quite high, with an increase in work life balance (WLB) requests from staff returning from maternity leave. Peripatetic posts at Band 6 and above, similar to those offered in other AHP professions, should be considered to ensure continuity of service while substantive staff are on maternity leave.

Number of staff on Maternity/Paternity leave and percentage absence hours for sick leave in both NICC and NWCC for the financial year 2019/2020 are illustrated below (Table 9):

| | Number of staff on Maternity/Adoption/Shared Parent Leave - Financial Year 2019/20 | % Hours Lost due to Sickness Absence - Financial Year 2019/20 |
|---|---|---|
| Northern Ireland Cancer Centre | 8 | 7.14% |
| North West Cancer Centre | 5 | 3.01% |

**Table 9: Therapeutic Radiography absence relating to Maternity/Paternity and Sick Leave**

Based on these figures, 20 WTE peripatetic Therapeutic Radiographers would be required for both ML and SL cover to stabilise the workforce. The workforce review group proposes these posts would be required across Bands 6 and 7 to ensure no gaps in skills mix and to help re-profile the workforce towards the recommended UK model previously mentioned (Figure 3). The COVID crisis highlighted that the radiotherapy service required more senior Therapeutic Radiographers, with increased knowledge, skills and experience to respond to service need.

### g) Work Life Balance

The Therapeutic Radiographer workforce is predominantly young, with 92% of staff below the age of 50 years, as illustrated in figure 6. This figure supports previously mentioned challenges in regard to maternity leave, the need for peripatetic posts and the challenge in increasing WLB applications. The age range of the Therapeutic Radiographer workforce is concerning when consideration is given to retirement age where a significant exit of experienced professionals would be projected. This in itself will also cause concern in regards to the exchange of knowledge and skills and the necessity for succession planning.

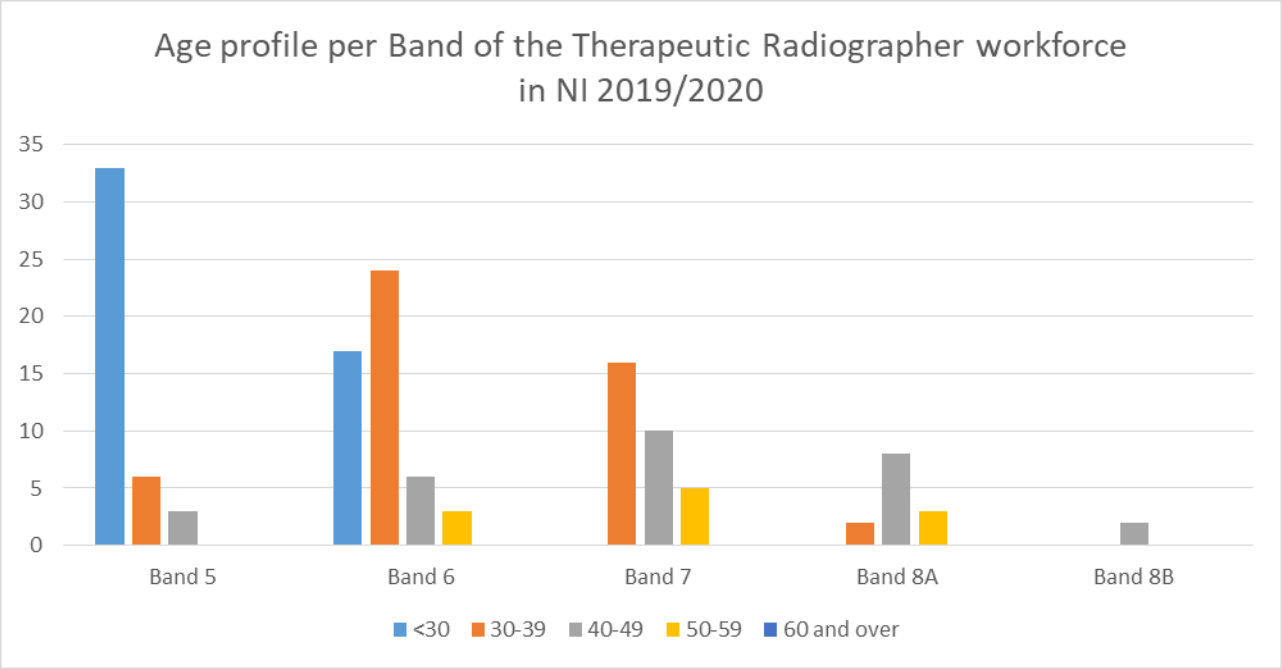



**Figure 6: Age profile of Therapeutic Radiography Workforce in Northern Ireland**

The workforce profile in both departments has changed due to the increasing demand of WLB requests, with the NWCC moving in line with the number of NICC requests.

At the time of compiling this review, 1 male staff member and 19 females are working part time hours, having had WLB applications approved to accommodate caring responsibilities. The majority of these part time staff are Band 6 and above, strengthening the need to re-profile the Therapeutic Radiography workforce.

It is hard to measure the impact of approved WLB requests due to the varied nature of each one e.g. personalised/compressed hours - no hours are actually lost however, resource from the workforce profile is rechannelled to address shortfalls on the times/days when those staff are not in the department.

Having liaised with trade union representatives and informally through staff appraisals, staff meetings where staff have expressed a desire to have a better WLB, it is anticipated that WLB requests from staff will increase.

Backfill is not always possible for WLB approvals and it has, on occasion, not been

possible to approve a WLB request, sometimes a deferral of a start date has been considered in the hope that other WLB arrangements will terminate. Reasons for WLB requests vary, however there is an increasing trend for a change in hours such as compressed or reduced hours. If these requests were to be granted, there would be an impact on service delivery and a potential need to work shifts which would require more staff to implement. To accommodate these requests and facilitate shift working, an additional 8 WTE Therapeutic Radiographers would be required. Further provision may be required in response to increased WLB requests and a need to expand the number of machines working shift patterns.

### h) Staff Turnover and Retirements

There are 11 staff (8%) above the age of 50 years. This will pose challenges in relation to the potential loss of knowledge, skill and experience when these staff retire and it will be necessary to ensure succession-planning strategies are implemented in an attempt to avoid a deficient. This in itself will become a challenge to ensure additional training is offered to staff. The current staff profile with the majority of staff at band 5 level with the smaller but older and more experienced band 7 staff being the staff group that will retire further supports the need to re-profile the staffing model across Therapeutic Radiography.

Staff Turnover which is not related to retirement is small and addressed through recruitment.

The following table (Table 10) illustrates the loss of workforce due to retirement over the last 5 years, 2016-2021, across the region.

| Department | Headcount | Funded WTE | Average / Year<br>HC / Funded WTE |
|---|---|---|---|
| **Retirements** | 5 | 5 | 1/1 |

**Table 10: Therapeutic Radiographer retirements across the region over a 5 year period.**

Based on the figures above, an additional 1 Therapeutic Radiographer is required to join the human resources pool on a recurrent basis to address year on year retirements. However as years progress, this number will be required to increase as staff age profile demonstrates. The working group suggests that this additional staff member should be at Band 6 or above in line with succession planning and the loss of experienced knowledge and skills.

### i) Supervision

As a regulated AHP, Therapeutic Radiographers are required to meet the ***DOH Regional Supervision Policy for AHPs-Working for a Healthier Future (2014)***, which requires a minimum of 4 hours supervision throughout the year and all supervision sessions require a supervisor.

Therapeutic Radiographers work in teams and being able to identify supervision sessions is a challenge in itself due to the constant changes within the radiotherapy service on a daily basis. Staff also require Supervision preparation and follow up time, to do this adequately each session should be scheduled for 1.5 hrs.

Given that each Therapeutic Radiographer could act as a supervisor, as well as a supervisee, to model the capacity required to deliver the necessary level of supervision a minimum of 5 hours per Therapeutic Radiographer was agreed amongst the workforce review group as a proxy.

It is recognised that not all Therapeutic Radiographers will receive their supervision within the department e.g. Clinical Site Specialist Radiographers may complete a Clinical Supervision session with a Consultant Clinical Oncologist. There are approximately 20 staff who could avail of supervision sessions from sources other than a Therapeutic Radiographer and taking this into consideration, the number of supervision sessions would decrease from 5 to 3:

| Headcount | Supervision Sessions required | Total Supervision Sessions per year | Supervision Sessions required per week (hrs)<br><br>(Total supervision sessions / 42 weeks x supervision time including prep and FU = supervision sessions per week) |
|---|---|---|---|
| 118 | 5 | 590 | (14 x 1.5) = 21 hours |
| 20 | 4 | 80 | (1.9 x 1.5) = 3 hours |
| | | **Total** | (15.9x 1.5) = 24 hours |

**Table 11: Therapeutic Radiography Supervision requirements across the workforce**

Taking into account the total number of supervision sessions required per week (15.9), the preparation time and document completion, this workforce group is suggesting that an additional 1 WTE Therapeutic Radiographer per centre is required.

### j) Baseline Resets to Enhance Continuity of Current Therapeutic Radiography Service

Peripatetic posts are not currently utilised in therapeutic radiography however, it is proposed that this is one of the recommendations that should be prioritised for each radiotherapy department to stabilise core service delivery. As previously discussed, in regards to maternity leave and sick leave, peripatetic posts, if approved across HSC Trusts in NI, would require a baseline reset of 20 qualified Therapeutic Radiographers.

### k) Stabilise Service Continuity

Currently there is no provision to facilitate 7 day working within the Therapeutic Radiographer workforce, if HSC wished to proceed to 7 day access to radiotherapy a review of Therapeutic Radiography workforce capacity would be required, along with support services which directly impact on the radiotherapy service.

Currently all workforce related activities relate to 42 weeks, however the radiotherapy service is delivered 52 weeks of the year (relying on overtime and on call arrangements). An adjustment is required in order to ascertain how many additional Therapeutic Radiographers are required to ensure this service can be effectively maintained for those 52 weeks (Table 12) and enable staff to avail of annual leave, study leave and other planned absences.

Convert from 42/52 to 52/52 cover:

- 52 weeks / 52 weeks = 1
- 10 additional weeks / 42 weeks = 0.24
- 1 + 0.24 for 52/52 = 1.24 WTE for service continuity

| | **WTE Funded** | **Stabilise**<br><br>**X 1.24 (change WTE needed)** |
|---|---|---|
| **Northern Ireland Cancer Centre** | 93.34 | 115.8 (+22.41) |
| **North West Cancer Centre** | 32.6 | 40.42 (+7.82) |
| **Total (Change) WTE** | 125.94 | 156.22 (+30.23) |

**Table 12: Therapeutic Radiography requirements to stabilise service continuity**

On average terms over the next 5 years, the HSC Trusts NI will require up to 30 WTE additional qualified Therapeutic Radiographers to join the human resource pool to stabilise existing radiotherapy services in NI. In trying to re-profile the Therapeutic Radiographer workforce, this group would suggest that the majority of these additional staff should be placed at Band 6 and above.

## 4. Career Development

### a) Review of Non-Surgical Oncology

As previously discussed, in line with the review of Non-Surgical Oncology, an unknown quantity of additional student places may be required as a result of the workforce bid which is yet to be established. An interim review of this project would be required to assess potential impact.

### b) Postgraduate ECG Training Budget

Approximately a third of all Therapeutic Radiographers are required to work at Advanced Practice level (Band 7 and above). There is a need for the Education Commissioning Group (ECG) to support the training needs of Therapeutic Radiographers and ideally, the workforce should include a peripatetic pool of staff to facilitate training requirements.

The ***DOH Advanced AHP Practice Framework,*** which was launched in June 2019, provides a regional approach in addressing the requirement for advanced AHP/Therapeutic Radiographer practice within Health and Social Care in NI. It informs planning in relation to the existing and future AHP workforce profile and the knowledge and skill assets required for advanced practitioner up to consultant roles. This framework will be key to further informing Therapeutic Radiography Workforce Planning.

As the workforce avails of opportunities to enhance their skill and work at an advanced practitioner level, to meet some of the challenges it is essential there are band 5 and band 6 radiographers available to back fill these posts going forward.

In conjunction with advancements in technology, clinical Therapeutic Radiographers are required to upskill their knowledge and expertise. An appropriate advanced practitioner pathway needs to be established to support this, along with adequate ECG

funding aligned in order to consolidate and acknowledge the demands and requirements of postgraduate education.

## 5. Understanding Workforce Availability

### a) Commissioned Undergraduate Places at UU – 2009-2017 Intake

### New Staff and Staff Training

In recent years across both radiotherapy departments between 10-12 Band 5 Therapeutic Radiographers have been offered employment, which is in line with expected course attrition (an average of 2 students per year). Taking the course attrition rate into account, and to ensure enough students are available to deliver a safe level of service, 16 students are required in training each year.

Newly appointed staff undergo an induction and training programme that will take up to 12 months to complete. This induction period and ongoing training amongst primarily Band 6 and 7 staff, would require a peripatetic pool of staff however it is anticipated that an additional 10 WTE Therapeutic Radiographers would be required to stabilise staffing to facilitate training. These staff would enhance service delivery, allowing new staff to complete their inductions, facilitate staff training in new developments and equipment, encourage an increased rate of cascade training amongst staff as the service does not remain static and remains in a continual training cycle.

### b) Undergraduate Marketing

Working in partnership with Ulster University (UU) and PHA to build Therapeutic Radiographer student placement capacity, it was agreed after a student workforce plan, to increase capacity to 16 students on clinical placement at Northern Ireland Cancer Centre to facilitate the opening of the new radiotherapy centre in North West Cancer Centre. Student placement numbers in Northern Ireland Cancer Centre have returned to 12, with North West Cancer Centre now established, accredited and

providing placement for 4 students. Should this workforce review establish that student numbers need to increase, there may be a necessity for alternative placement site arrangements on a more permanent basis to satisfy training needs.

Staff training has been highlighted in light of technological and treatment technique advancements and in addition to this, student training impacts on the workload of all therapeutic radiographers at all grades.

It is worth noting that there is a shortage of Therapeutic Radiographers qualifying across the nation, University applications for Therapeutic Radiography courses in England have decreased, which in turn will impact on the number of qualified professionals available to join the workforce. UU do not have issues with the number of applicants, although there is concern that students who are not successful in obtaining a UU position, would take up places in other universities in England, Scotland and Wales and remain in employment there upon graduating.

The Society of Radiographers believes that more should be done to encourage people to undertake Therapeutic Radiography as a career to avoid delays in patients' treatment as a direct result of staff shortages. Funding has been committed to technology and equipment but not for Therapeutic Radiographers required ***(NHS England's 'Cancer care radiotherapy upgrade programme).***

## 6. Recruitment – Horizon Scanning; Significant Step Change

### a) Recruitment and Retention/Recruitment Process Issues

Annually Band 5 positions are advertised, interviewed and appointed through a regional recruitment programme. This offers both the Northern Ireland Cancer Centre and North West Cancer Centre, the opportunity to avail from a larger pool of suitably qualified Therapeutic Radiographers. Therapeutic Radiographer vacancies are routinely advertised on HSCRecruit and the ability to advertise vacancies in the professions monthly publication has assisted with recruitment at NWCC, attracting Therapeutic Radiographers back to the region.

The fact that there are now two centres within NI creates opportunity for staff, enabling them to remain in the region and facilitate career progression. However, this in itself may cause retention issues at either centre.

The challenges in being able to approve WLB applications and the potential that these could be rejected due to service requirements, may affect retention.

Recruitment into the Therapeutic Radiographer workforce is a very slow process from the point at which posts are submitted to scrutiny until official start date is confirmed. This has an impact where staff, and particularly senior staff, have up to 3 months' notice to work.

Retention of these staff once in post is dependent upon adequate career progression. Staff eligible to work at a senior level may apply for and successfully attain a senior post in a temporary capacity to cover for maternity leave for example. Once the radiographer on maternity leave or WLB returns that person 'acting up' then has to return to their original grade, which can be demoralising. If there is no further opportunity to attain a higher graded post those radiographers may look elsewhere for career progression or leave the profession altogether. A linked- grade progression between the two lower bands is a solution to this issue and gives newly qualified radiographers some goal to work towards.

### b) Competition within the UK and ROI Employment Market

- There is opportunity to work in either public or private radiotherapy departments throughout the ROI which offer a choice of large or small working environments, all delivering radiotherapy using state of the art equipment.

Structured career framework: other centres across the UK are able to offer incentives to retain their staff e.g. linked grading between Band 5 and 6.

## 7. Potential Service Developments & HSC Transformation Agenda

In line with the expectation of ***'Health and Wellbeing 2026 – Delivering Together'*** and ***'Systems not Structures: Changing Health and Social Care – Expert Panel Report'*** the HSC Transformation Agenda will move at pace over the next 3-4 years. There is a need for Therapeutic Radiographers to access postgraduate places to enhance the increasing demand of complex treatments, to consolidate radiotherapy and cancer related knowledge and skills, ensure continuity of care as well as equity and safety for patients in treatment delivery.

There is a need to increase succession planning, expand role development for Therapeutic Radiographers but primarily to re-profile the workforce to increase the number of Band 6 and 7 staff. Therefore, student intake numbers must remain stable to accommodate these movements.

The ongoing 'Review of non-surgical oncology' is focused on skill mix within the wider oncology workforce and the early recommendations are for increased numbers of Therapeutic Radiographers working at advanced practice level requiring post graduate masters level training. The cancer strategy is also likely to make similar recommendations. ***(DOH Advanced AHP Practice Framework 2019; SCoR Career Progression Framework – Appendix 6)***

## 8. Summary

The following table (Table 13) provides a quantitative summary of the measures that are expected to have a significant impact on the Therapeutic Radiographer human resource pool required by the NI HSC services over the next 5 years.

It furthermore provides the evidence to highlight the need for an ongoing and robust workforce planning cycle.

A review of this Therapeutic Radiography workforce document and summary table is proposed in the 5th year, 2025-26.

However, capacity into the service to stabilise the Therapeutic Radiography workforce has identified that staff at higher level, Band 6 and above, are required. This would be in line with the national staffing profile model.

Commissioned UU student places have been determined by each radiotherapy department in NI. If consideration was given to increasing the intake, other centres across the UK may need to be approached to ascertain whether they are able to accommodate UU students for clinical placement.

There may also be a requirement to rely more heavily on Virtual Environment for Radiotherapy Training (VERT) or similar models of virtual teaching materials to enhance clinical knowledge in the event of potential increased student numbers and a reduction of clinical placement. The COVID pandemic has forced remote learning and as such UU now have experience of this teaching model.

| | **2021-22** | **2022-23** | **2023-24** | **2024-25** | **2025-26** |
|---|---|---|---|---|---|
| ***Maximum UU graduates available to HSC Trusts NI after 12.5% attrition*** | ***14*** | ***14*** | ***14*** | ***14*** | ***14*** |
| | | | | | |
| Maintain Service Delivery<br>**(1 per year) (Page 28-29)** | 1 | 1 | 1 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Service Development **(5 in total, 1 per year at Bands 6 and 7, this may require review in response to machine replacement and advancements in technology/technique) (Page 29-31)** | 1 | 1 | 1 | 1 | 1 |
| Peripatetic posts - maternity leave and sick leave **(20 in total, over 5 years, at Bands 6 and 7) (Pages 32-34)** | 4 | 4 | 4 | 4 | 4 |
| Work Life Balance<br><br>**(8 to stabilise, over 5 years) (Pages 34-36)** | 3 | 2 | 1 | 1 | 1 |
| Annual Retirements<br><br>**(1 each year, at Bands 6 and 7. This will remain under review as age profile shifts) (Pages 36-37)** | 1 | 1 | 1 | 1 | 1 |
| Supervision<br><br>**(2 in total, 1 per centre) (Pages 37-38)** | 2 | - | - | - | - |
| Stabilise Existing Workforce (from 42 week to 52 week service delivery)<br><br>**(30 in total over 5 years) (Pages 38-39)** | 6 | 6 | 6 | 6 | 6 |
| Therapeutic Radiographer Training Requirements<br><br>**(10 in total, over 5 years at Bands 6 and 7) (Page 40-41)** | 2 | 2 | 2 | 2 | 2 |
| | | | | | |
| Total number of Undergraduate students required each year | 20 | 17 | 16 | 16 | 16 |
| Shortfall of Undergraduate students<br><br>(UU Turn-out (14) - HSC Trust NI need) | -6 | -3 | -2 | -2 | -2 |

| | | | | | |
|---|---|---|---|---|---|
| Cumulative Shortfall without increase in Undergraduate student intake | 6 | 9 | 11 | 13 | 15 |

**Table 13: Summary of potential HSCNI Therapeutic Radiography Staffing Issues 2021-2026**

As table 13 demonstrates, 70 students will be available to the Therapeutic Radiography workforce over the next 5 years. However, considering the review of service delivery, the expectation to deliver on a Cancer Strategy and Transformation requirements in line with the review of Non-Surgical Oncology, there is a necessity for 85 students to be available over the next 5 years, a shortfall of 15 students. The additional students would be required to backfill gaps created through staff re-profiling.

In order to critically consider the identified gap in workforce supply, an options appraisal outlined associated benefits and risks, to inform a preferred option (Table 14).

## 9. Options Appraisal

| Options | Description | Benefits | Risks |
|---|---|---|---|
| **Option 1:**<br><br>**Status Quo** | Maintain 16 (14 after attrition) commissioned undergraduate places. Based on providing a 3 year full time programme Commissioned via the local Higher Education Provider. | No additional funding required to maintain this option.<br><br>No threat of overcrowding of students on placement sites.<br><br>No necessity to seek additional placement sites to train students. | The current supply of new graduates has been assessed as being insufficient to meet the needs of the HSC needs of the population of NI for the coming 10 years.<br><br>Being a unique AHP role, where Therapeutic Radiographers are limited in their place of work, there is less flexibility in providing cover from staff from other areas/departments to ensure service continuity. |

| | | | |
|---|---|---|---|
| **Option 2:**<br>**Front Load Commissioned Undergraduate Programme Places** | Year one commission additional 6 places with an additional 3 places in year 2 and additional 2 places in subsequent years | More immediate impact upon the workforce supply, stabilising core services, facilitating work life balance requests, peripatetic posts to cover sick and maternity/paternity leave, enable compliance with supervision requirements and address recommendations made in both Cancer Strategy and Transformation policy to enhance service delivery. | Significant financial investment required in year one compared to subsequent years.<br>Challenge for HSC Trusts to provide 6 additional practice education placement opportunities.<br>May require students to be trained elsewhere creating vulnerability within workforce supply availability. |
| **Option 3:**<br>**Averaging an increase over 5 years** | The total required commissioned place over the 5 year period is averaged for this period resulting in an additional 3 commissioned places annually. | Increase of workforce supply to meet identified workforce gap.<br>Financial investment is fixed for 5 years. Supporting financial planning.<br>Would facilitate service development and workforce planning, having knowledge of expected increase in workforce against ability to deliver. | Significant financial investment.<br>Longer timeframe to stabilise the workforce with first cohort available 2024. |

| | | | |
|---|---|---|---|
| | | Enable placement centres to facilitate training. | |

**Table 14: Workforce Gap Options Appraisal**

## 10. Preferred Option

Option 3, averaging an increase over 5 years is recommended as the preferred option within this options appraisal resulting in an additional 3 commissioned places annually..

This review has demonstrated that developing the Therapeutic Radiography workforce into the future is essential in order to ensure safe and sustainable service provision. Whilst it is recognised an increase in Therapeutic Radiography students is required, to backfill gaps created through staff re-profiling, consideration will have to be given to how this would impact on both the education and placement providers. Averaging the increase over a 5 year period will ensure the impact of increased numbers of both will be kept to a minimum.

## 11. Stakeholder Engagement

An important element of the workforce review involved stakeholder engagement in the spirit of co-production and co-design. The Project Team comprised of representatives from DoH, PHA, and Trusts. The Steering Group comprised of representatives from DoH, PHA, Trusts, PCC and Staff Side.

An engagement strategy was discussed at Steering Group level. It was agreed a collective communications effort regionally would be important to encourage service user and carer involvement. This input to the review process would ensure solutions were coproduced appropriately.

The PCC undertook a digital communications strategy to support the involvement agenda. This included social media postings across Facebook and Twitter; published article updates in PCC monthly newsletter with a reach of 15,000 across Northern Ireland and event listings on PCC website for 'Engage' events.

In addition, the Project Group hosted an 'Engage' event on Friday 13th April 2018 at the Civic Centre, Craigavon. Over 100 delegates registered to attend the event from across the statutory, independent sector, staff side, carers and users. The purpose of the event was to consult on the development of the draft Allied Health Professions Workforce Review with a Focus on Therapeutic Radiography, Orthoptics, Podiatry and Dietetics. The event took the format of an interactive e-participation 'Engage' session.

The engage discussion focused on:

**Icebreaker:** What is the best thing about the service you provide or the service you receive?

**Question 1 – Recruitment –** What needs to be done to attract the right people with the right skills into these professions?

**Question 2 – Retention –** What needs to be done to make the HSC a brand that people aspire to work for?

**Question 3 – The future of the service you provide or the service you receive**

How should it develop and be delivered in the future?

**Reflection –** Having discussed all of this today, what would you now suggest as the top priority for the AHP workforce reviews to deliver?

The 'Engage' method combines the live aspect of small-scale discussion with information and communication technologies; on one hand it allows rapid transmission of work-group results to a plenary assembly; while on the other it permits surveys of individual participants' opinions through a polling system. Information gathered at the engage event has been reflected in the review. Each of the round table groupings at the event were asked to prioritise their responses in each topic and the top responses captured.


The full report of the 'Engage' can be found at **Appendix 3**

The Public Health Agency (PHA) is carrying out an extensive piece of work across all Health and Social Care Trusts (HSCTs), with the aim of introducing a more patient-focused approach to services and shaping future healthcare in Northern Ireland. The '10,000 Voices' project now '10,000 more voices', gives patients, as well as their families and carers, the opportunity to share their overall experience highlighting anything important, such as what they particularly liked or disliked about the experience. The project is supported by a software package called sensemaker &

the National Health Service in Northern Ireland are among the earliest users of SenseMaker®,

Personal and Public Involvement (PPI) is the active and effective involvement of service users, carers and the public in the design, development, delivery and evaluation of Health and Social care (HSC) services. Personal and Public Involvement (PPI) is now a legislative requirement for Health and Social Care organisations as laid down in the Health and Social Services (Reform) Northern Ireland Act 2009. While PPI may be relatively new term, the concept is not. The HSC system has long recognised the benefits of meaningful and effective engagement of service users, carers and the public. Within Northern Ireland Cancer Centre and North West Cancer Centre Therapeutic Radiographers are actively involved in building partnerships and networks with service users, carers, families, charitable organisations, user forums and voluntary organisations.

## 12. Conclusion

This report has been written to inform the number of undergraduate Therapeutic Radiography training places in the context of Northern Ireland HSC in 2021 and over the coming 5 years.

Considering all of the evidence and projections outlined in this report the trend does demonstrate that there is a need to increase the number of undergraduate places, in response to staffing re-profiling which is required for this workforce.

The preferred option to deliver on increasing undergraduate places would be to average the total required commissioned place over the 5 year period resulting in an additional 3 commissioned places annually., as per option 3 within the options appraisal on page 48.

This increase will also support the maintenance of existing services, the transformation agenda outlined in Delivering Together and the delivery of other transformational programme of care.

The report further explores the knowledge, skills and developments required by the HSC NI Therapeutic Radiography workforce to enable productive and sustainable transformation of services across NI.

The recommendations set out in the next section have been informed by the first four steps of the workforce planning framework considered throughout this report. The recommendations and action plan complete the workforce cycle in line with step 5 and step 6.

Effective workforce planning and full implementation of the recommendations will ensure we have the right people, in the right place at the right time.

It is also key that there is a formal mid-term review of the actions taken to evaluate the impact and adjustments required.

## 13. Recommendations

Based on the findings of the review the key recommendations are set out below, these have been structured under key headings and will inform the Action Plan.

| | | RECOMMENDATIONS |
|---|---|---|
| | | |
| EMPLOYMENT | **Re-profile Therapeutic Radiographer workforce** | • Re-profile the Therapeutic Radiographer model to provide capability and skill within the workforce to allow patients to access advanced techniques, comply with Department of Health Supervision and workforce strategy recommendations e.g. DoH Health and Social Care Workforce Strategy 2026: Delivering for our People |
| | **Peripatetic workforce** | • Development of a peripatetic workforce to enable staff to undertake training, to enhance service developments, facilitate work life balance requests and as a resource to grow Advanced Practitioners to address the deficient on Consultant Clinical Oncologists **(Summary table 15 – Peripatetic Posts)** |
| | **Career Progression/ Postgraduate Training Budget** | • Develop a career progression framework to help retain staff, to assist with staff training to deliver core radiotherapy, enable advanced practice in response to the lack of Consultant Oncologists and requirements for Advanced Practitioners for service deliver and development **(Summary table 15 – Therapeutic Radiographer Training Requirements and Service Developments)** |
| STAFF | **Workforce Stability/ Returning workforce/ Alternate entry points** | • To deliver core service, with the option of an extended day and ensure cover over Bank Holiday arrangements (Gap Day treatments), providing emergency care treatments, decreasing patient waiting times, adhering to Cancer Access Standard targets and increase survival outcomes through stabilisation of the Therapeutic Radiography workforce. Consider supporting returning workforce and possible alternate entry points to help facilitate this. **(Summary table 15 – Maintain Service Delivery and Stabilise Existing Workforce)** |

| | | |
|---|---|---|
| **STUDENTS** | **Preferred Option (as per page 48) - Increase undergraduate student intake** | • The total required commissioned place over the 5 year period is averaged for this period resulting in an additional 3 commissioned places annually to develop Therapeutic Radiography workforce into the future to ensure safe and sustainable service provision<br>• Consideration should be given to an additional Clinical Educator to support clinical aspects of student training and assist in their preparation for transition into full time employment |
| **SERVICE** | **Service Developments** | • Ensure that the Therapeutic Radiography workforce is factored into all radiotherapy service developments and capital requirements **(Summary table 15 – Service Developments)** |
| | **Non-Surgical Oncology Review** | • Ensure that any recommendations which impact upon the radiotherapy patient pathway include the Therapeutic Radiography workforce, with associated resource aligned |

## 14. Action plan

Need our timelines formalised & lead responsibility identified and related to target implementation dates

**THERAPEUTIC RADIOGRAPHY WORKFORCE REVIEW - ACTION/IMPLEMENTATION PLAN XXXX - XXXX**

| | RECOMMENDATIONS | ACTIONS | LEAD RESPONSIBILITY | IMPLEMENTATION TARGET DATE |
|---|---|---|---|---|
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# Appendices

## Appendix 1 - Membership of AHP Workforce Programme Steering Group and Therapeutic Radiography Sub-Group

| AHP Workforce Programme Steering Group Members | | |
|---|---|---|
| **Name** | **Organisation** | **Email** |
| Charlotte McArdle | DoH (Chairperson) | |
| Andrew Dawson (Co-chair) | DoH (NI) – Acting Director, Workforce Policy | |
| Hazel Winning | DoH (NI) – Nursing, Midwifery and AHP Group | |
| Erin Montgomery | DoH (NI) – Information and Analysis Directorate | |
| Catherine Donnelly | DoH (NI) – Workforce Policy Directorate | |
| Paula Cahalan | Belfast HSC Trust | |
| Raymond Irvine | Western HSC Trust | |
| Patricia McClure | Ulster University | |
| Joanne McKissick | Patient and Client Council | |
| Pauline McMullan | Business Services Organisation | |
| Margaret Moorehead | South Eastern HSC Trust | |
| Paul Rafferty | Western HSC Trust | |
| Claire Smyth | South Eastern HSC Trust | |
| Jill Bradley | Northern HSC Trust | |

| | | |
|---|---|---|
| Peter Barbour | DoH (NI) – Workforce Policy Directorate | |
| Carmel Harney | Southern HSC Trust | |
| Brendan McGrath | Western HSC Trust | |
| Claire Ronald | Staff Side – Chartered Society of Physiotherapy | |
| Mary Hinds | Public Health Agency | |
| Angela McVeigh | Southern HSC Trust | |
| Nicola Shaw | South Eastern HSC Trust | |
| Marie Ward | Western HSC Trust – represented by R Irvine | |
| Gerard Tinney | (Note taker) DoH (NI) – Workforce Policy Directorate | |

| **Therapeutic Radiography Workforce Sub-Group Members** | | |
|---|---|---|
| **Name** | **Organisation** | **Email** |
| Hazel Winning | DoH (Chairperson) | |
| Peter McAuley | DoH | |
| Catherine Donnelly | DoH (WPD) | |
| Gerard Tinney | DoH (WPD) | |
| Alison Dunwoody | DoH (IAD) | |
| Joanne O'Hagan | DoH (IAD) | |
| Jenny Keane | PHA | |

| | | |
|---|---|---|
| Paula Cahalan | BHSCT (AHP Lead) | |
| Joanne McCarthy | BHSCT (Radiotherapy HOS) | |
| Elaine Reilly | WHSCT (Radiotherapy HOS) | |
| Stacey Hetherington | BHSCT (Radiotherapy Clinical Co-Ordinator) | |
| Jean Smith | BHSCT (Radiotherapy Section Manager | |
| Malcolm Wilkinson | WHSCT (Lead Clinical Specialist Radiographer) | |
| Leandre Archer | Society of Radiographers National Officer | |

| Appendix 2 – AHP Workforce Strategy Terms of Reference | |
|---|---|
| Click on Icon to open | AHP WORKFORCE REVIEW ON PODIATI |

| Appendix 3 - DoH HSC AHP Workforce Strategy Engagement Event – 13th April 2017 | |
|---|---|
| Click on Icon to open | DoH HSC AHP Workforce Strategy |

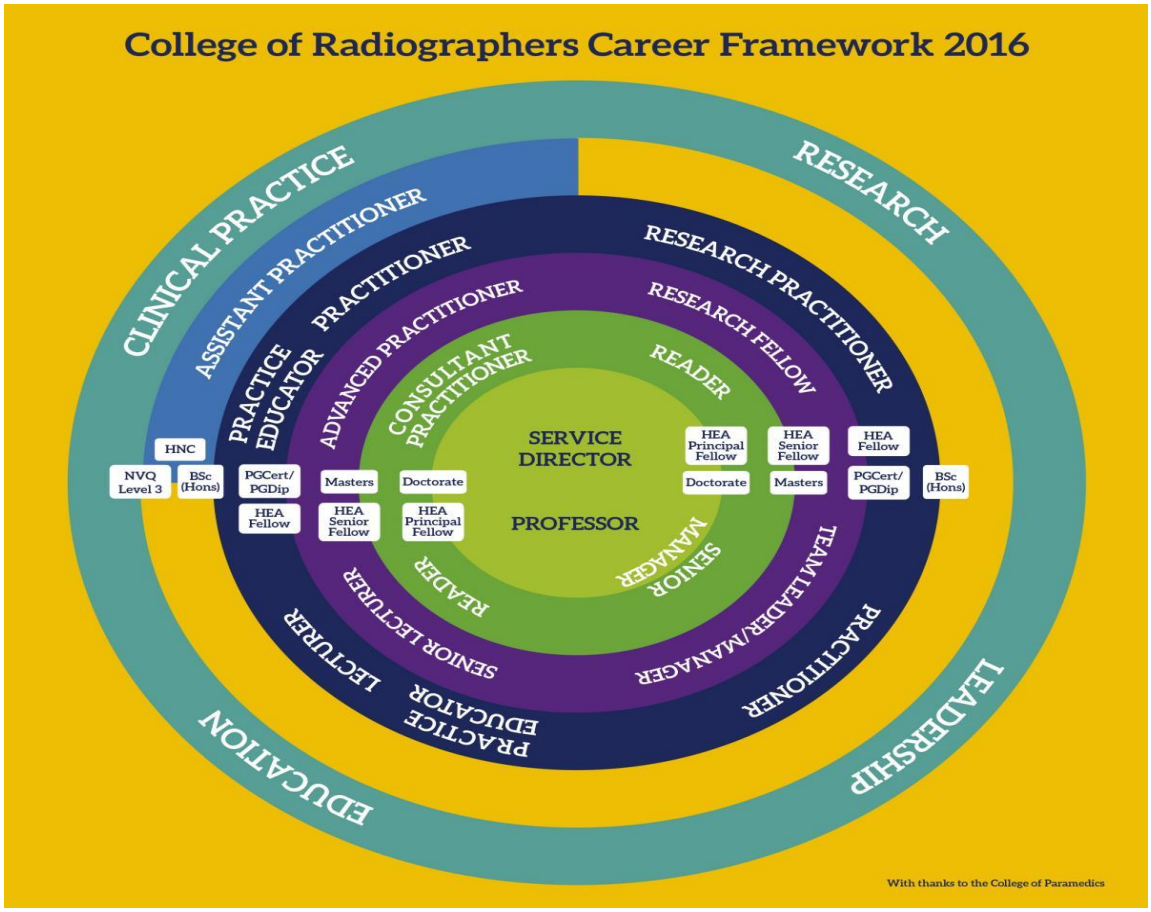
## Appendix 4 – Radiotherapy Terminology

| | |
|---|---|
| Intensity Modulated Radiotherapy (IMRT) | an advanced type of radiation therapy used to treat cancer and noncancerous tumors. **IMRT** uses advanced technology to manipulate photon and proton beams of radiation to conform to the shape of a tumor. |
| Image Guided Radiotherapy (IGRT) | the use of imaging during radiation therapy to improve the precision and accuracy of treatment delivery. **IGRT** is used to treat tumors in areas of the body that move, such as the lungs. |
| Stereotactic Ablative Radiotherapy (SABR) | used to precisely target certain cancers, **SABR** uses small, thin beams of radiation directed from different angles that meet at the tumour. |
| 4D adaptive Radiotherapy | the ability to take account of the tumour shape in the three physical dimensions plus the fourth dimension of change with time. |
| Brachytherapy | a procedure that involves placing radioactive material inside your body. |

## Appendix 5 – Radiotherapy Treatment complexities with examples

| Treatment Category | Time to Treat | Details of category |
|---|---|---|
| Simple | <15 minutes | Most palliative treatments, manual calculations |
| Moderate | ≥15 minutes - <30 minutes | Radical intent, computerised planning, conformal and Intensity Modulated RadioTherapy (IMRT)plans |
| Complex | ≥30 minutes | Radical or high dose palliative patients, computerised planning, VoluMetric ArcTherapy (VMAT) and Stereotactic plans, includes advanced techniques such as Deep Inspiration Breath (DIBH) Hold, Stereotactic Ablative Radiotherapy (SABR), Total Body Irradiation (TBI) and Total Skin Electron Therapy (TSET) |

## Appendix 6 – Career Progression Framework




**Source URL:** https://www.sor.org/career-progression