IPEM

Institute of Physics and Engineering in Medicine

Radiotherapy Workforce Census Summary Report 2021

Introduction

This data in this report is compiled from IPEM's Radiotherapy Workforce Census 2021, carried out in November 2021 with a capture date of 19th November. An invitation to respond was sent to all heads of Radiotherapy Physics in the UK, at all centres delivering a Radiotherapy Physics Service including NHS and Independent providers.

At the time of compiling this report, we achieved a response rate of 89% covering 58 Radiotherapy centres which includes 93% of NHS Radiotherapy centres. Data was gathered on 2 professional groups: Clinical Scientists and Clinical Technologists, with the technologists being separated between physics and engineering. Information was also gathered on other staff essential to the clinical service provision.

Executive Summary

The aim of this report is to show how the current Radiotherapy workforce is coping in terms of staffing levels, including establishment, vacancies and age profiles.

The census data shows that the Radiotherapy workforce is currently managing to provide an adequate service, however it has little to no provision for training and service development. It is often struggling to recruit Technologists, especially in engineering and many responses reported experiencing difficulty in finding maternity and sick cover, leaving services strained.

- The Radiotherapy workforce has an average vacancy rate of 8%.
- This vacancy rate is not unique to Radiotherapy with all Medical Physics specialisms at 7-10% vacancy rate.
- Vacancies are greatest for entry level positions, however if this isn't addressed it may, over time, propagate through to the senior positions.
- To meet current IPEM recommendations, the profession would require a significant uplift in Clinical Technologist staffing levels over the current establishment.
- Clinical Technologists (Engineering) is becoming an aging workforce with almost half (48%) over the age of 50.
- These points indicate to a workforce which, over a long period of time, has suffered recruitment and training pipeline issues.

These training issues, along with the shortage of those entering the profession, need to be addressed as a matter of urgency. STP places and other training routes, such as Route 2 or apprenticeships need to be increased across the board and candidates should not be diverted from existing training places within other specialisms as those specialisms are also in need of new trainees.

Workforce Headlines

	Whole-Time Equivalence (WTE) of responding centres	Estimated Whole-Time Equivalence (WTE) across UK*	Vacancy Rate
Clinical Scientists	880	953	7%
Clinical Technologists (Physics)	611	659	8%
Clinical Technologists (Engineering)	344	355	9%
Other Staff	63	67	12%

*Estimates made from previous responses to workforce surveys from missing centres.

Establishment and Vacancy Rates

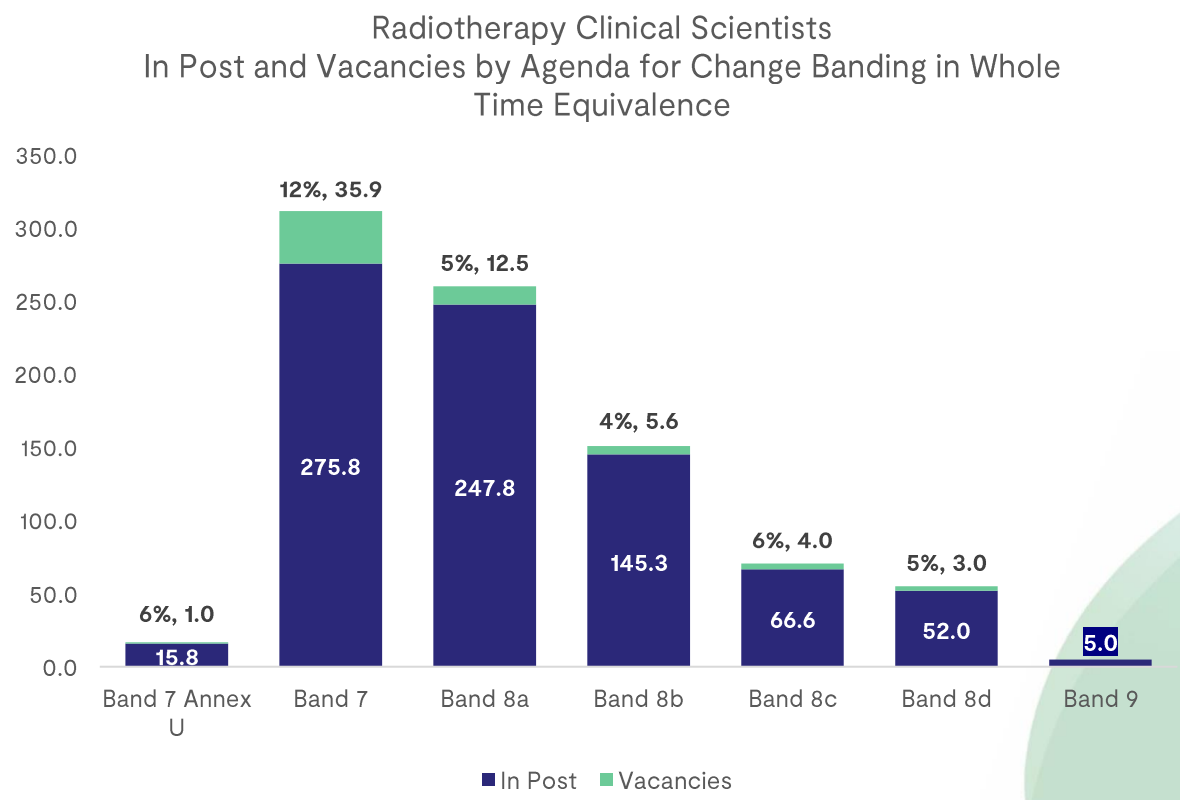
Radiotherapy has an overall vacancy rate of 8%, which is a similar vacancy rate to the other medical physics specialisms which are all in shortage, with around 7 to 9% of positions vacant overall.

With all Medical Physics specialisms in shortage, further input to the workforce must come from additional training opportunities and not diverting existing training places away from other specialisms.

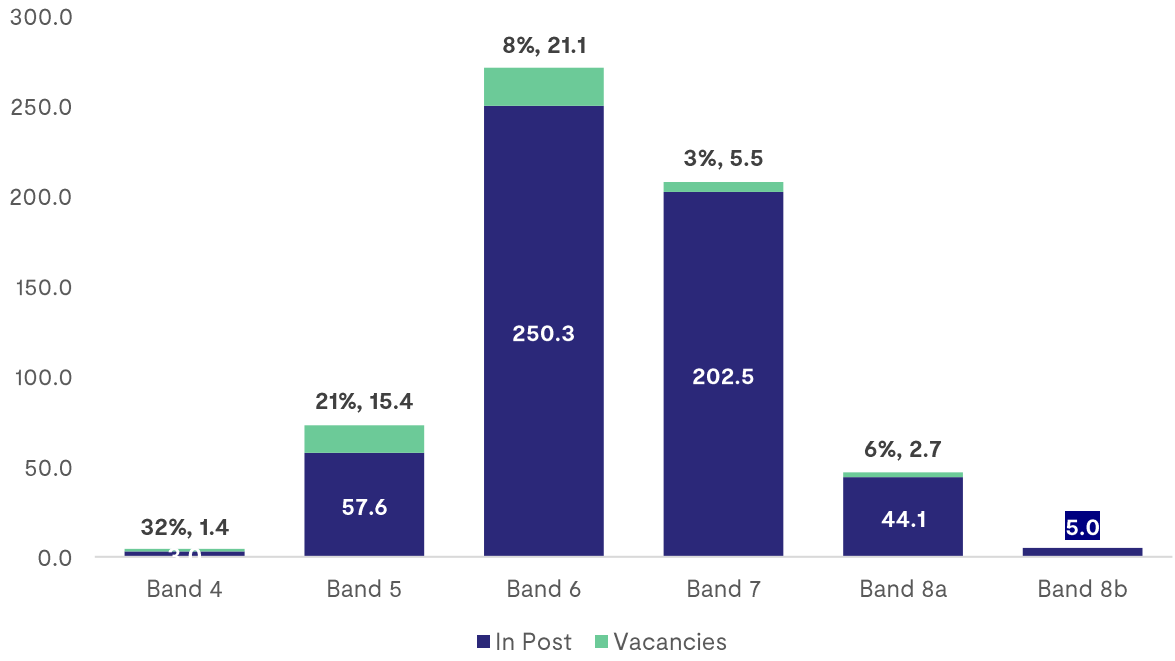
	Clinical Scientists	Clinical Technologists
Radiotherapy	7%	8%
Diagnostic Radiology and Radiation Protection	9%	7%
Nuclear Medicine	8%	8%
Clinical Engineering	13%	9%

Bands 5 to 7 have the most vacancies with up to 21% of positions at these levels not filled, as can be seen in the below charts which show the establishment in whole-time equivalence, split into in-post and vacant positions split into in-post and vacant positions and broken down by Agenda for Change banding for each group.

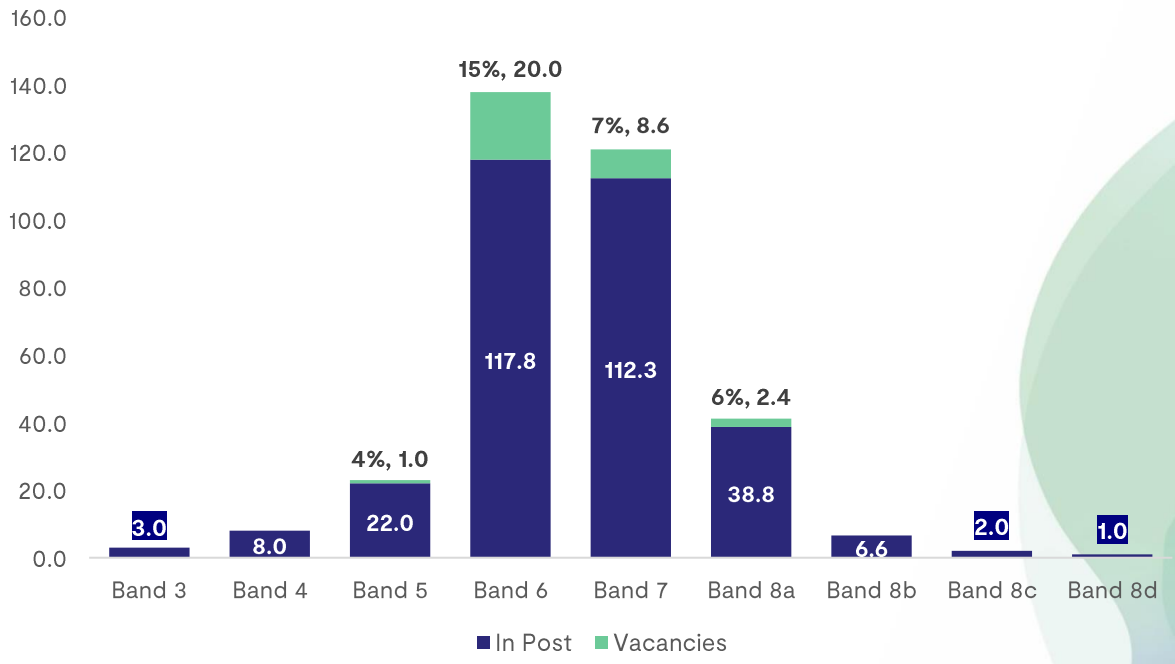
Working alongside the Clinical Scientists and Clinical Technologists there are also Other Staff who are essential to the clinical service provision. These are mainly apprenticeships and trainees who are not in established posts, though they also include positions such as IT Support (IT Technicians, Software Engineers, Clinical System Admins/Assistants), Junior Physicists, Clinical Pathway Co-ordinators, Healthcare Scientist Support Staff, Treatment Planning, Radiographers working in Brachytherapy and Quality Managers.

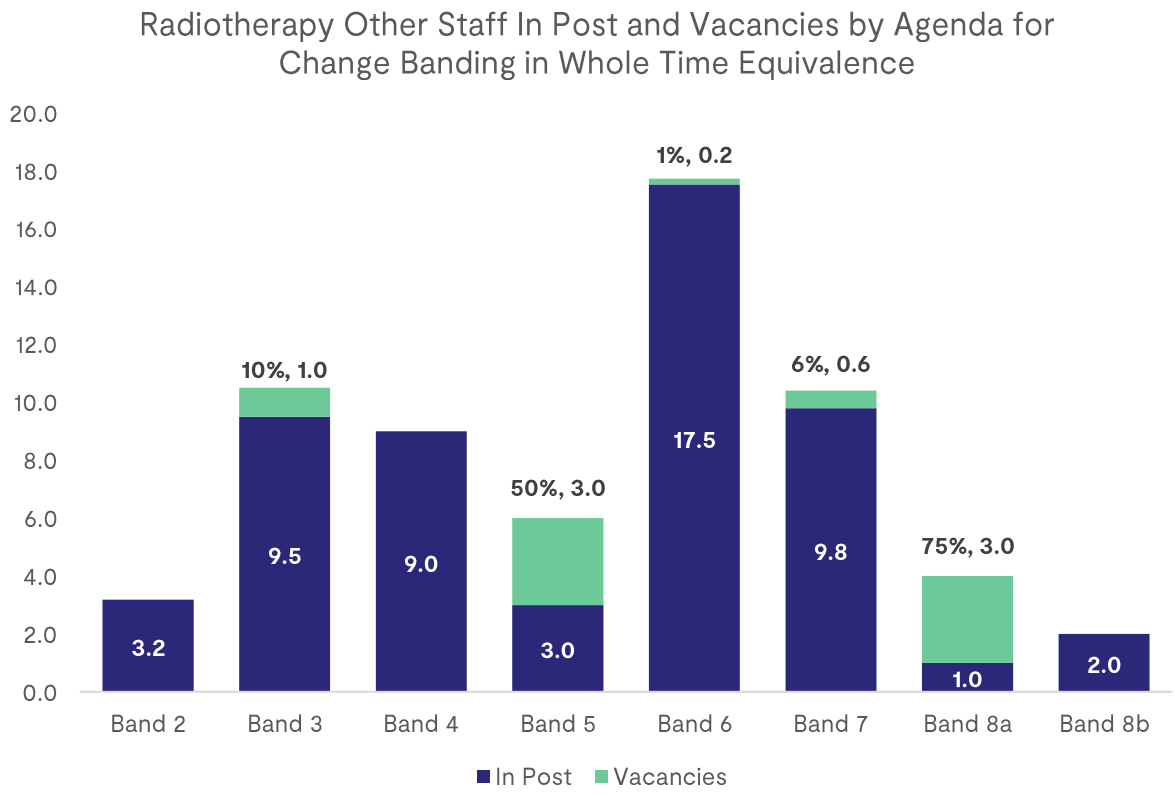


Radiotherapy Clinical Technologists (Physics)
In Post and Vacancies by Agenda for Change Banding in Whole Time Equivalence



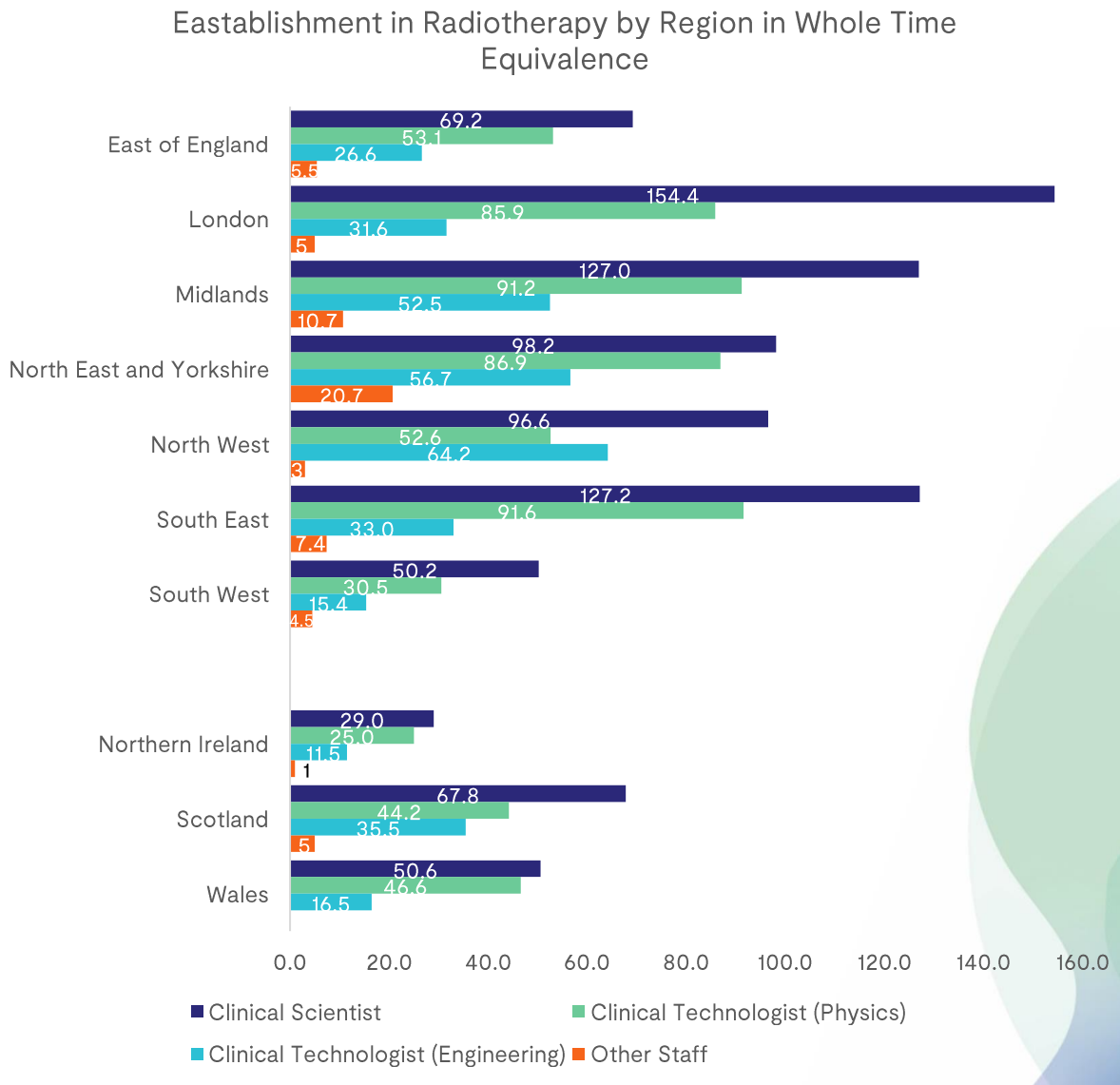
Radiotherapy Clinical Technologists (Engineering)
In Post and Vacancies by Agenda for Change Banding in Whole Time Equivalence




Radiotherapy Other Staff In Post and Vacancies by Agenda for Change Banding in Whole Time Equivalence
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
10%, 1.0
50%, 3.0
1%, 0.2
6%, 0.6
75%, 3.0
3.2
9.5
9.0
3.0
17.5
9.8
1.0
2.0
Band 2
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
In Post
Vacancies

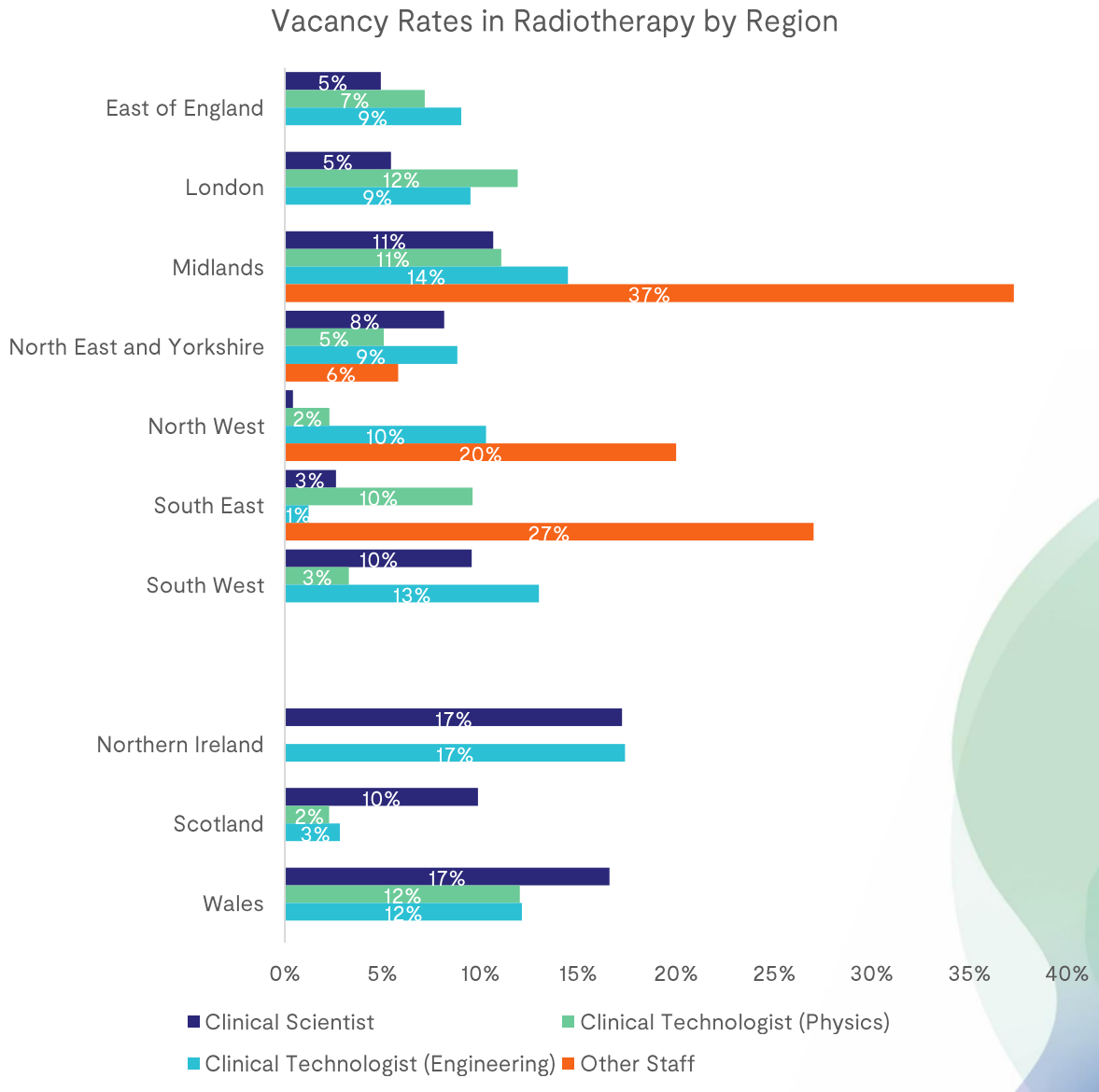
Establishment by Region

	Clinical Scientist WTE	Clinical Technologist (Phys) WTE	Clinical Technologist (Eng) WTE	Other Staff WTE	Response Rate
East of England	69.2	53.1	26.6	5.5	83%
London	154.4	85.9	31.6	5.0	100%
Midlands	127.0	91.2	52.5	10.7	100%
North East and Yorkshire	98.2	86.9	56.7	20.7	100%
North West	96.6	52.6	64.2	3.0	100%
South East	127.2	91.6	33.0	7.4	100%
South West	50.2	31.5	15.4	4.5	67%
Northern Ireland	29.0	25.0	11.5	1.0	100%
Scotland	67.8	44.2	35.5	5.0	100%
Wales	50.6	46.6	16.5	0.0	100%

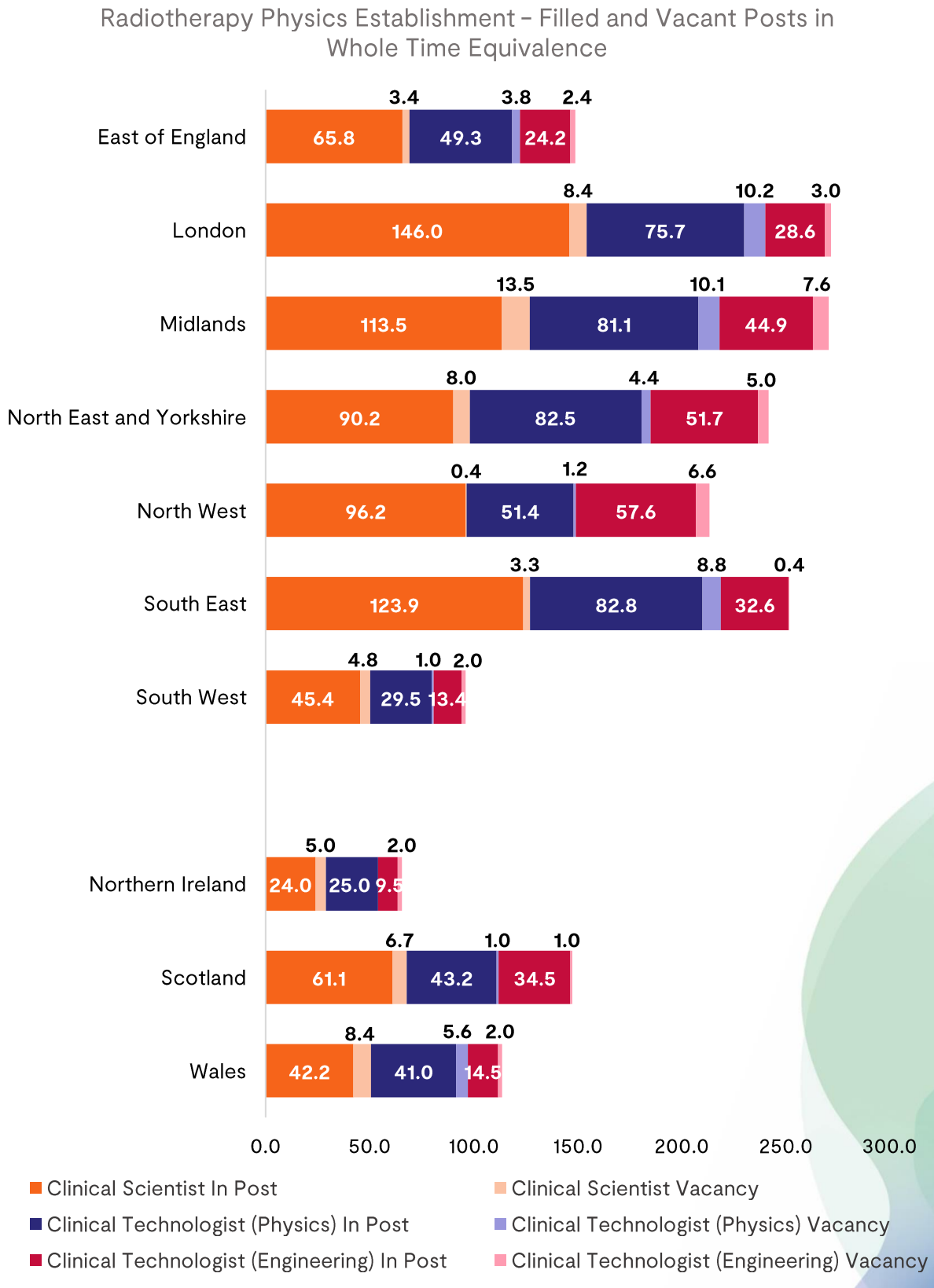


Vacancy Rate by Region

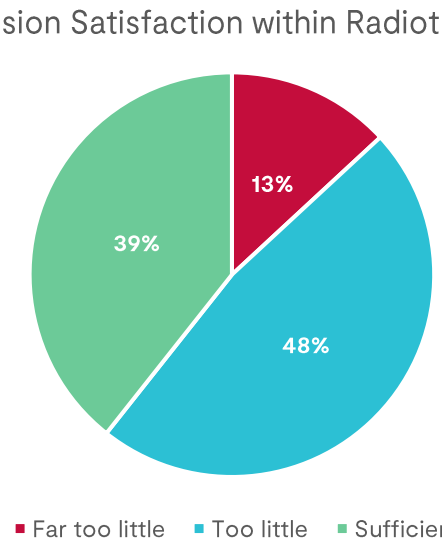
	Clinical Scientist	Clinical Technologist (Phys)	Clinical Technologist (Eng)	Other Staff	Response Rate
East of England	5%	7%	9%	0%	83%
London	5%	12%	9%	0%	100%
Midlands	11%	11%	14%	37%	100%
North East and Yorkshire	8%	5%	9%	6%	100%
North West	0%	2%	10%	20%	100%
South East	3%	10%	1%	27%	100%
South West	10%	3%	13%	0%	67%
Northern Ireland	17%	0%	17%	0%	100%
Scotland	10%	2%	3%	0%	100%
Wales	17%	12%	12%	0%	100%



Filled and Vacant Positions by Region

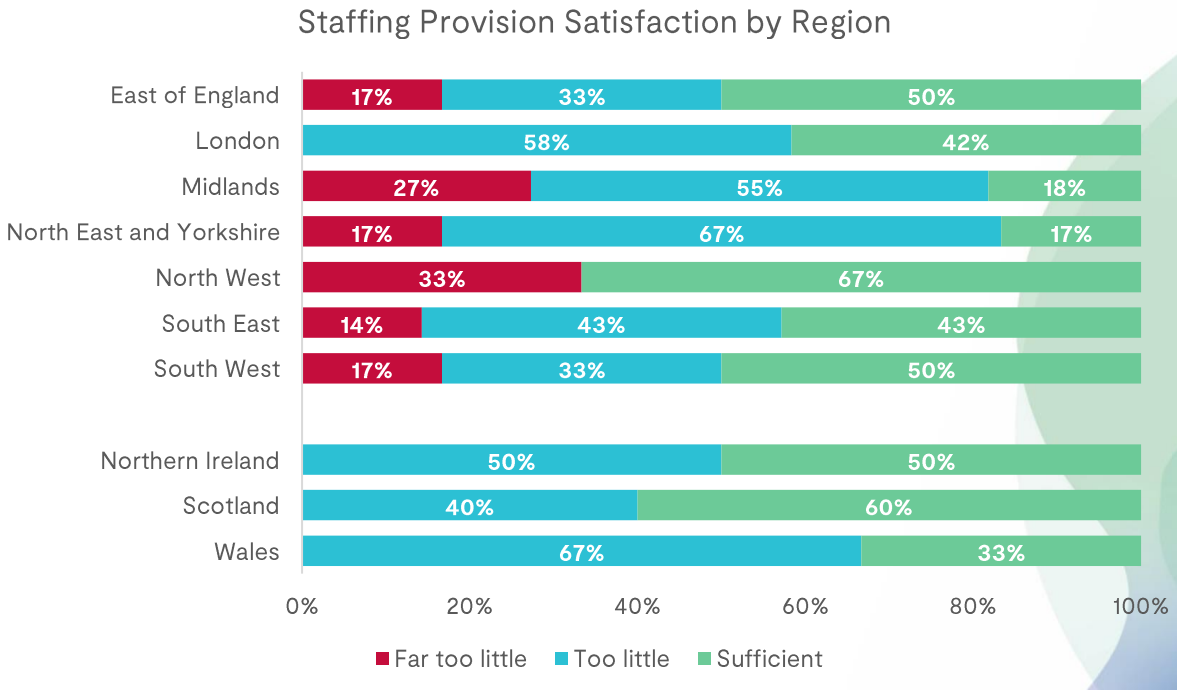


Staffing Provision



61% of respondents have stated they feel their staffing provision is under what they require to provide an adequate Radiotherapy Physics service. This is down slightly from 68% who stated the same in 2019. Comments around staffing provision paint a picture of a workforce that is currently managing, one however, which has little to no provision for training and service development. Departments often struggle to recruit Technologists, especially in engineering which has the largest shortfall of staff, along with difficulties covering sick and maternity leave putting large strains on the services.

Staffing Provision by Region



IPEM Recommendations

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	880	817	889	63	9
Clinical Technologists (Physics)	611	565	785	46	174
Clinical Technologists (Engineering)	344	312	555	32	211

When asked to calculate IPEM recommended staffing levels to run a comprehensive radiotherapy service, departments have responded stating that while clinical scientist staffing levels are appropriate, they would require around a 27% uplift in Technologist staffing levels over the current establishment to meet the IPEM recommendations. Several respondents believe the current recommendations do not sufficiently evaluate the requirements of differing departmental configurations and size, and consequently may overstate the number of technologists required. These recommendations are being revised and as a result, the recommended Technologist staffing levels may be reduced, and so the required uplift may not be as great. However, this does not diminish the need for an active pipeline for training technologists, which is currently lacking.

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IPEM Recommendations by region

East of England

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	69	66	79	3	10
Clinical Technologists (Physics)	53	49	73	4	20
Clinical Technologists (Engineering)	27	24	52	3	25

London

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	154	146	136	8	Establishment exceeds recommendations
Clinical Technologists (Physics)	86	76	111	10	25
Clinical Technologists (Engineering)	32	29	82	3	50

Midlands

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	127	114	133	15	6
Clinical Technologists (Physics)	91	81	112	10	21
Clinical Technologists (Engineering)	53	45	85	8	32

North East and Yorkshire

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	98	90	110	8	12
Clinical Technologists (Physics)	87	83	101	4	14
Clinical Technologists (Engineering)	57	52	79	5	22

North West

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	97	96	87	1	Establishment exceeds recommendations
Clinical Technologists (Physics)	52	51	75	1	23
Clinical Technologists (Engineering)	64	58	53	6	Establishment exceeds recommendations

South East

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	127	124	131	3	4
Clinical Technologists (Physics)	92	83	108	9	16
Clinical Technologists (Engineering)	33	33	73	0	40

South West

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	50	45	56	5	6
Clinical Technologists (Physics)	31	30	56	1	25
Clinical Technologists (Engineering)	15	13	34	2	19

Northern Ireland

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	29	24	29	5	Establishment matches recommendations
Clinical Technologists (Physics)	25	25	33	0	8
Clinical Technologists (Engineering)	12	10	22	2	10

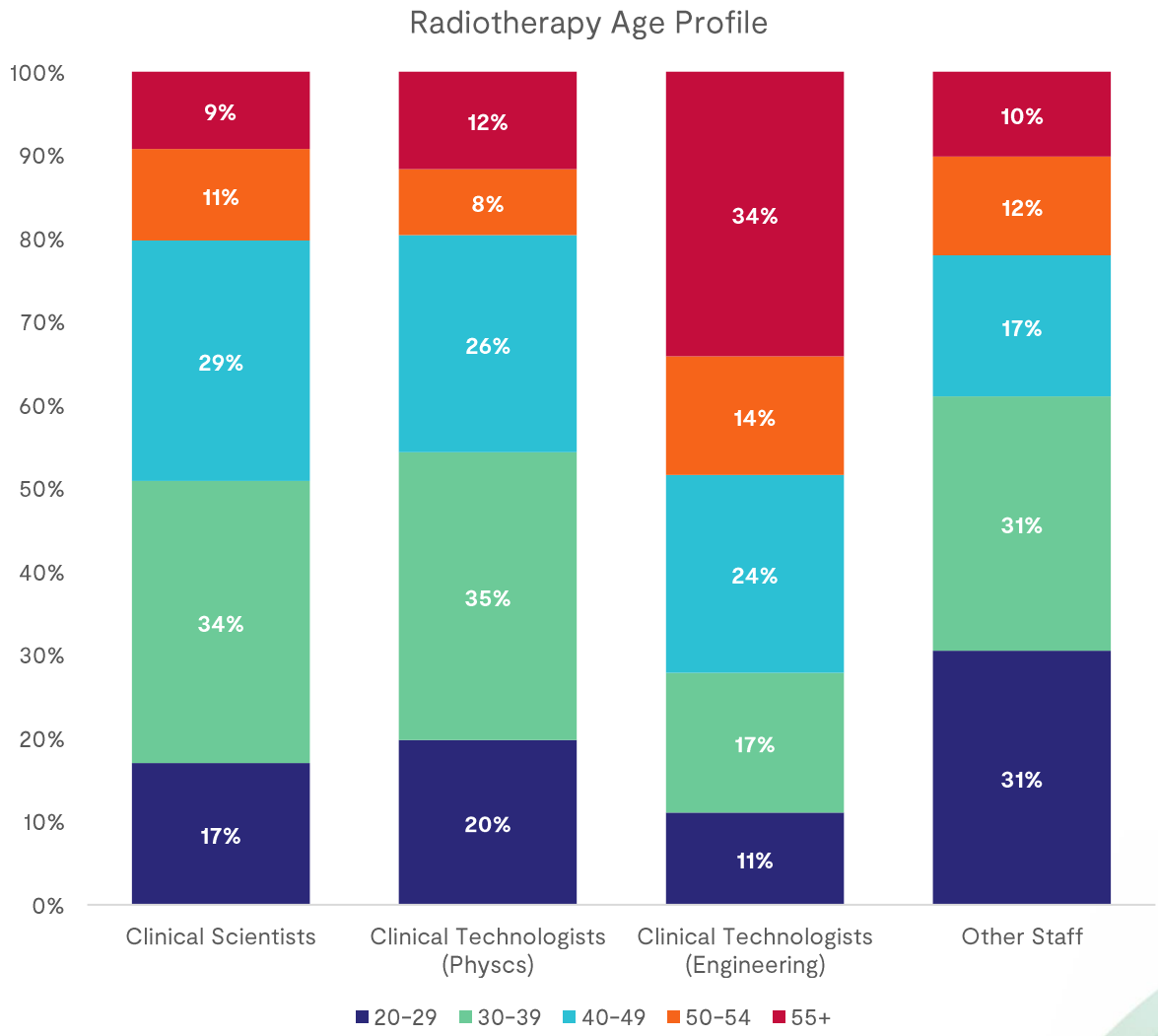
Scotland

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	68	61	73	7	5
Clinical Technologists (Physics)	44	43	66	1	22
Clinical Technologists (Engineering)	36	35	47	1	11

Wales

	Establishment WTE	In post WTE	IPEM recommendations WTE	Required to meet establishment in WTE	Required to meet IPEM recommendations above current establishment in WTE
Clinical Scientists	51	42	54	9	3
Clinical Technologists (Physics)	47	41	50	6	3
Clinical Technologists (Engineering)	17	15	29	2	12

Age Profile

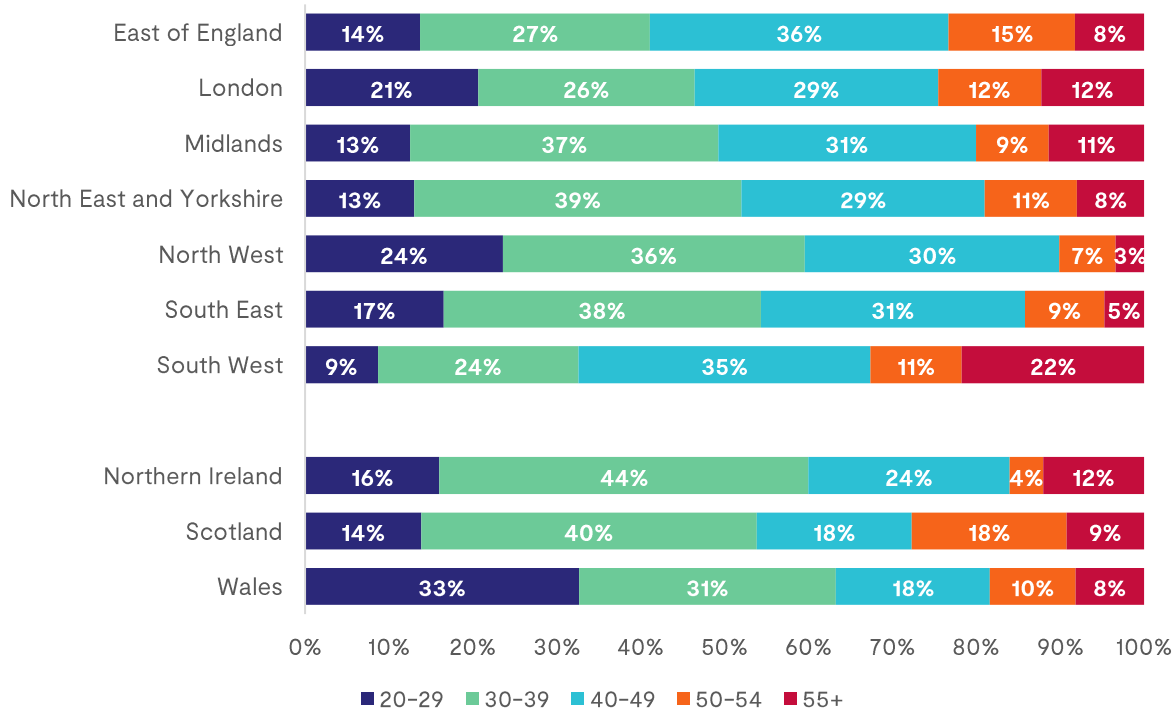


Around 10% of Clinical Scientists and Clinical Technologists (Physics) are approaching retirement age (55+) and worryingly, over a third (34%) of Clinical Technologists (Engineering) are also approaching retirement age, and almost half of this professional group is aged over 50.

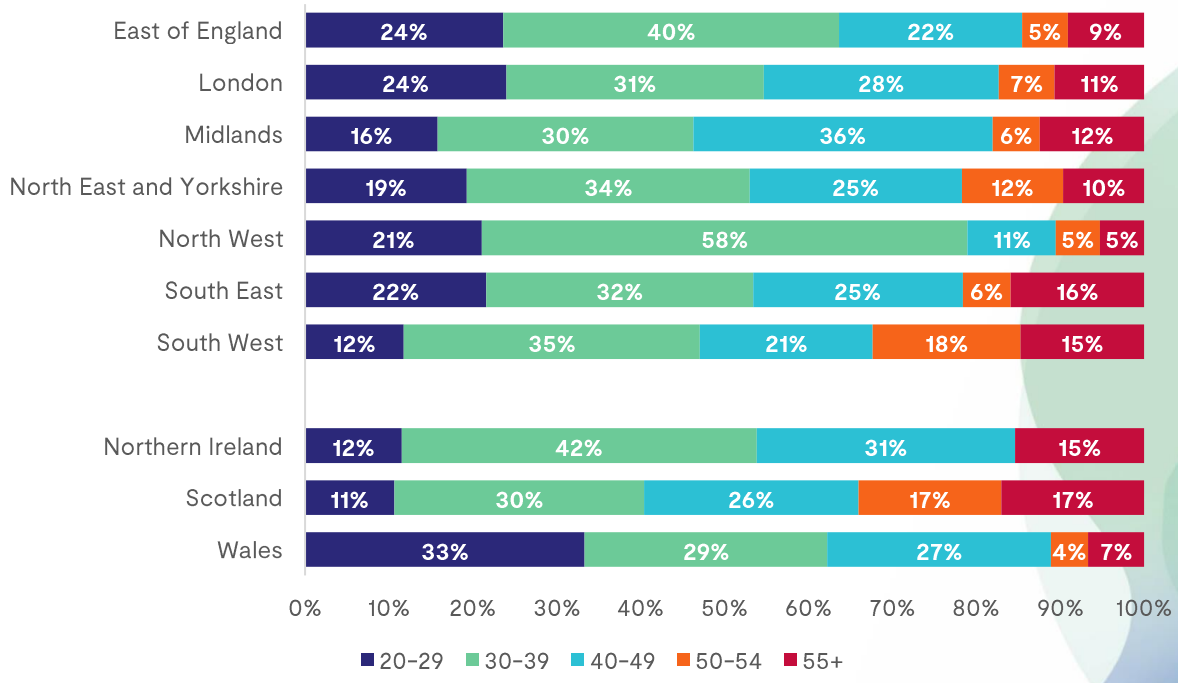
Comparing with other Healthcare Professionals, 15% of Professionally Qualified Clinical NHS Staff are approaching retirement age, 13% for doctors and 17% for nurses and midwives (NHS Digital, 2020). This puts Radiotherapy Clinical Scientists and Clinical Technologists (Physics) under the national average for Healthcare Professionals approaching retirement age, however Clinical Technologists (Engineering) are in a precarious position with over double the national average.

Age Profile by Region

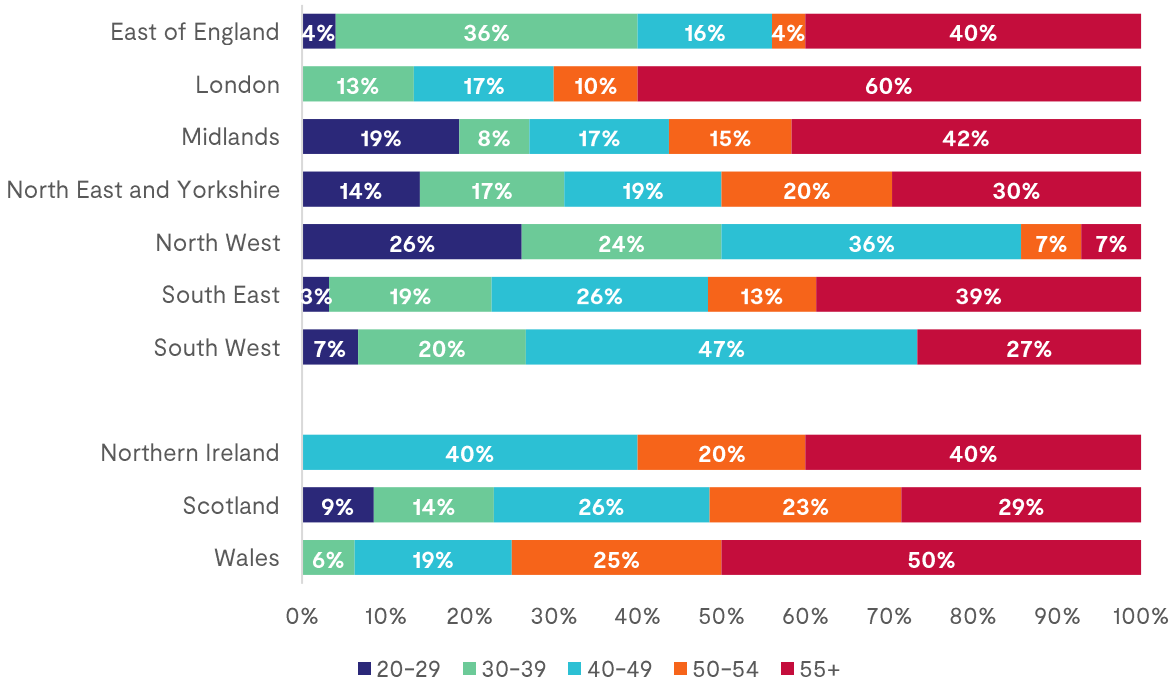
Age Profile of Radiotherapy Clinical Scientists by Region



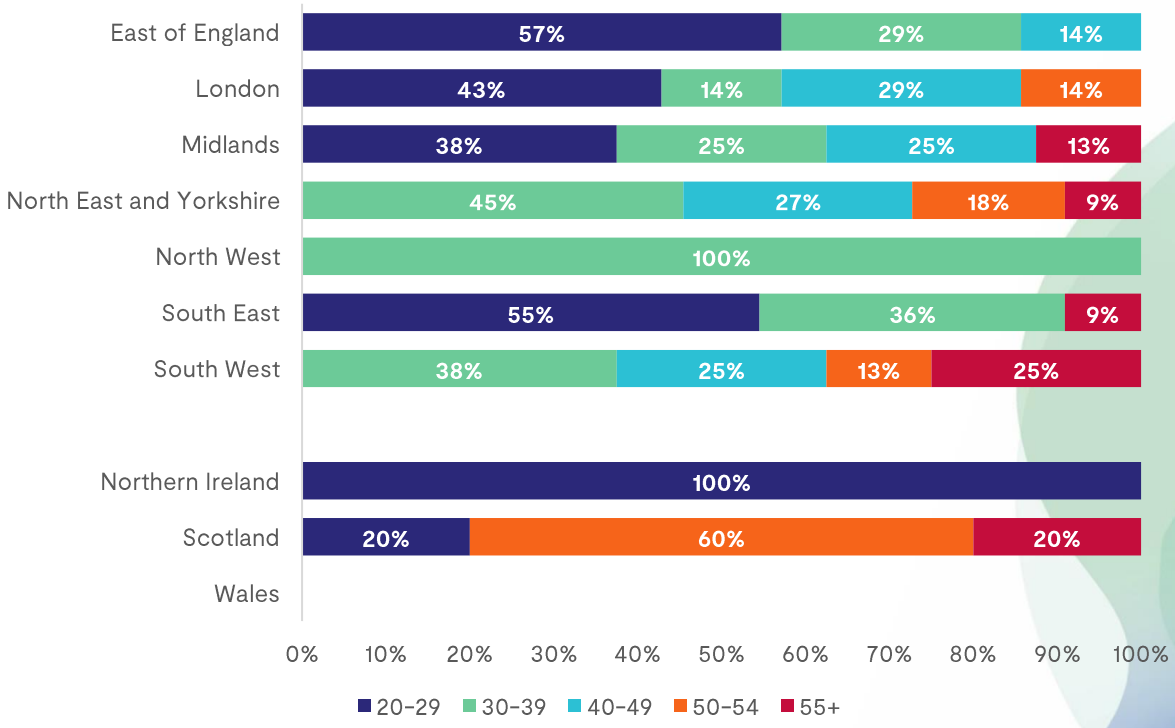
Age Profile of Radiotherapy Clinical Technologists (Physics) by Region



Age Profile of Radiotherapy Clinical Technologists (Engineering) by Region



Age Profile of Other Radiotherapy Staff by Region



Summary

In summary, the data shows that the Radiotherapy workforce is currently managing to provide an adequate service, however it has little to no provision for training and service development. It is often struggling to recruit Technologists, especially in engineering and is experiencing difficulty in finding maternity and sick cover, leaving services strained.

Vacancies are greatest for entry level positions with up to 21% of positions at these levels not filled. This could in turn propagate through the profession in the future, giving rise to the possibility of staff being promoted to senior positions before they are comprehensively ready for the role. If these vacancies aren't addressed there will be less people to progress through the profession leading to a potential lack of candidates for senior positions.

The Radiotherapy workforce across the country has an average vacancy rate of 8%, which is not unique to Radiotherapy, as all Medical Physics specialisms currently have a 7–10% vacancy rate. Therefore, further input to the workforce must come from additional training and not diverting existing training places from other specialisms.

In particular, there is little value in putting effort into funnelling Scientist Training Program (STP) candidates into Radiotherapy with other Medical Physics specialisms also being in need. STP places and other training routes, such as Route 2 or apprenticeships must be increased across the board.

On top of this, the profession would require a significant uplift in Technologist staffing levels over the current establishment to meet the IPEM recommendations. These recommendations are being revised, which will potentially see a decrease in recommended staffing levels, however they are still likely to demonstrate a Technologist uplift requirement.

We also see an aging workforce in Clinical Technologists (Engineering) as almost half of them throughout the country are over the age of 50, with 34% approaching retirement age (55+). This is more than double compared to NHS Medical Professionals overall at 15% of the workforce aged over 55, which indicates a workforce that has suffered with recruitment difficulties and training pipeline issues for a long period of time. These training issues, along with the shortage of those entering the profession need to be addressed as a matter of urgency.

References

NHS Digital. (2020, December). *Equality and Diversity in NHS Trusts and CCGs December 2020*.

Retrieved from https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2020#.