NATIONAL DOCTORS TRAINING & PLANNING

Radiation Oncology Medical Workforce in Ireland 2024-2038

HSE
National Doctors Training & Planning

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Foreword: Medical Director, National Doctors Training & Planning

I'm delighted to be able to introduce and announce the publication of this review of the higher specialist training (HST) requirements for radiation oncology. The report is a collaboration between National Doctors Training & Planning (NDTP), the National Cancer Control Programme (NCCP) and clinical representation within the field of radiation oncology. I would like to thank all of the contributors, without whose input this report could not have been prepared.

The main aim of this report is to recommend the number of radiation oncology HST places for the next five years. Health care demand is expanding exponentially as a result of population expansion, population ageing and a range of other factors. Our goal is to ensure that the training pipeline is sufficient to meet future demand for consultants.

The report recommends expanding the intake of higher specialist trainees from 6 in 2024 to 7 in 2027 and further increasing to 8 each year between 2028 and 2030. This will result in the total number of HST trainees in radiation oncology expanding from 24 in 2024 to 37 in 2030. The recommendations are based on an assessment of current unmet demand and projected future demand growth for consultants. Current unmet demand for consultants in radiation oncology is estimated at 43% above current supply with ongoing growth in demand estimated at 2.6% per annum. The proposed expansion in the number of trainees is contingent on a number of factors including a long term commitment to substantially expand the consultant workforce and sufficient supply of suitable applicants for the programme.

Best practice nationally and internationally, recommend between 8 and 12 radiation oncologists per million of the population. Ireland currently falls within this range (9.7 radiation oncologists per million of the population). However, the European average is closer to 12.8 consultants per million of the population and due to an ageing population and population growth it would be more advantageous for Ireland to be closer to this figure. Achieving the international staffing recommendation, ensures that consultant radiation oncologists have an estimated caseload of between 200-300 patients per consultant each year. This would be in line with the European average of 225 cases per consultant.

There are substantial data gaps in a number of areas. The report takes a pragmatic approach to addressing these issues. One key challenge is ensuring sufficient staffing of the wider multidisciplinary team (e.g. radiation therapists, medial physicists, dosimetrists, nurses etc.). This is not addressed as part of this report but will be an important consideration when employing consultant radiation oncologists. The inter-related goals of improved patient care, increased doctor retention and value for money can be better achieved through a longer term planned expansion of the health workforce. Our hope is that this report will contribute to the broader discussion on the size and composition of the future medical and health workforce both at a national and regional levels.

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Executive Summary

The objective of this report is to inform the higher specialist training (HST) intake for radiation oncology. This requires an estimation of projected demand for consultants into the 2030s, as this is when the new entrants to HST programmes are expected to take up consultant posts. The report is a collaborative project between the National Cancer Control Programme (NCCP), the Faculty of Radiology & Radiation Oncology, clinical representation and NDTP.

The report recommends increasing the radiation oncology intake from 6 each year between July 2024 and July 2026 to 7 in July 2027 and then to 8 each year after that to 2030. A result, this will increase the total size of the programme from 24 trainees to 37 trainees by 2030. There are currently 21 non-training radiation oncology posts in the system contributing to the delivery of care. There is an opportunity to convert these non-training posts to training posts.

The recommended HST intake, outlined in this report, is contingent on a number of factors that are beyond the scope of this project. These include national and regional budget constraints and the availability of a sufficient supply of high quality basic specialist trainees (BSTs) to take up radiation oncology training places. As there is no BST programme for radiation oncology, these trainees mainly have completed a BST in internal medicine before undertaking a HST in radiation oncology.

The report includes consultant supply and demand projections to 2038, based on various assumptions. A substantial proportion of radiation oncology in Ireland is carried out by the private sector. As trainees are expected to go on to work as consultants in both the public and private sectors, projections are based on both sectors combined.

Supply projections are based on new consultants being sourced from the domestic training programmes. Supply projections also allow for an assumed rate of attrition between exiting the HST training programme and taking up a consultant post in Ireland, exits from consultant posts due to retirements, and growth in less than full time working.

Projected demand is based on the projected incidence of cancer cases, the assumption that 60% of cancer cases require radiotherapy [1] and the European average for the number of radiotherapy cases assigned per consultant (225 cases per consultant) [2, 3].

There are currently 51.9 WTE radiation oncologists (9.7 per million of the population) in Ireland. This compares to the European average of 12.8 per million [4, 5]. The projected supply envisages the number of consultants to increase to 94.4 WTE by 2038 which would equate to 17.6 radiation oncologists per million of the population.

1. Introduction

1.1 Overview of Medical Workforce Planning within NDTP

The HSE National Doctors Training and Planning (NDTP) Unit operates within the Office of the Chief Clinical Officer and has statutory roles in medical education and training, medical workforce planning, and supports the consultant post approval process.

Under the Medical Practitioners Act 2007, NDTP is tasked with proposing the annual intake number of post-graduate trainees required for each medical specialty. NDTP works with specialty stakeholders including National Clinical Programmes, National Specialty Directors, Postgraduate Training Bodies and others to estimate the training requirements for consultants and specialists across the Irish healthcare system. This information then feeds into the medical education and training role of NDTP via the commissioning of medical training required to meet workforce needs, ensuring that the training content and delivery is responsive to the changing needs of the Irish healthcare system, and supporting the retention of doctors upon completion of their training.

The approach taken to informing the annual intake number of post-graduate trainees required for each medical specialty is broadly based on the following principles as per existing Government policies:

- Alignment with Government policy e.g., Sláintecare (2017), the Health Service Capacity Review (2018), and the Smaller Hospitals Framework (2013).

- Recommendations should be consistent with the WHO Global Code on the International Recruitment of Healthcare Personnel (World Health Organisation, 2010, 2011). The Irish health service should be self-sufficient in the production of medical graduates, eliminating dependence on international medical graduates.

- Recommendations should encompass medical workforce requirements for the entire population to include both the public and private healthcare systems.

- Recommendations should incorporate future health needs of the population. Medical Workforce Planning (MWP) recommendations should include the incorporation of projections relating to, for example, demographic changes; alterations in disease incidence and prevalence; models of clinical care; medical and therapeutic innovations; policy initiatives and technological advances.

1.2 Objective, Contingencies and Scope

The primary objective of this report is to inform the Higher Specialist Training (HST) intake for the specialty of radiation oncology. The recommended HST intake outlined in this report is contingent on a number of factors that are beyond the scope of this project. The projections outlined in this report are not constrained by budgets, other staffing or building requirements. Further work is required to ensure that the proposed medical staffing is consistent with national and regional budget constraints and with local buildings constraints.

As there is no BST programme for radiation oncology, the proposed increases in the HST intake will require sufficient high quality applicants from other clinical BST programmes. It is important to note that workforce planning is an inexact science and estimated demand, and supply requirements are based on the best available data, expert opinion as well as the policy context.

1.3 Radiation Oncology (Radiotherapy)

Radiation oncology (radiotherapy) uses ionising radiation for the treatment of patients with malignant or benign diseases, either alone or in combination with other treatment modalities such as surgery and/or chemotherapy, or as a palliative modality to relieve symptoms. Radiotherapy is most commonly associated with the treatment of cancer but is also used in treating some benign or non-malignant diseases.

Around 60% of all patients with cancer will require radiation therapy [1]. The radiation used for cancer treatment may be administered outside the body or placed near the tumour cells or injected into the bloodstream. In Ireland, radiation oncology encompasses external beam radiation therapy, brachytherapy, and radio-isotopes therapy.

Radiotherapy services are provided in the public sector at the following locations:

- 1. Cork University Hospital (CUH)
- 2. St Luke's Radiation Oncology Network (SLRON) in Dublin, which consists of three main centres:

  a. St Luke's Hospital Rathgar
  b. St Luke's Radiation Oncology Centre at St James's Hospital
  c. St Luke's Radiation Oncology Centre in Beaumont Hospital

  These three centres operate as a clinical network with standard clinical practice guidelines and a centralised referral patient process. SLRON also provides some national radiation oncology services such as:

  - Stereotactic Ablative Radiotherapy (SABR), also known as Stereotactic Body Radiation Therapy (SBRT).
  - Stereotactic Radiosurgery (SRS), for intracranial tumours and spine is currently delivered at the SLRON Beaumont Centre, aligned with the neurosurgery department in Beaumont Hospital.
  - National Paediatric Radiotherapy is a demand led national service delivered at SLRON, St Luke's Hospital Rathgar, supported by CHI Crumlin who provide specialist anaesthetic services on the Rathgar site for very young children undergoing radiotherapy.
  - There is a National Ocular Brachytherapy service provided by the Royal Victoria Eye and Ear Hospital, Dublin.
  - Total Body Radiation (TBI) is a national service and is predominantly delivered at SLRON, St James's Centre, aligned with the Bone Marrow Transplant Unit at St James's Hospital.
- 3. University Hospital Galway (UHG)

The HSE also has service level arrangements in place in Limerick and in Waterford where radiotherapy services for public patients are delivered by private sector partners. The North West Cancer Centre (NWCC) in Altnagelvin also provides a radiation oncology service to approximately 240 patients each year, from the Republic of Ireland, mainly Donegal, as part of a service level agreement with the HSE.

4. Specialist Training in Radiation Oncology

The staffing model for radiation oncology in Ireland is different to many other specialities in that the vast majority of radiation oncology services in Ireland are consultant-provided as opposed to consultant-led, with service provision delivered by specialist registrars (SpRs) and supervised by a consultant.

The Faculty of Radiologists & Radiation Oncologists is the sole body responsible for training of radiation oncologists. There is no BST programme for radiation oncology in Ireland. To be eligible to enrol in the HST programme for radiation oncology, applicants must have completed at least two years clinical experience post-internship in any specialty, with the majority of trainees typically having completed a BST in GIM. The duration of HST in radiation oncology is five years with the option to complete year 5 abroad if approved by the training programme. Whilst trainees are engaged in HST, they are employed at a SpR level.

The Radiation Oncology Postgraduate HST Programme in Ireland is a national programme with three training sites Cork University Hospital, SLRON in Dublin and University Hospital Galway. Each radiation oncology trainee rotates through the three training sites during their five year programme as required, to ensure adequate exposure to all required areas of radiation oncology. Upon completion of HST, trainees are awarded a certificate of satisfactory completion of specialist training (CSCST) and can practice independently as a consultant radiation oncologist.

2. Methods

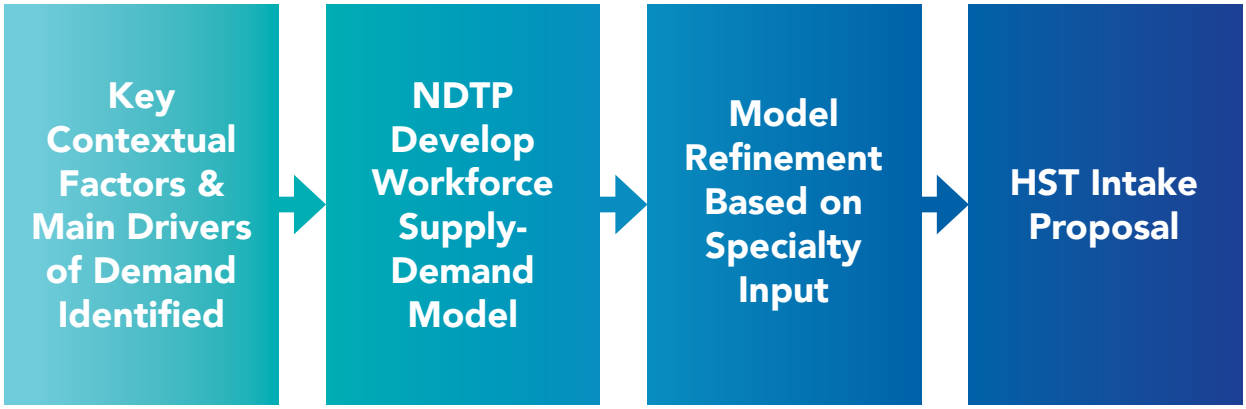
2.1 Collaborative Approach

The approach to medical workforce planning for radiation oncology is based on the methodological framework *NDTP Health Workforce Planning, Ireland: A Simple Stepwise Approach* [6].

Figure 1 below outlines the process through which the workforce plan was developed. This process involved active engagement with representatives of the specialty to develop a workforce plan. Specialty representatives (the NCCP and clinical representation) provided contextual information for radiation oncology, identified demand drivers and identified the level of trainee intake that was achievable to meet projected demand.

NDTP constructed a supply-demand model, provided data and assumptions on the stocks and flows of trainees and consultants, and assisted and coordinated the writing of the report using the information provided the specialty stakeholders.

Figure 1: Process of engagement between NDTP and specialty stakeholders



2.2 Data Used & Limitations

The data utilised in the analysis of the radiation oncology medical workforce is drawn from multiple sources. The Doctors Integrated Management E-System (DIME) is the main source of data on the consultant and NCHD workforce. DIME workforce data was accessed in October and December 2024. The DIME database does not record consultants who work solely in the private sector. Data on the number of private only consultants was sourced from the Irish Medical Council and validated by the clinical stakeholders within the project group.

Annually NDTP publish its *Medical Recruitment & Retention Report* which looks at the proportion of qualified specialists who went on to take up consultant posts in the public and private sectors in Ireland in subsequent years [7]. This data was used as a basis for informing projected retention rates of CSCSTs.

Cancer incidence statistics, recorded for all years between 2012 and 2021, were accessed via the National Cancer Registry Ireland. The data on cancer incidence include non-melanoma cancers, which are considered part of the radiation oncologist's workload.

The number of projected cancer cases, by age category, was estimated using incidence rates and the population projections provided by the Central Statistics Office (CSO). According to the *National Cancer Strategy 2017-2026*, 60% of all cancer cases require radiotherapy. This assumption was applied to the data from the *National Cancer Registry Ireland* to estimate the cases requiring radiotherapy by age category.

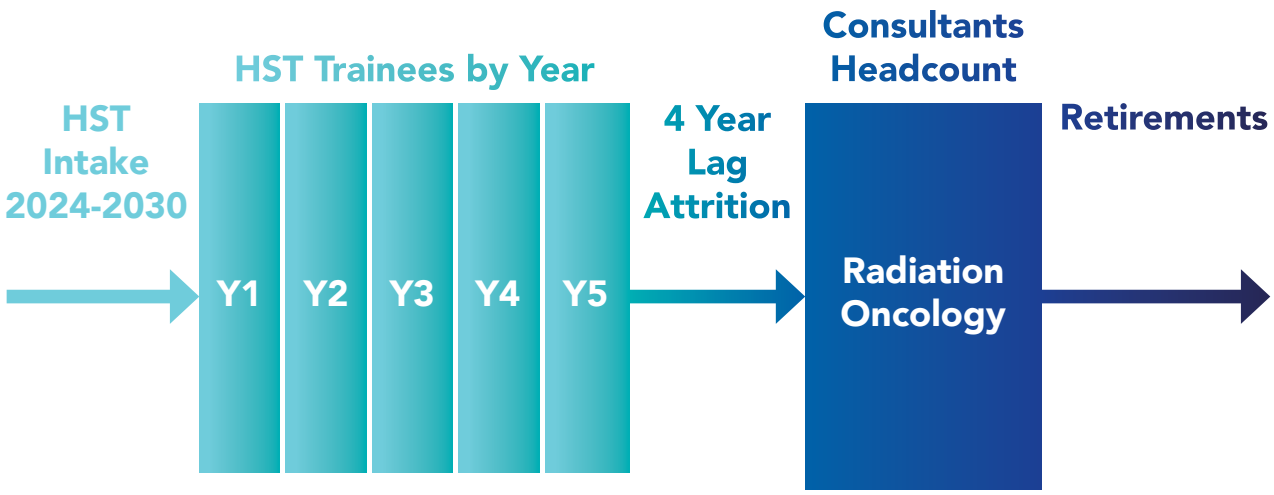
2.3 Supply & Demand Model for Radiation Oncology

A workforce model was developed by NDTP comprising of consultant supply and demand modules. The workforce was modelled from 2024 to 2038. A long time frame is required given the large gap between current supply and current demand. Due to the extensive training period (minimum 5 years) between entering HST and taking up a consultant post, increases in the HST intake will only impact on consultant numbers in the later years of the model.

2.3.1 Supply Model

As the focus of the report is on informing the HST intake, a national approach to workforce planning is primarily taken. A stock-flow model was used to project the number of HSTs and consultants over the time period. An overview of the supply model is shown in Figure 2.

Figure 2: Supply Model Diagram



Model parameters for the supply model were derived from current workforce statistics, demographic data and expert opinion derived from further consultation and feedback from the NCCP and other radiation oncology stakeholders.

The supply model includes both public and private sectors; this is done as a proportion of the graduates of post-graduate training programmes will go on to work exclusively in the private sector. In the model, the public and private sectors are combined at the outset with projections based on the combined pool.

The model includes an adjustment to account for increased less than full time working. An assumption is made that each year the aggregate Whole Time Equivalent (WTE) rate falls with increased less than full time working.

Model parameters for the supply model were derived from internal NDTP research, current values and expert opinion. Detailed supply assumptions are shown in Appendix 1.

2.3.2 Demand Model

The current demand for consultant radiation oncologists is estimated based on the projected incidence of cancer cases and the estimation that 60% of cancer cases require radiotherapy. This method is outlined in section 4.

3. Radiation Oncology Workforce in Ireland

3.1 NCHD Workforce

Table 1 outlines the current NCHD workforce which comprises 24 trainees and 21 non-training scheme doctors. Doctors on the General Division of the Medical Council register and not assigned to a postgraduate medical training programme are referred to as non-training scheme doctors (NTSDs), the majority of these doctors work in the St Luke's Radiation Oncology Network.

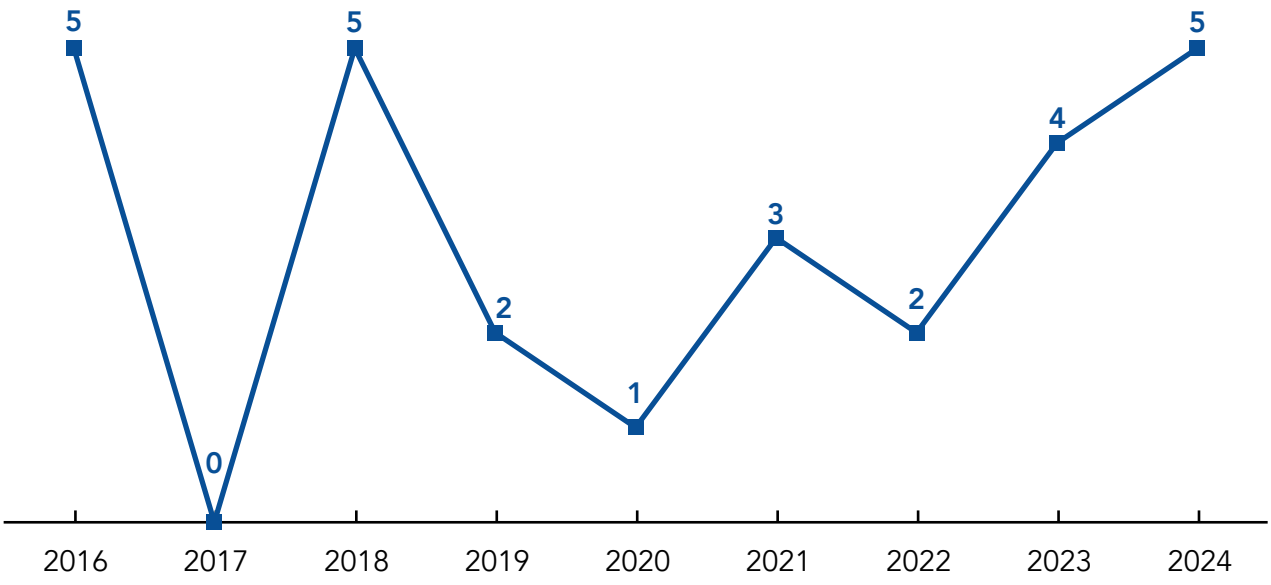
Table 1: NCHDs in radiation oncology (RCSI & DIME, October 2024)

	Expected Year of Completion of Training							
	2025	**2026**	**2027**	**2028**	**2029**	**Total Trainees**	**Total NTSDs**	**Total NCHDs**
NCHDs	4	5	5	4	6	**24**	**21**	**45**

3.1.1 Retention of Newly Qualified Specialists

The number of trained specialists is an important consideration for workforce planning purposes as it will determine the number of consultants potentially available to the Irish health system in the future. Figure 3 shows the number of trained specialists in radiation oncology between 2016 and 2024 (i.e. by year of CSCST award).

Figure 3: Radiation Oncology CSCSTs by Year (RCSI, October 2024)



3.2 Consultant Workforce

3.2.1 Characteristics of the Public Consultant Workforce

Data from the HSE DIME database is used to determine the number of consultant radiation oncologists working across publicly funded services posts in radiation oncology. Table 2 below outlines the number and type of consultants working in radiation oncology as of December 2024.

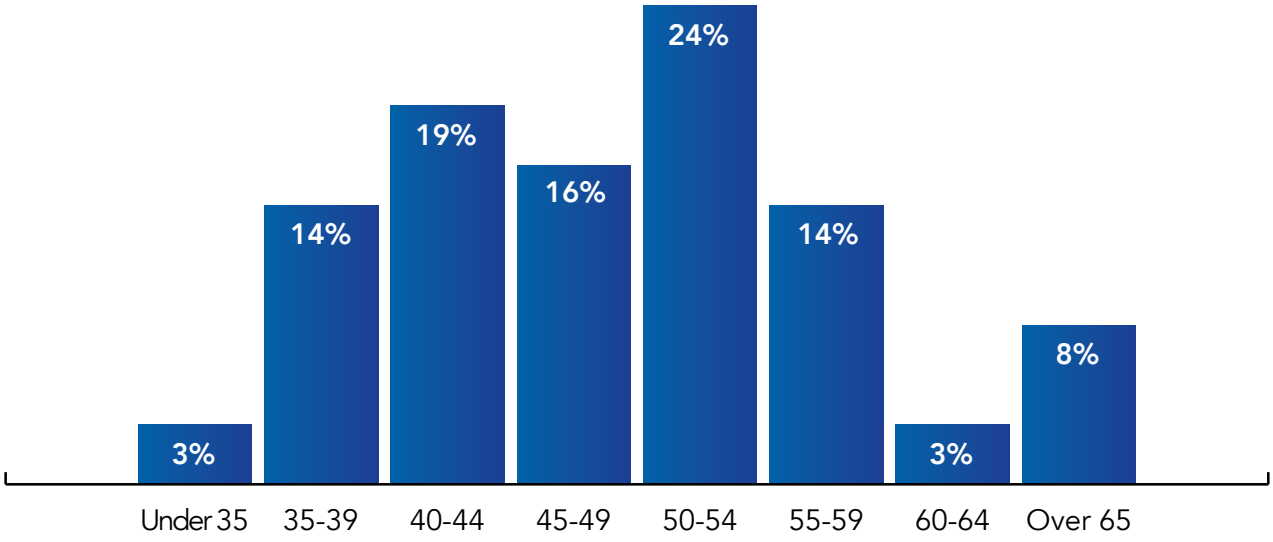
Table 2: Number and Type of Consultants Working in Publicly Funded Hospitals (DIME, December 2024)

	Headcount	Whole Time Equivalent	WTE Rate	% Female	% Full Time	% Permanent
Total (Public)	37	35.9	0.97	43%	97%	89%

Note: Consultants with 0 WTEs are excluded from the above figures. Full time refers to greater than 37 hours per week.

Figure 4 outlines the age profile of the public consultant radiation oncology workforce. From this profile we can establish the proportion of the public consultant radiation oncology workforce expected to exit the workforce through retirement by 2038 aged 62 years. It is therefore estimated that approximately 61% of the current public sector consultant radiation oncologists will retire by 2038 at age 62 years.

Figure 4: Age Profile of Consultants Working in Publicly Funded Hospitals (DIME, December 2024)



3.2.2 Location of Public Consultant Radiation Oncologists

Table 3 outlines the number of public consultant radiation oncologists working by Health Region and Hospital Model. As radiotherapy is administered from the three main centres St Luke's Radiation Oncology Network, Cork University Hospital and University Hospital Galway, all public consultant radiation oncologists are found to be working in Model 4 hospitals or the SLRON as shown in Table 3.

Table 3: Location of Consultant Radiation Oncologists (Headcount) Working in Publicly Funded Hospitals (DIME, December 2024)

Health Region	Model 4	St Luke's Radiation Oncology Network (SLRON)[1]	Total
HSE Dublin & North East[1]	-	-	0
HSE Dublin & South East[2]	-	-	0
HSE Dublin & Midlands	-	22	22
HSE West & North West[3]	5	-	5
HSE South West	10	-	10
HSE Midwest[2]	-	-	0
Total	15	22	37

1. *The SLRON consists of three centres; St Luke's Hospital Rathgar, St. Luke's Radiation Oncology Centre at St. James's Hospital and St. Luke's Radiation Oncology Centre in Beaumont Hospital. While the SLRON falls within the HSE Dublin & Midlands Health Region from a governance perspective, the St. Luke's Radiation Oncology Centre in Beaumont Hospital serves patients within the HSE Dublin & North East Health Region.*
2. *While there are no public facilities within the HSE Dublin & South East or HSE Midwest Health Regions, the HSE have service level arrangements in place in Limerick and in Waterford where public radiotherapy services are delivered by private sector partners (see Table 4).*
3. *The North West Cancer Centre (NWCC) in Altnagelvin Northern Ireland, provides a radiation oncology service to approximately 240 ROI patients from Donegal each year as part of a service level agreement with the HSE.*

3.2.3 Location of Solely Private Consultant Radiation Oncologists

Data relating to the number of consultant radiation oncologists working solely in the private sector in radiation oncology was obtained through the Irish Medical Council and validated by the radiation oncology representatives within the project working group. Table 4 outlines the locations that solely private consultant radiation oncologists work in. Within Ireland, there are a number of private locations that deliver public radiotherapy treatment. Some of these sites such as UPMC Whitfield facilitate public patients through a contract with the nearby public hospitals.

Table 4: Location of Consultant Radiation Oncologists (HC) Working Solely in the Irish Private Sector (Project Working Group, 2024)

County	Location	Total
Cork	UPMC Cork	3
Dublin	Mater Private, Dublin	3
	Beacon Hospital	2
	Hermitage Clinic	1
	St. Vincent's Hospital Private	0
Galway	Galway Clinic	0
Limerick	Mater Private, Limerick	2
Waterford	UPMC Whitfield	5
Total		**16**

Note: The above table includes solely private working consultants only. Consultants with hours in both the public and private sector are counted in Table 3.

3.2.4 Vacant Consultant Posts

Vacancies in radiation oncology are outlined below in Table 5. All three vacant posts have been vacant for less than a year. A vacant post is defined as a post that has been approved by the Consultant Applications Advisory Committee (CAAC) but is currently unfilled. Vacant posts generally include both those posts that have previously been filled and have now become vacant, and posts that have never been filled. Recruitment may be underway or an appointment may have been made to a number of these vacancies with a consultant yet to start in the post. The time between post approval, the commencement of the recruitment process and the commencement of a consultant in a post can be lengthy and sometimes between 12 and 18 months.

Table 5: Number of CAAC Approved Consultant Posts in Radiation Oncology (DIME, December 2024)

CAAC Approved Public Consultant Radiation Oncology Posts as at December 2024	
Filled Public Radiation Oncology Consultant Posts	**Vacant Public Radiation Oncology Consultant Posts**
37	3

3.2.5 International Comparisons & Best Practice

In determining the appropriate demand for consultant radiation oncologists in Ireland, one approach is to look at how Ireland compares with other countries. Despite the value of international comparisons, there are a range of reasons why it is difficult to make meaningful comparisons across countries. For example, differences in data collection method (i.e. employment vs registration data), the availability of data on the private sector, differences in the scope of a specialty and country demographic profiles. There are also significant differences between countries in relation to other professional and support staff involved in providing services, IT infrastructure to support effective communication, and accreditation requirements. The development of specialised nursing and advanced nursing practice and advanced radiation therapist practice will also impact these comparisons significantly.

The national and international recommendations for consultant staffing indicate a need for between 8 and 12 radiation oncologists per million of the population as best practice [4, 5]. European countries provide the closest direct comparison. As can be seen from Table 6 below, Ireland's ratio of consultants is currently below that of the European mean of 12.8 consultants per million of the population. Achieving the international staffing recommendation, ensures consultant radiation oncologists have an estimated caseload of between 200-300 new patients per consultant each year, which is in line with the European average of 225 cases per consultant [2, 3].

The UK is a frequent comparator due to similarities in the health systems and the number of Irish doctors that have worked in the NHS. However, the job roles of a radiation oncologist vary significantly between the UK and Ireland and thus it can be difficult to make direct comparisons. For example, radiation oncology can be practiced as an independent oncological specialty, as is done in Ireland, or it may be integrated into the broader medical practice of oncology, i.e. clinical oncology as is done in the UK.

Table 6: International Ratio Comparison of Radiation Oncologists per Million of the Population

Radiation Oncologists	Ireland (2024)	European Mean 2023	The Netherlands (2011)	Denmark (2010)
Consultants (WTE)	9.7 per million of population	12.8 per million of population	13.8 per million of population	30.9 per million of population

Sources of International Data:
The Netherlands: 2011 ESTRO-HERO Survey https://www.sciencedirect.com/science/article/pii/S0167814014003648
Denmark: 2010 ESTRO-HERO Survey https://www.sciencedirect.com/science/article/pii/S0167814014003648
International Recommendations: The Development of Radiation Oncology services in Ireland https://www.hse.ie/eng/services/list/5/cancer/about/development-of-radiation-oncology-in-ireland.pdf

4. Estimating Demand for Radiation Oncologists

The section below outlines the demand metrics used in this report. Demand is split between current unmet demand and demand growth. By necessity, these metrics are crude and uses the best available data at the current time.

Demand growth for radiotherapy services is expected to grow significantly in the next few years. This is a due to population growth and the increased likelihood of cancer due to population ageing. According to the National Census projection figures, it is estimated that by 2030, the population of the Republic of Ireland will increase to 5.6 million and that by 2038 the population will have increased to 5.9 million. According to the *Cancer Incidence Projections for Ireland 2020-2045* report published by the National Cancer Registry Ireland, cancer cases are projected to double from 21,700 cases of non-invasive cancer (excluding non-melanoma skin cancer) in 2015, to almost 40,000 cases by 2040 [8]. Other drivers of change affecting radiation oncology are further expanded in Appendix 2.

To estimate consultant demand, incident cancer cases (including non-melanoma) were obtained from the National Cancer Registry of Ireland. Cancer incident cases per 100,000 of the population were estimated for future years up to 2038, based on population projections from the Central Statistics Office (CSO). Demand for radiotherapy is based on the assumption that 60% of cancer cases require radiotherapy [1] and the suggestion that radiation oncologists should see 225 patient cases each year. Therefore, it is estimated that there will be a requirement for 104.9 WTE consultant radiation oncologists by 2038 in order to meet demand.

4.1 Overall Current and Projected Demand

Table 7 shows the current consultant workforce (public and private, WTE) and the current target workforce. The table shows that an additional 22.2 consultants are currently needed. In order to cater for projected growth in demand, a further 30.8 consultants are required out to 2038.

Table 7: Current estimated actual workforce and target workforce (public & private, WTE)

Current Consultant Workforce	Additional Current Unmet Demand	Current Recommended Workforce	Demand Growth to 2038	Recommended Workforce 2038
51.9	22.2	74.1	30.8	**104.9**

4.2 Current and Projected Demand by Location

Table 8 shows the current consultant workforce (public and private, WTE) and the current target workforce split by Health Region. The consultant distribution is based on population distribution.

Table 8: Current estimated actual workforce and target workforce (public & private, WTE) by Health Region

Health Region	Location	Current Consultant Workforce	Additional Current Unmet Demand	Current Recommended Workforce	Demand Growth to 2038	Recommended Workforce 2038
HSE Dublin & Midlands	SLRON[1]	20.9	10.5	**31.4**	16.6	**48.0**
HSE Dublin & North East	SLRON[1]	-	-	-	-	-
HSE Dublin & South East[2]		-	-	-	-	-
HSE Mid-West[2]		-	-	-	-	-
HSE South West	Cork University Hospital	10.0	5.7	**15.7**	8.3	**24.0**
HSE West & North West[3]	University Hospital Galway	5.0	6.0	**11.0**	5.9	**16.9**
Private		16.0	0.0	**16.0**	0.0	**16.0**
Total		**51.9**	**22.2**	**74.1**	**30.8**	**104.9**

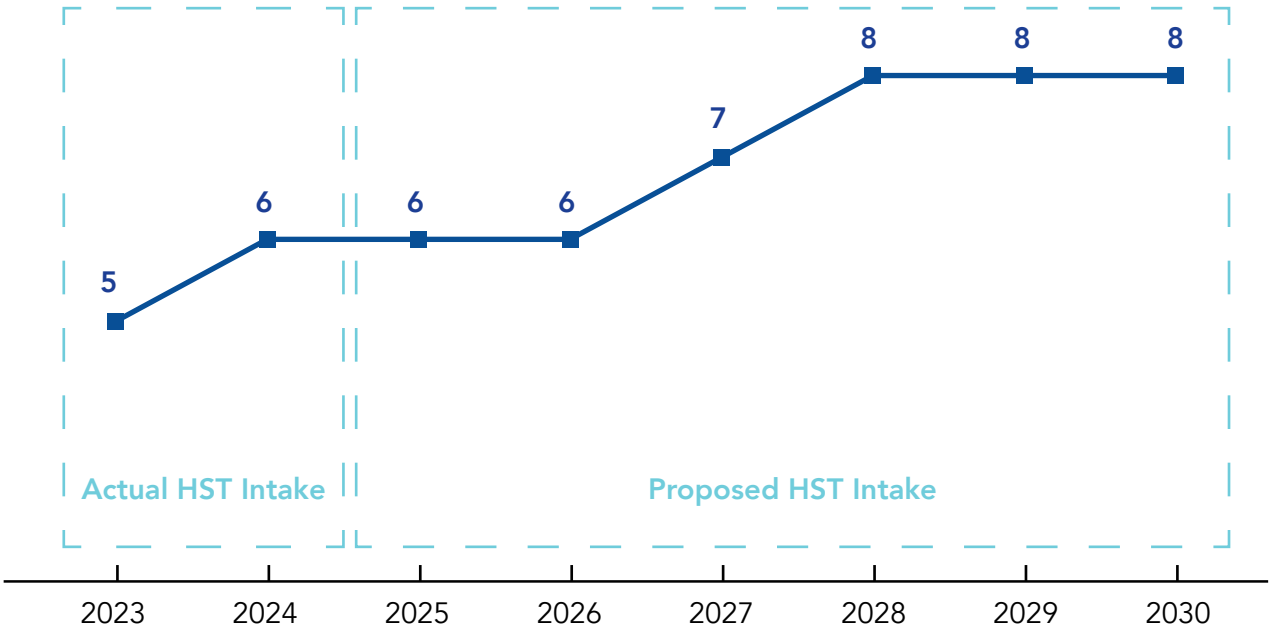
1. *The SLRON consists of three centres; St Luke's Hospital Rathgar, St. Luke's Radiation Oncology Centre at St. James's Hospital and St. Luke's Radiation Oncology Centre in Beaumont Hospital. While the SLRON falls within the HSE Dublin & Midlands Health Region from a governance perspective, the St. Luke's Radiation Oncology Centre in Beaumont Hospital serves patients within the HSE Dublin & North East Health Region.*
2. *While there are no public facilities within the HSE Dublin & South East or HSE Midwest Health Regions, the HSE have service level arrangements in place in Limerick and in Waterford where public radiotherapy services are delivered by private sector partners (see Table 4).*
3. *The North West Cancer Centre (NWCC) in Altnagelvin, Northern Ireland also provides a radiation oncology service to approximately 240 patients from ROI each year as part of a service level agreement with the HSE.*

5. Estimating Supply of Radiation Oncologists

5.1 Proposed Radiation Oncology HST Intake

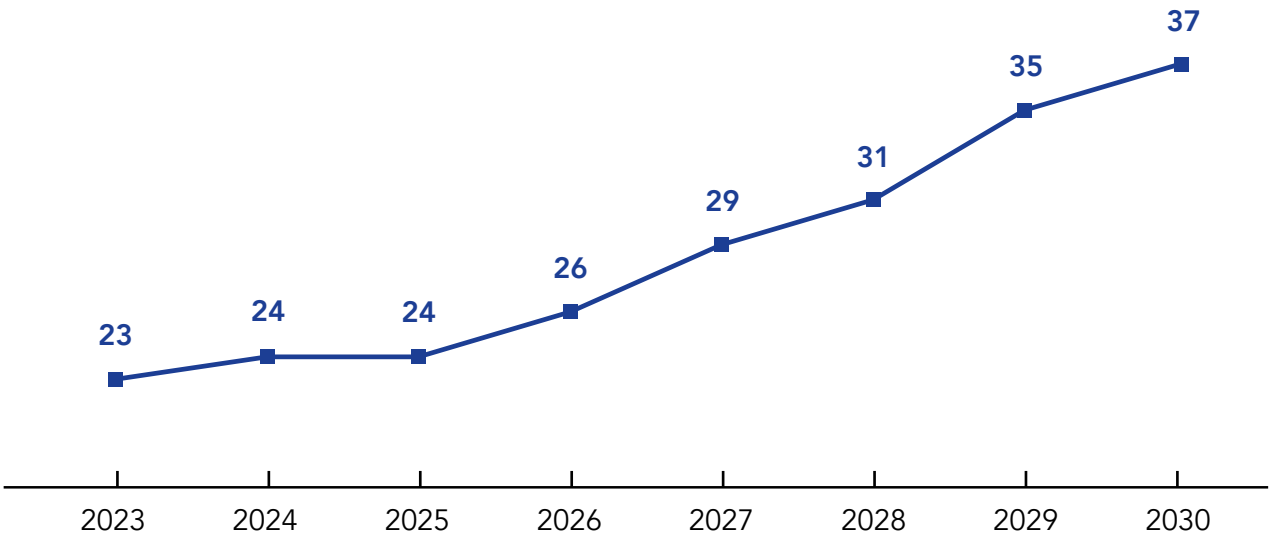
Figure 5 shows the actual HST intake in July 2023 and 2024 as well as the expected HST intake for July 2025 and the level of intake recommended out to 2030. As of 2024, the intake of HST trainees was 6. Increasing this intake number to 7 in 2027 and 8 in 2028 while then maintaining this intake number through to 2030 should ensure sufficient trainees are in the pipeline for radiation oncology.

Figure 5: Actual HST intake 2023-2024 and proposed HST intake 2025-2030



Increasing the HST intake will result in a requirement for subsequent increases in the total number of higher specialist training places as intake will increase flow through each of the years, these are projected in Figure 6.

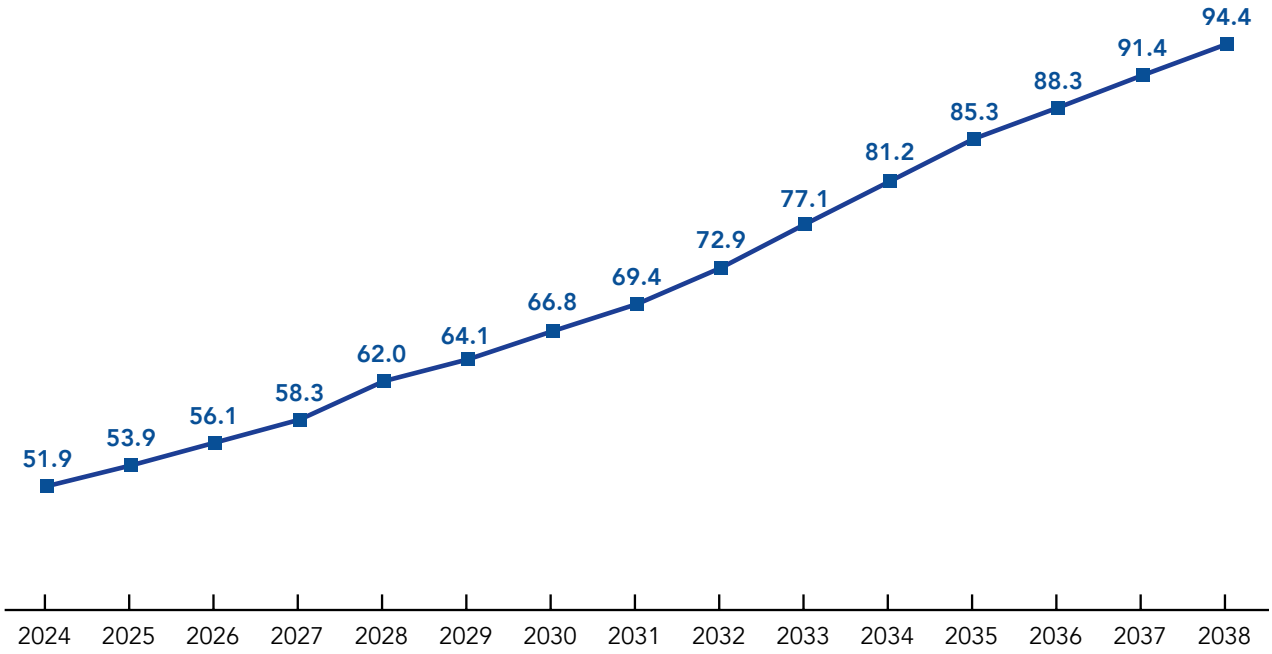
Figure 6: Actual HST intake 2023-2024 and proposed HST intake 2025-2030



5.2 Projected Consultant Supply

Figure 7 outlines the projected consultant supply which should be available according to the supply projections. The methodology used to generate the supply projections is outlined in section 2.3. Under the assumptions used in the supply model the projected overall supply is 94.4 WTE in 2038 compared to a demand estimate of 104.9 WTE for the same year.

Figure 7: Projected Consultant Supply (WTE)



6. Conclusion and Recommendations

The main aim of this report is to inform the higher specialist training (HST) intake for radiation oncology. This requires projecting the supply and demand of consultants over a long period. A thirteen-year time frame was chosen to coincide with other workforce planning projections.

Demand for radiation oncologists was estimated based on three main considerations; the projected incidence of cancer cases; the assumption that 60% of cancer cases require radiotherapy [1]; and an international recommended number of radiotherapy cases per consultant (225 cases per consultant) [2, 3].

In December 2024, an estimated 51.9 WTE radiation oncologists (9.7 per million of the population) were working in the public and private sectors in Ireland. This compares to the European average of 12.8 per million [4, 5]. Current unmet demand was therefore estimated to be 22.2 WTE consultants, or 43% above current supply. Based on demographic ageing, demand is projected to grow by 2.6% per annum resulting in a requirement of 104.9 WTE consultant radiation oncologists in post by 2038. This equates to 19.5 consultants per million.

To achieve this growth, an intake of 6 trainees in 2026, increasing to 7 trainees in 2027 and 8 in 2028 each year after that to 2030 will be required. Over the coming years, as the increased number of trainees feed through, this will result in the overall training programme to increase from 24 trainees in July 2024 to 37 trainees in 2030.

There are currently 21 non-training radiation oncology posts in the system contributing to the delivery of care. There is an opportunity to convert these non-training posts to training posts to allow for the expansion of the programme.

Glossary

B

Basic Specialist Training (BST):
BST is a hospital based training programme that prepares trainees for Higher Specialist Training, which is the final stage of training.

C

Central Statistics Office (CSO):
The CSO is the agency responsible for the gathering of "information relating to economic, social and general activities and conditions" in Ireland, in particular the census which is held every five years.

Certificate of Satisfactory Completion of Specialist Training (CSCST):
A CSCST is awarded on completion of Higher Specialist Training (HST), which is the final step towards becoming a specialist.

Co-Ordination Committee of the Radiological, Electrometrical and Healthcare IT Industry (COCIR):
COCIR is the European Trade Association representing the medical imaging, radiotherapy, health ICT and electro-medical industries.

D

Doctors Integrated Management E-System (DIME):
DIME is a quadripartite system, which encompasses National Doctors Training & Planning (NDTP), the Irish Medical Council (IMC), Postgraduate Medical Training Bodies and Clinical sites. DIME records registration, training and employment details of all NCHDs in Ireland who are employed in the public service and registration and employment details of consultants working in the public service in Ireland.

G

General Internal Medicine (GIM):
GIM is the area of medicine which focusses on the prevention, diagnosis and treatment of internal diseases.

H

Headcount (HC):
HC is the number of consultants working in publicly funded services (NDTP, 2024). Please note that HC excludes those that are employed but may have had their contractual hours reduced to 0 for a period of time, for example maternity leave or secondment to another post.

Higher Specialist Training (HST):
HST is the final step in training before becoming a specialist and usually consists of four to six years in a training programme.

I

Irish Medical Council (IMC):
The IMC regulates medical doctors in the Republic of Ireland. All doctors must register with the Irish Medical Council before commencing employment in Ireland. The main purpose of the Medical Council is to protect the public by promoting and ensuring high standards of professional conduct and professional education, training and competence among doctors.

L

Linear Accelerator (Linac):
A medical linear accelerator (Linac) is the device most commonly used for external beam radiation treatments for patients with cancer. It delivers high-energy x-rays or electrons to the region of the patient's tumor.

M

Medical Workforce Planning (MWP):
MWP addresses future projections for the appropriate staffing of the medical workforce in Ireland. This mainly involves analysing the current supply of specialists in the medical workforce and analysing whether or not that supply is appropriately matched to the demand for specialist health services and patient need. As well as analysing how supply should be planned for in light of future population, societal and health service change.

N

National Cancer Control Programme (NCCP):
The NCCP was established in 2007 and works with partners to prevent cancer, diagnose cancer, treat cancer, and improve survival and quality of life for people with cancer. The NCCP is responsible for implementing many of the recommendations of the National Cancer Strategies.

National Doctors Training & Planning (NDTP):
NDTP provides key information and analysis of the medical workforce, enabling the health sector to prepare for the appropriate levels of trained doctors in the future. In response to these plans, we work with the Postgraduate Medical Training Bodies to facilitate the development and promotion of training programmes, providing a skilled workforce that meets current and future needs of the health service.

Non-Consultant Hospital Doctor (NCHD):
Sometimes referred to as a junior doctor, NCHD is a term used in Ireland to described qualified medical practitioners who work under the supervision of a consultant.

Non-Training Scheme Doctor (NTSD):
A NTSD is a doctor that is not on a formal training programme.

P

Public Only Consultants Contract (POCC23):
The POCC23 was offered to all consultants from 8 March 2023. The POCC23 contains an exclusion on private work in public hospitals (subject to limited exceptions), but sets out freedom for consultants to do private work in off-site private practice (again, subject to limited exceptions).

R

Royal Australian and New Zealand College of Radiologists (RANZCR):
RANZCR is a professional organisation for the promotion of the science and practice of the medical specialties of clinical radiology and radiation oncology in Australia and New Zealand.

Royal College of Surgeons Ireland (RCSI):
RCSI is an international university focused on education and research to drive improvements in human health. The Faculty of Radiologists & Radiation Oncologists of the Royal College of Surgeons in Ireland (RCSI) is the sole body responsible for training of radiation oncologists.

S

Senior House Officer (SHO):
A SHO is a type of non-consultant hospital doctor (NCHD). SHOs are supervised in their work by consultants and registrars.

Specialist Registrar (SpR):
A SpR is a type of non-consultant hospital doctor (NCHD) who is undertaking their Higher Specialist Training (HST).

St. Luke's Radiation Oncology Network (SLRON):
SLRON in Dublin consists of three centres; St. Luke's Hospital Rathgar, St. Luke's Radiation Oncology Centre at St. James's Hospital, St. Luke's Radiation Oncology Centre in Beaumont Hospital. These three centres operate as a clinical network with standard clinical practice guidelines and a centralised referral patient process.

W

Whole Time Equivalent (WTE):
WTE is the total number of consultants working in whole time equivalent terms. WTE rates are adjusted to account for those who have had their hours reduced for some reason; this may be due to maternity leave, secondment to another post etc.

World Health Organisation (WHO):
WHO is a specialised agency of the United National responsible for global public health.

References

1. *National Cancer Strategy 2017-2026*. 2017, Dept. of Health,: Dublin.

2. Services, E.W.G.o.R.O., *The Development of Radiation Oncology Services in Ireland*. 2000.

3. Jonas Willmann, e.a., *Development of staffing, workload and infrastructure in member departments of the European Organisation for Research and Treatment of Cancer (EORTC) radiation oncology group*. 2021. 155.

4. Cai Grau, et al., *Radiotherapy equipment and departments in the European countries: Final results from the ESTRO-HERO survey*. 2014.

5. European Commision, A.B., B. Brkljačić, M. Coffey, J. McNulty, D. Visvikis, G. Paulo, C. Garibaldi, C. Pesznyak, F. Zarb, F. Jamar, C. Loewe, Y. Anacak, P. Lara, R. Sánchez, N. Jornet, M. Leech, I. Polycarpou, M. Hierath, M. Szucsich, *Analysis on workforce availability, education and training needs for the quality and safety of medical applications involving ionising radiation in the EU; Status and Recommedations*. 2025.

6. NDTP, *Medical Workforce Planning Ireland: A Stepwise Approach*. 2016.

7. NDTP, *Annual Medical Retention Report*. 2023.

8. Ireland, N.C.R., *Cancer Incidence Projections for Ireland 2020-2045*. 2019.

9. COCIR, T.E.C.-O.C.o.t.R., Electromedical and Healthcare IT Industry, *Radiotherapy Age Profile & Density - December 2019 Edition*. 2019.

10. Programme, N.C.C., *National Quality Assurance Framework for Radiation Oncology in Ireland*. 2018.

11. D N. Cagney, J.G.A., *Stereotactic Radiosurgery (SRS) / Stereotactic body radiotherapy (SBRT): Benefit to Irish patients and Irish Healthcare Economy*. 2017.

12. NDTP, *Medical Workforce Analyis Report 2023-2024*. 2023-2024.

Appendix

Appendix 1: Supply Model Variables

To adequately model the supply of consultants and NCHDs required to meet the demand for radiation oncologists to 2038, the following parameters or supply model variables were used as listed in table A1:

Table A1: Assumptions used in modelling supply and demand of radiation oncologist consultants

Description	Value	Source
Consultants Working in HSE-Funded Services (i.e. Public Sector)	37 (HC)	*HSE DIME, December 2024*
Overall WTE Rate for Consultants in HSE-Funded Services (i.e. Public Sector)	35.9 (WTE)	*HSE DIME, December 2024*
WTE Rate	97%	*HSE DIME, December 2024*
% Female Consultant Radiation Oncologists in HSE-Funded Services (i.e. Public Sector)	43%	*HSE DIME, December 2024*
% Male Consultant Radiation Oncologists in HSE-Funded Services (i.e. Public Sector)	57%	*HSE DIME, December 2024*
Expected Retirements by 2038	61%	*HSE DIME, December 2024*
Non-Retirement Exits	0.5% M 0.8% F	*Assumption*
Private Sector Only Consultants*	16 (HC)	*IMC, 2024*
Higher Specialist Training NCHDs	24	*Faculty of Radiologists, October 2024*
Gender Breakdown of HST	29% M 71% F	*Faculty of Radiologists, October 2024*
Attrition Post-CSCST	15%	*NDTP Annual Retention Report 2024*
Years Abroad Between CSCST and Consultant Post	4	*NDTP Annual Retention Report 2024*
Non-Training NCHDs	21	*HSE DIME, October 2024*
% of Cancer Cases Requiring Radiotherapy	60%	*National Cancer Strategy 2017-2026*
Consultants per Million of the Population (European Mean)	12.8	*Training in Radiation and Clinical Oncology in Europe 2023*
Cases per Consultant (International Best Practice)	225	*EORTC*

**In the absence of better data on the private sector workforce, assumptions are derived from equivalent public sector data regarding demographics.*

Appendix 2: Drivers of Change to the Future Configuration of the Radiation Oncology Workforce

The drivers of change to the radiation oncology workforce of the future have a major influence on medical workforce planning. Through stakeholder consultation, consideration was given to the major drivers of change to the consultant radiation oncology workforce up to 2038. The drivers of change impacting the future demand for consultants working in the specialty are outlined below:

Table A2: Drivers of Change

Drivers of Change to the Future Radiation Oncology Workforce	
1.	Government policy and strategy including: • National Cancer Strategy 2017-2026 including the National Plan for Radiation Oncology • Sláintecare, (DoH, 2017) including the new Sláintecare's Public Only Consultants Contract 2023 and the 6-day working week
2.	International recommended number of new cases assigned per consultant per annum
3.	Population changes and associated service utilisation changes (ageing population and expected increases in cancer rates)
4.	Less-than-full-time-working arrangements
5.	Ageing workforce and early retirement age
6.	Over reliance on non-training scheme doctors for service delivery

While stakeholder consultation allowed for the identification of the main drivers of change to the future configuration of the radiation oncology workforce, further data analysis and review of the literature was required to gain a better understanding of the impact of these drivers of change on the future radiation oncology workforce. The results of this analysis and review are outlined below:

A2.1 National Cancer Strategy 2017-2026

The main aims of the National Cancer Strategy 2017-2026 are cancer prevention, early cancer diagnosis, provision of optimal care to patients and maximising the quality of life of the patient. Radiotherapy is the primary curative modality in a number of cancers and can increase cancer survival when used alongside other cancer treatments as well as being used as a highly effective palliative treatment [1]. This would suggest that the demand for consultant radiation oncologists is likely to increase over the next number of years.

A2.1.1 Infrastructure Availability (Linac)

The linear accelerator (linac) is a radiotherapy treatment machine that uses external beam radiation to treat cancer patients. Currently, Ireland has 23 public LINAC machines. The European Co-ordination Committee of the Radiological, Electrometrical and Healthcare IT Industry (COCIR) recommends a minimum of 7 Linac machines per million of the population [9]. Ireland is currently below this recommended number.

To ensure sufficient facilities are available, the National Plan for Radiation Oncology (NPRO) suggests the further development of radiation oncology facilities in Dublin, Cork and Galway to meet patient demand [10]. As part of this plan, Cork University Hospital opened a new major cancer treatment centre with 5 new Linac machines in 2019 and University Hospital Galway followed suit in 2023, when a new oncology centre was opened housing 4 linac machines. Both facilities include empty bunkers for installation of additional linacs in the future. SLRON has a total

of 14 linac machines and is one of the biggest radiotherapy treatment centres in Europe. The NPRO is currently overseeing a major equipment replacement programme at SLRON to replace the 14 linacs that are beyond end-of-life and a planned second phase of development at the radiotherapy facility at the SLRON Beaumont Centre that will increase the number of linacs from 14 to 16.

A2.1.2 Expansion of Public Services & Staffing Levels

According to the strategy, it is expected that approximately 60% of cancer patients will require radiotherapy treatment as a primary treatment measure [1]. One of the recommendations within the strategy is to ensure the provision of adequate capacity in the public network is achieved. Services have expanded in line with increased demand and developments in technology. However, staffing numbers need to increase to match the demand for services.

Radiotherapy treatment is delivered by a multidisciplinary team consisting of radiation oncologists, radiation therapists, medical physicists, dosimetrists and nurses. Therefore, staffing levels of all multidisciplinary staff will have an important effect on the output. As of December 2024, the vacancy rate for radiation therapists was 15% at SLRON, 15% at University Hospital Galway and 22% at Cork University Hospital.

Radiotherapy has also become increasingly tumour-site specific and therefore there may be a need for consultant staffing to specialise within their profession while also maintaining the current service delivery. This is to ensure sufficient staffing in relation to patient need.

A2.2 Sláintecare Public Only Consultants Contract 2023

The Public Only Consultants Contract 2023 was made available to existing and new consultants as of March 2023. Part of that contract allows for a 37-hour week with routine hours of work ranging from 8am to 10pm Monday to Friday, and 8am to 6pm Saturday.

Increasing the Monday to Friday work rota by 4 hours per day and adding Saturday as a working day, under the POCC2023 will require changing rostering arrangements so that, in some circumstances, consultants work longer hours over a shorter week with weekend cover included. To achieve this more flexible rostering, additional staffing to cover the 6-day working week would be required.

A2.3 International Recommended Number of Cases Assigned per Consultant per Annum

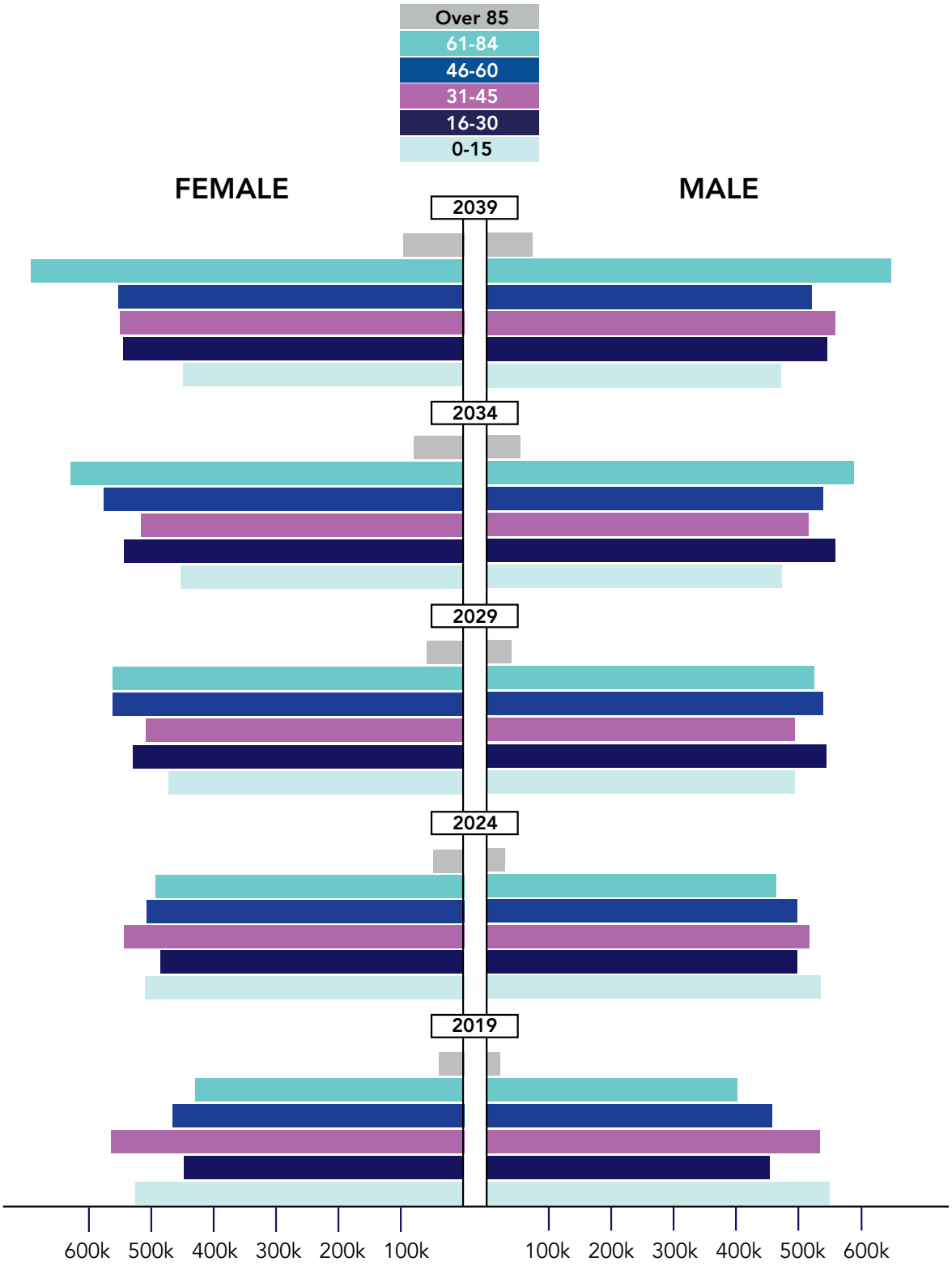
The national and international recommendations for consultant staffing indicate a need for between 8 and 12 radiation oncologists per million of the population as best practice. This is to permit an estimated caseload of 200-300 new patients per consultant which in line with the European average of 225 cases per consultant [2, 3].

A2.4 Population Change and Increased Cancer Rates

Population change, particularly population ageing, is an influencing factor on the future demand for consultant radiation oncologists. It is estimated that by 2030, the population of the Republic of Ireland will increase to 5.3 million and that by 2038 the population will have increased to 5.6 million. By 2038 there will be an estimated 1.2 million people over the age of 65 years, of whom 162,000 people will be over the age of 85 years. The older age group exerts the greatest pressures on the health service due to increased likelihood of cancer and complexity of care requirements.

According to the Cancer Incidence Projections for Ireland 2020-2045 report published by the National Cancer Registry Ireland, cancer cases could double from 21,700 cases in 2015 to almost 40,000 cases by 2040, assuming that the risk of being diagnosed with cancer remains the same [8]. However, it is very difficult to estimate cancer case numbers so far into the future and therefore using an overview of projections based in different sets of assumptions would assume a 50% increase by 2045 if recent trends continue (ibid).

Figure A1 demonstrates the estimated ageing population to 2039.



A2.6 Expansion of Indications for Radiation Therapy & Technological Advances

Advancements in cancer treatment, particularly in the area of radiation therapy (RT) has been observed in recent years. Advancements in RT technology, for example Stereotactic Radiosurgery (SRS) and Stereotactic Ablative Radiotherapy (SABR), have allowed for a broader scope in cancer management, especially for localised tumours particularly in the brain, lung, liver and spine. [4, 11]. Advancements in these techniques are also increasingly being used to manage limited metastatic diseases (oligometastatic disease) or benign conditions and also allows for reirradiation in previously treated sites, resulting in expansion of indications for patients previously deemed ineligible for treatment. Other rapidly advancing technologies include MR-guided radiotherapy, adaptive planning, and AI-driven treatment optimisation, and will significantly increase the demand for consultant radiation oncologists in the future. These innovations not only make radiation treatments more precise and effective but also increase the complexity of treatment planning and delivery, requiring greater clinical oversight and increased workload and expertise required per patient.

Furthermore, ongoing research and innovation in radiobiology, imaging, and treatment techniques are continuously reshaping best practices and expanding the scope of radiation oncology. Consultant radiation oncologists play a central role in driving and translating this research into clinical practice, developing and participating in trials, and leading multidisciplinary teams. To ensure patients benefit from high-quality, cutting-edge, personalised care and to fully leverage these advanced technologies, healthcare systems must invest in expanding and upskilling this highly trained workforce to meet the demands of a rapidly advancing field. Ireland's RT utilisation rate is currently below the international standard however, and should be monitored for changes. Furthermore, the evolution of national clinical guidelines and referral pathways e.g. NICE (UK) and NCCN (US), have also expanded radiotherapy roles in cancers such as early-stage prostate, breast, and lung cancers. The combination of advancements in cancer treatment and technology alongside the expansion of radiotherapy indications in recent years, will also impact the number of radiation oncologists required.

A2.6 Less-Than-Full-Time Working Arrangements

Currently, the WTE rate of all consultant radiation oncologists is 97%. An increased demand for less than full time working is anticipated across all specialties as the preference for a better work-life balance is growing. Therefore, less than full time working arrangements are likely to impact the future demand for consultants and trainees within workforce. To allow for LTFT consultant posts in the future, an assumption of a 0.3% reduction in WTE each year was built into the demand model.

A2.7 Ageing Workforce and Early Retirement Age

Data outlined previously in section 3.2.1, indicates that by 2038 approximately 61% of public radiation oncologists will retire, assuming the retirement age is 62 years i.e. 22 consultants. Currently 25% of the public radiation oncology consultant workforce is over 55 years of age. In order to sustain the consultant radiation oncology workforce, a sufficient training pipeline is necessary.

A2.8 Over Reliance on Non-Training Scheme Doctors for Service Delivery

As of October 2024, there were 21 NTSDs working in radiation oncology and 24 trainees. There was a 56% growth in radiation oncology NTSDs between 2022 and 2023 [12]. This infers a significant reliance on NTSDs to deliver services in publicly funded hospitals. SLRON had the highest number of NTSDs followed by Cork University hospital and then University Hospital Galway. It is Government policy to greatly reduce the reliance on NTSDs in Irish hospitals. As the consultant and specialist trainee workforce increases, there should be a parallel decrease in the number of NTSDs in the workforce. This would bring the workforce in line with a consultant delivered service as proposed by government policy.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