IPEM

Institute of Physics and Engineering in Medicine

Radiotherapy Physics Workforce Census Summary Report 2023

IPEM Institute of Physics and Engineering in Medicine

Introduction

The data in this report is compiled from IPEM's Radiotherapy Workforce Census 2023, carried out in November 2023 with a capture date of 30th 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 88% covering 60 Radiotherapy centres which includes 97% 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 of Radiotherapy Physics departments and the number of Medical Physics Experts and Radiation Protection Advisers.

Executive Summary

The aim of this report is to show the number of staff working within Radiotherapy Physics across the UK and how the current Radiotherapy workforce is coping. This includes headcounts, whole time equivalent of post establishment, whole time equivalent of staff in post, whole time equivalent of vacancies, all broken down by NHS Agenda for Change Banding, vacancy rates and age profiles. The data is then split between centres that responded and estimated totals where possible, which is then further broken down by geographic region and Radiotherapy Operational Delivery Networks.

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 or service development. In some locations it would only take losing a few staff members to fall below adequate. Recruiting to Clinical Scientist posts has improved since the last census in 2021, although the profession feel it still lacks the required amount. Technologist posts remain difficult to recruit to, especially in engineering which is also becoming an aging workforce. Recruitment in this area needs to be addressed and as workloads becomes increasingly more complex further posts will need to be established. Many responses also indicate experiencing difficulty in finding maternity and sick cover, leaving services strained.

- The Radiotherapy workforce has an average vacancy rate of 8% which has stayed consistent since the last census in 2021 and only down 1% since 2019.
- This vacancy rate is not unique to Radiotherapy with all Medical Physics specialisms currently averaging 10% of all established posts vacant.
- The majority of vacancies in Radiotherapy Physics are at entry level positions.
- The East of England, Midlands, Northern Ireland and Wales all have an average vacancy rate of over 10%.
- Almost 20% of Clinical Technologist (Engineering) posts in the Midlands are currently vacant and the same for Clinical Scientists in Northern Ireland.
- Clinical Technologists (Engineering) is still becoming an aging workforce with just under half over the age of 50 and the smallest number of staff in entry level positions across the professional groups.

- When broken down by region, Clinical Technologists (Engineering) aged over 50 in London and Wales account for up to 75% of the professional group, making these areas especially, a cause for concern.
- Centres staffing provision remains unsatisfactory across Clinical Scientists and Clinical Technologists with only 40% of centres stating their Clinical Scientist provision is satisfactory and only 30% saying the same for Clinical Technologists.
- However, centres do feel they are satisfied with their Medical Physics Expert and Radiation Protection Adviser staffing provision.
- These points, along with historical trends 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 Clinical Technologists entering the profession, especially in engineering, need to be addressed as a matter of urgency. 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

	Establishment in Whole Time Equivalence of responding centres	Estimated Total Establishment in Whole Time Equivalence across UK*	Vacancy Rate
Clinical Scientists	936.2	992.4	8%
Clinical Technologists (Physics)	657.7	684.7	7%
Clinical Technologists (Engineering)	346.4	359.4	9%
Other Staff	61.6	63.0	6%

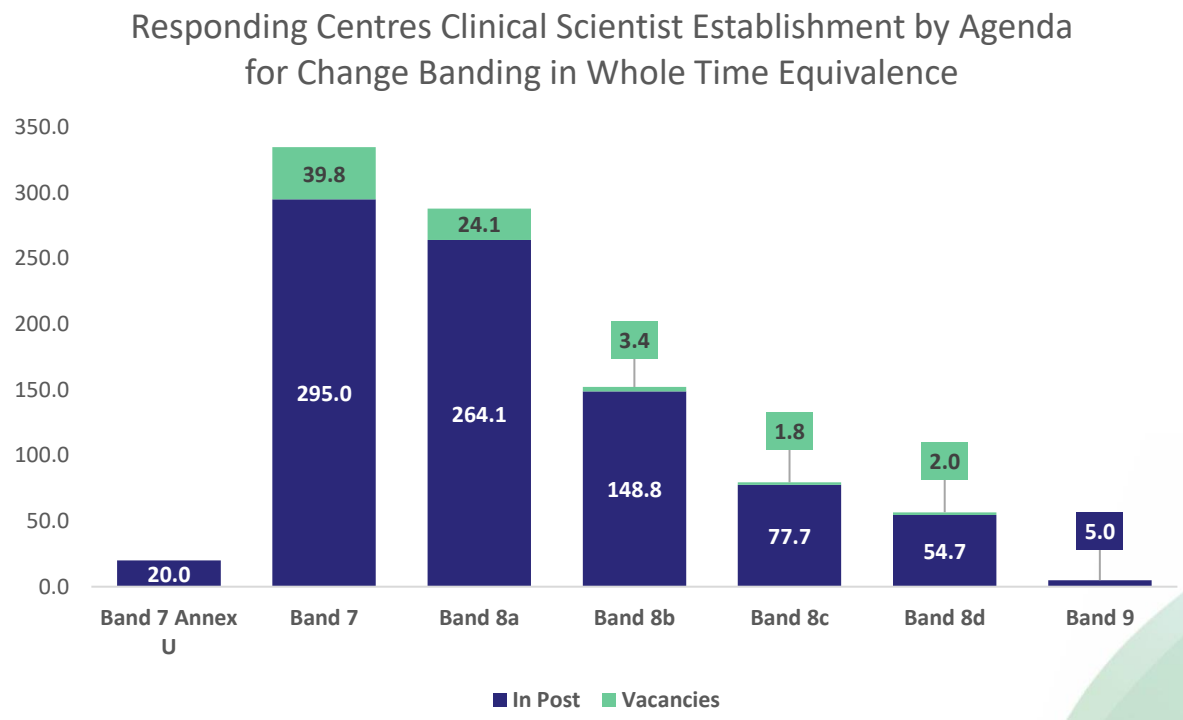
	Headcount of responding centres	Estimated Total Headcount across UK*	In Post in Whole Time Equivalence of responding centres	Estimated In Post in Whole Time Equivalence across UK*
Clinical Scientists	946	1003	865.1	919.3
Clinical Technologists (Physics)	699	725	611.1	635.1
Clinical Technologists (Engineering)	331	344	315.6	328.6
Other Staff	66	68	58.0	58.4

*Estimates made for missing centres are taken from previous responses to workforce surveys but does not include 5 of the 6 national independent providers

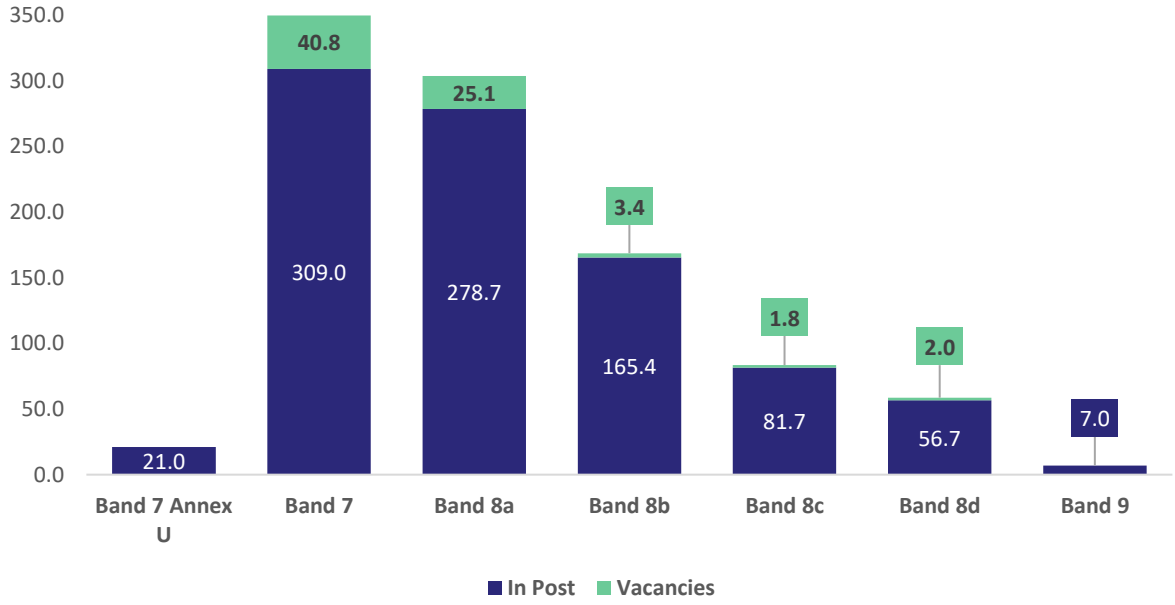
Vacancy Rate Comparison

	Clinical Scientists	Clinical Technologists
Radiotherapy	8%	7%
Diagnostic Radiology and Radiation Protection	9%	7%
Nuclear Medicine	12%	15%

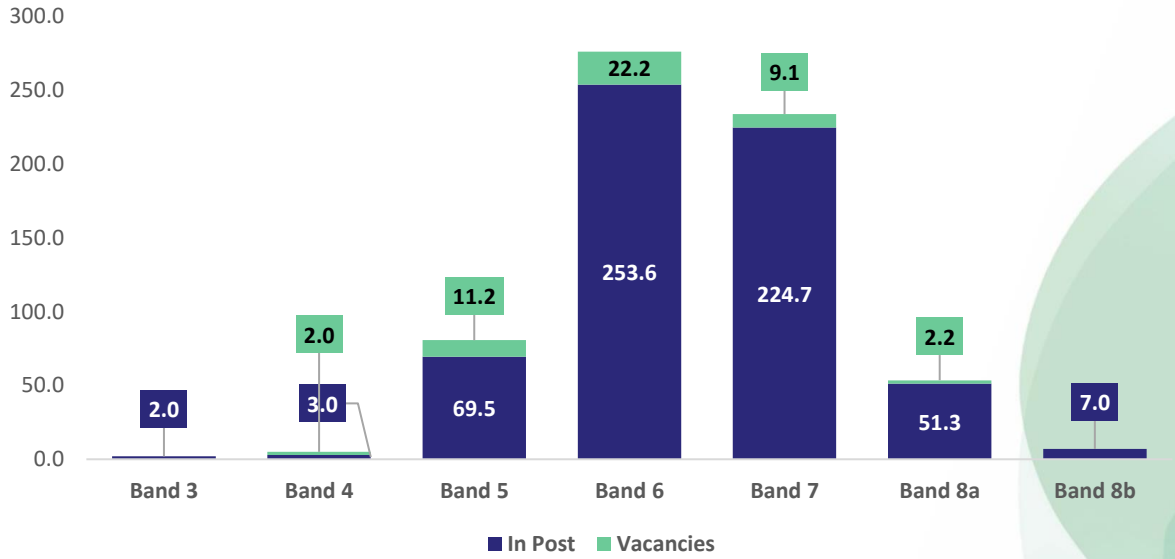
Establishment and Vacancies



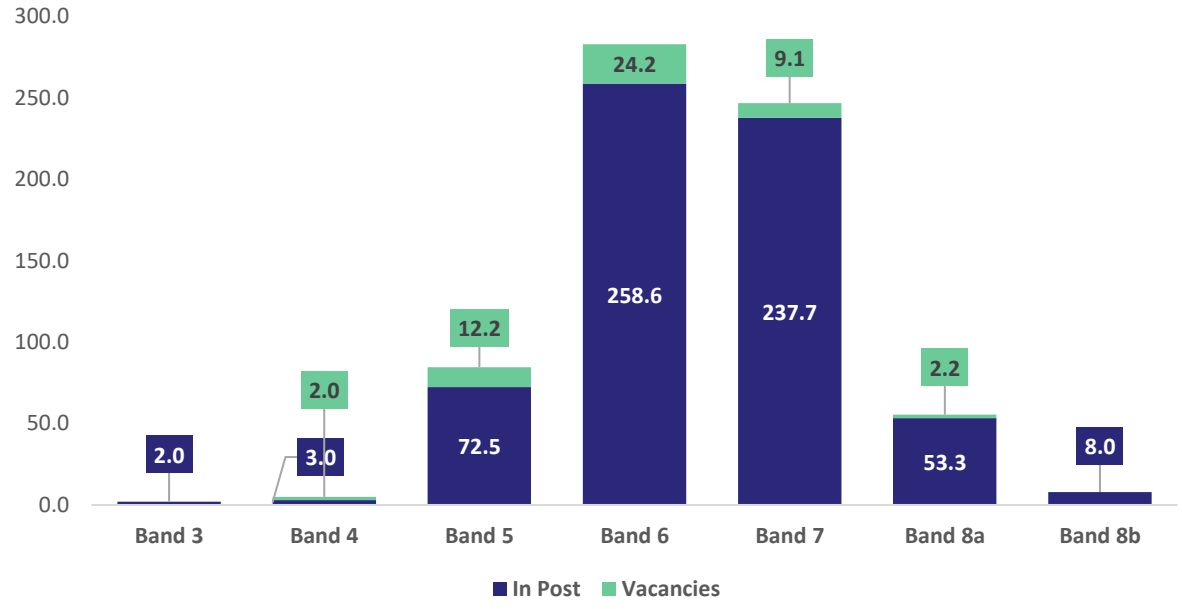
Estimated Total of Clinical Scientist Establishment by Agenda for Change Banding in Whole Time Equivalence



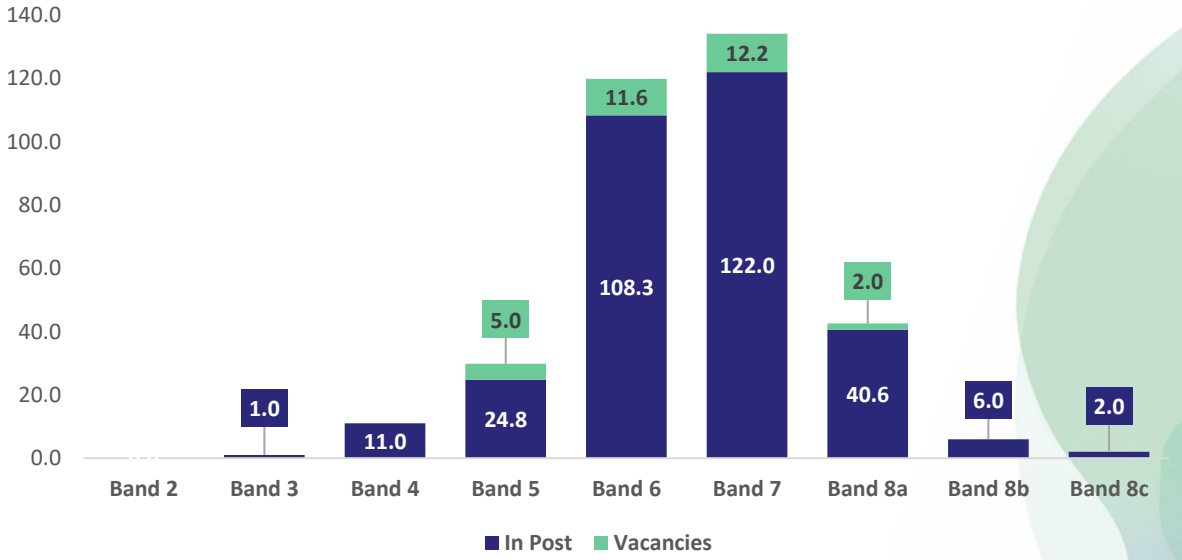
Responding Centres Clinical Technologist (Physics) Establishment by Agenda for Change Banding in Whole Time Equivalence



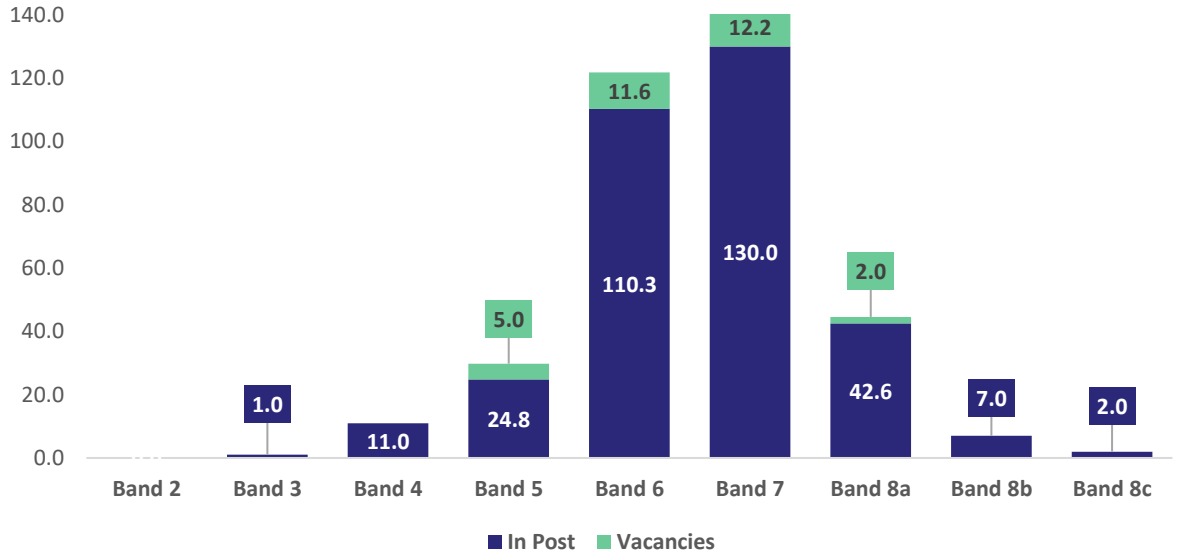
Estimated Total of Clinical Technologist (Physics) Establishment by Agenda for Change Banding in Whole Time Equivalence



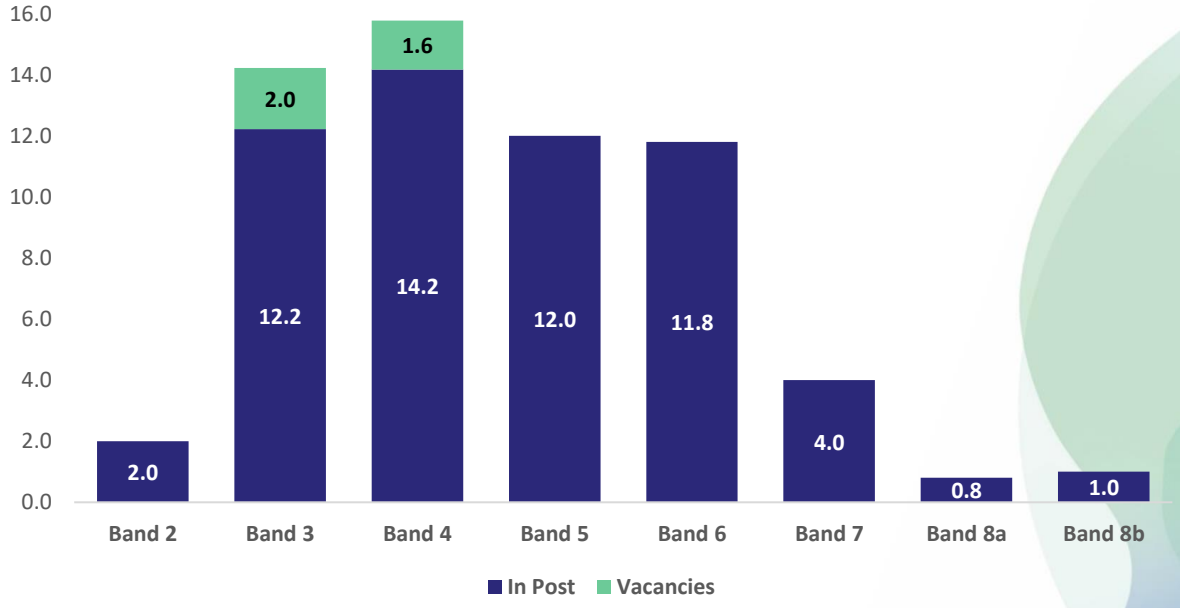
Responding Centres Clinical Technologist (Engineering) Establishment by Agenda for Change Banding in Whole Time Equivalence



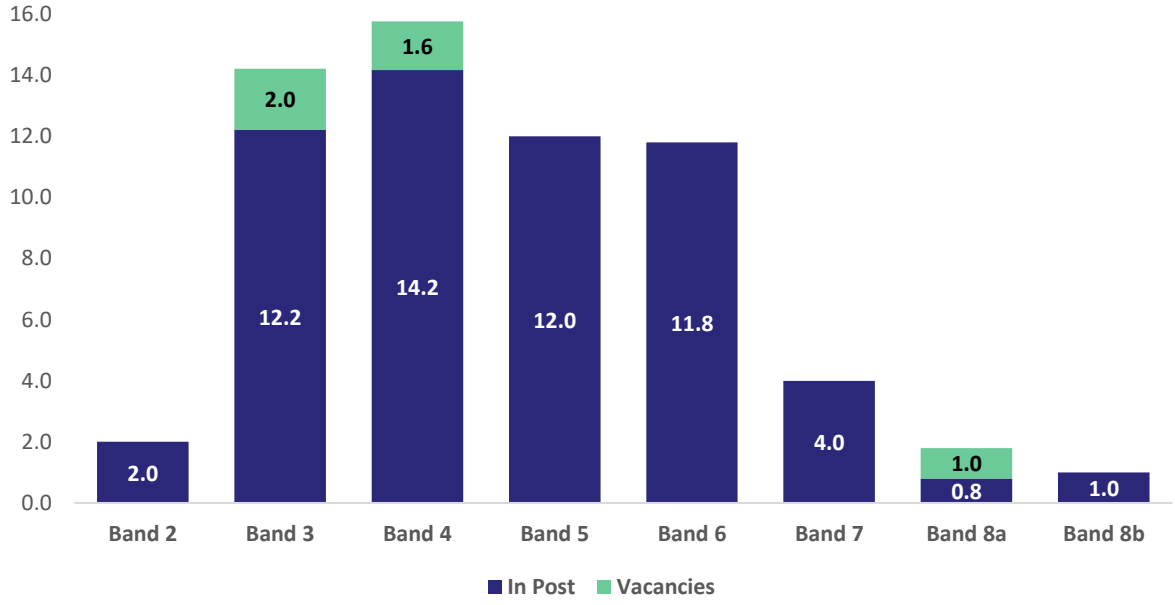
Estimated Total of Clinical Technologist (Engineering) Establishment by Agenda for Change Banding in Whole Time Equivalence



Responding Centres Other Staff Establishment by Agenda for Change Banding in Whole Time Equivalence



Estimated UK Total Other Staff Establishment by Agenda for Change Banding in Whole Time Equivalence



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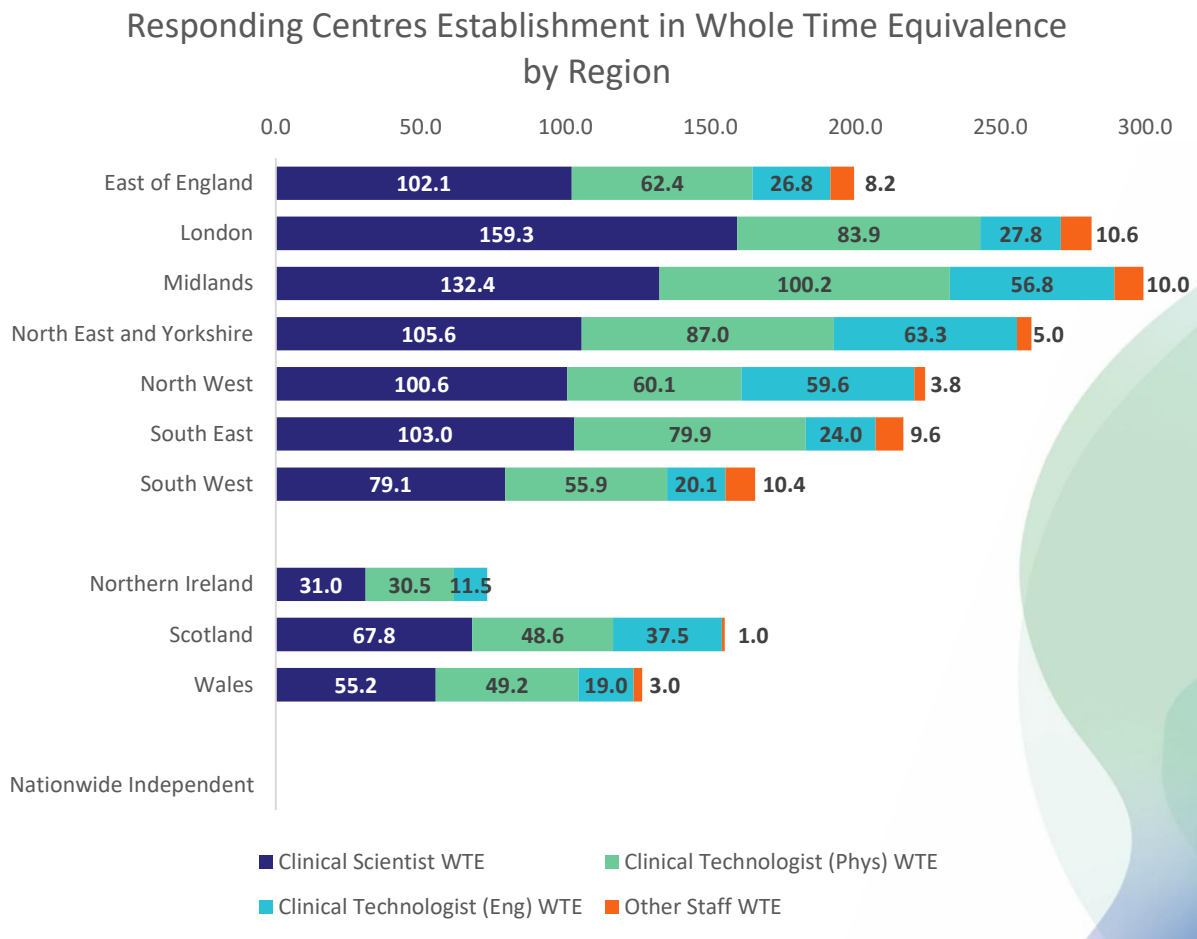
Establishment by Region

Responding Centres Establishment in Whole Time Equivalence

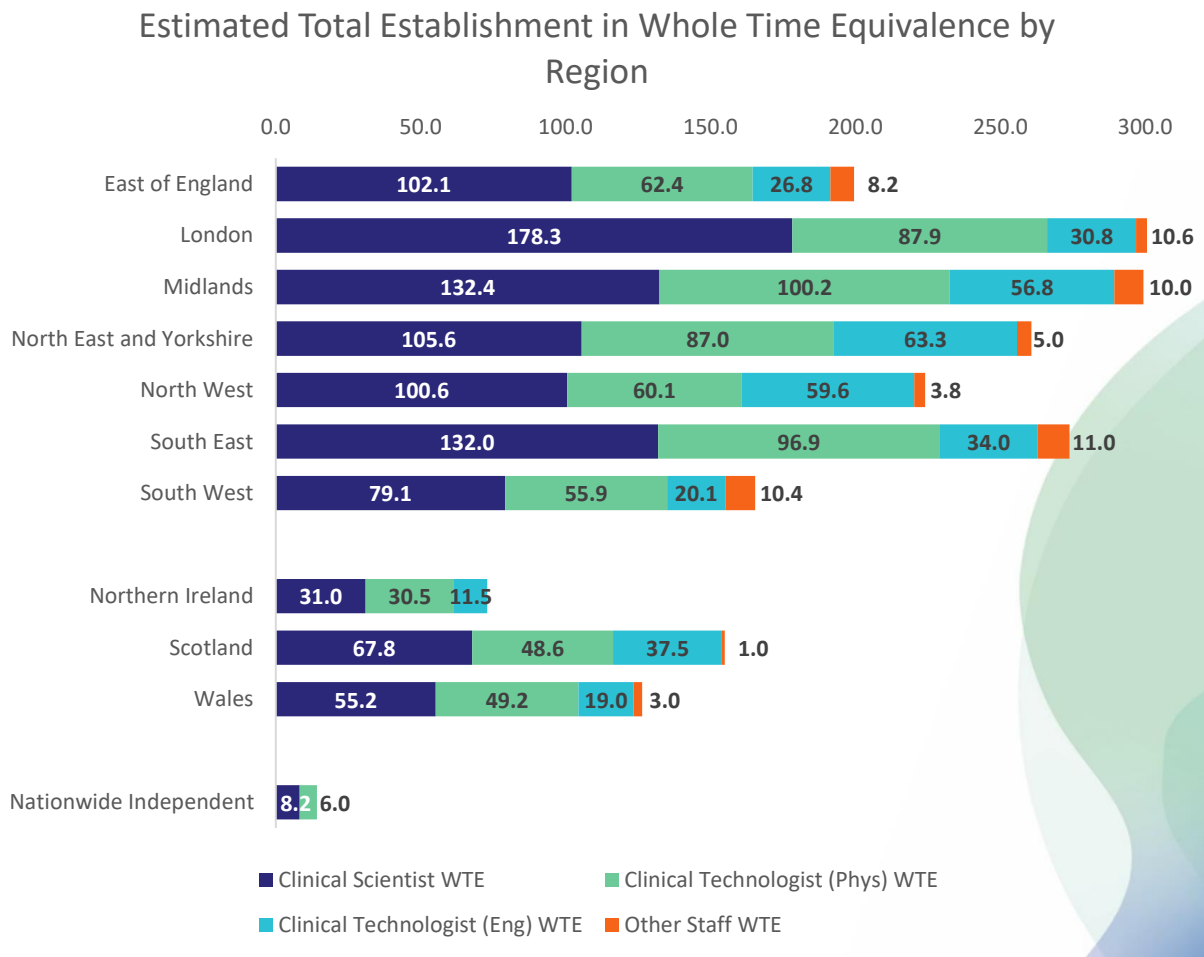
	Clinical Scientist WTE	Clinical Technologist (Phys) WTE	Clinical Technologist (Eng) WTE	Other Staff WTE	Response Rate
East of England	102.1	62.4	26.8	8.2	100%
London	159.3	83.9	27.8	10.6	100%
Midlands	132.4	100.2	56.8	10.0	100%
North East and Yorkshire	105.6	87.0	63.3	5.0	100%
North West	100.6	60.1	59.6	3.8	100%
South East	103.0	79.9	24.0	9.6	75%
South West	79.1	55.9	20.1	10.4	100%
Northern Ireland	31.0	30.5	11.5	0.0	100%
Scotland	67.8	48.6	37.5	1.0	100%
Wales	55.2	49.2	19.0	3.0	100%
Nationwide Independent	0.0	0.0	0.0	0.0	0%



Estimated UK Total Establishment in Whole Time Equivalence

	Clinical Scientist WTE	Clinical Technologist (Phys) WTE	Clinical Technologist (Eng) WTE	Other Staff WTE
East of England	102.1	62.4	26.8	8.2
London	178.3	87.9	30.8	10.6
Midlands	132.4	100.2	56.8	10.0
North East and Yorkshire	105.6	87.0	63.3	5.0
North West	100.6	60.1	59.6	3.8
South East	132.0	96.9	34.0	11.0
South West	79.1	55.9	20.1	10.4
Northern Ireland	31.0	30.5	11.5	0.0
Scotland	67.8	48.6	37.5	1.0
Wales	55.2	49.2	19.0	3.0
Nationwide Independent*	8.2	6.0	0.0	0.0

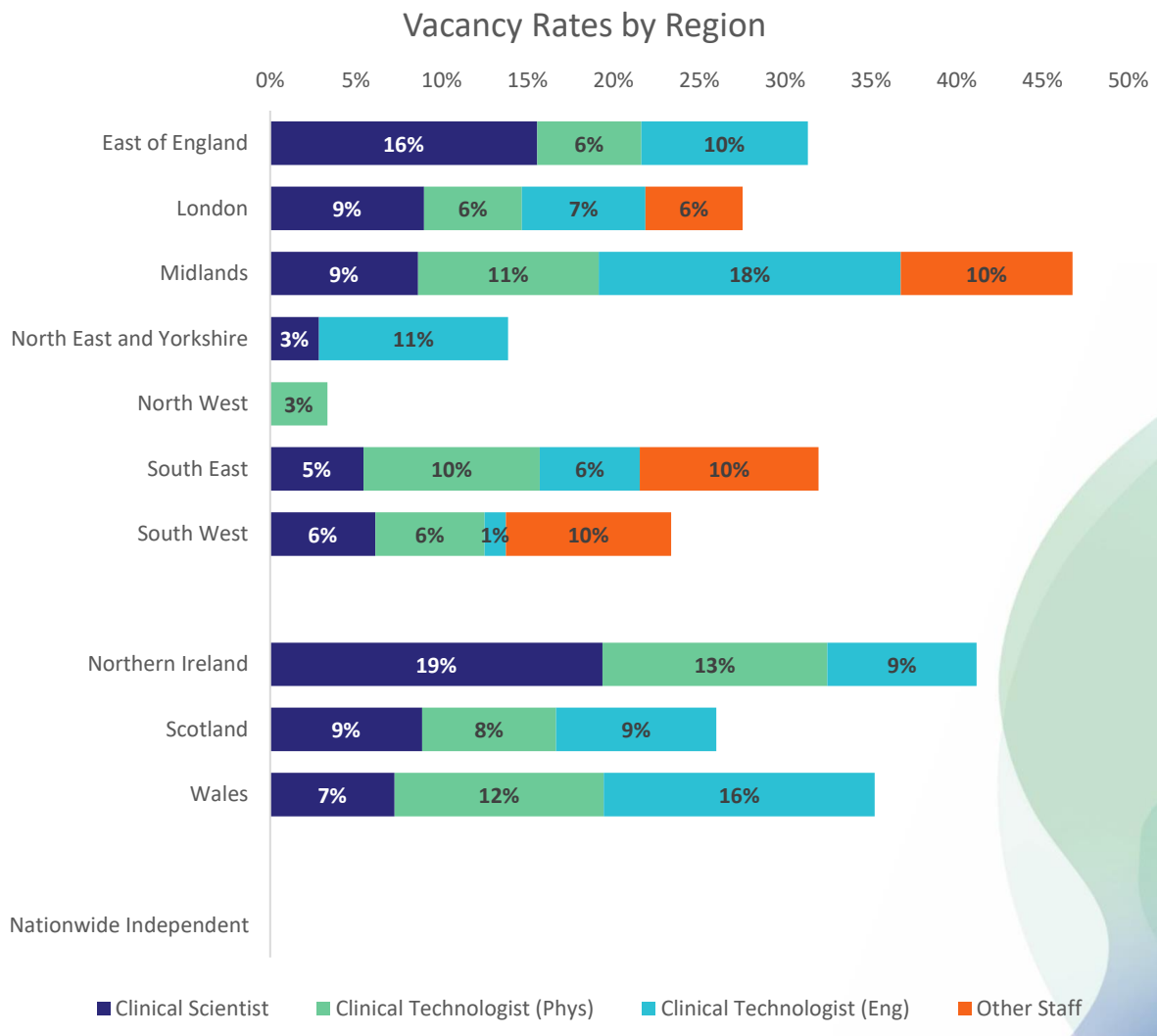
*Missing 5 of the 6 national independent providers



Vacancy Rate by Region

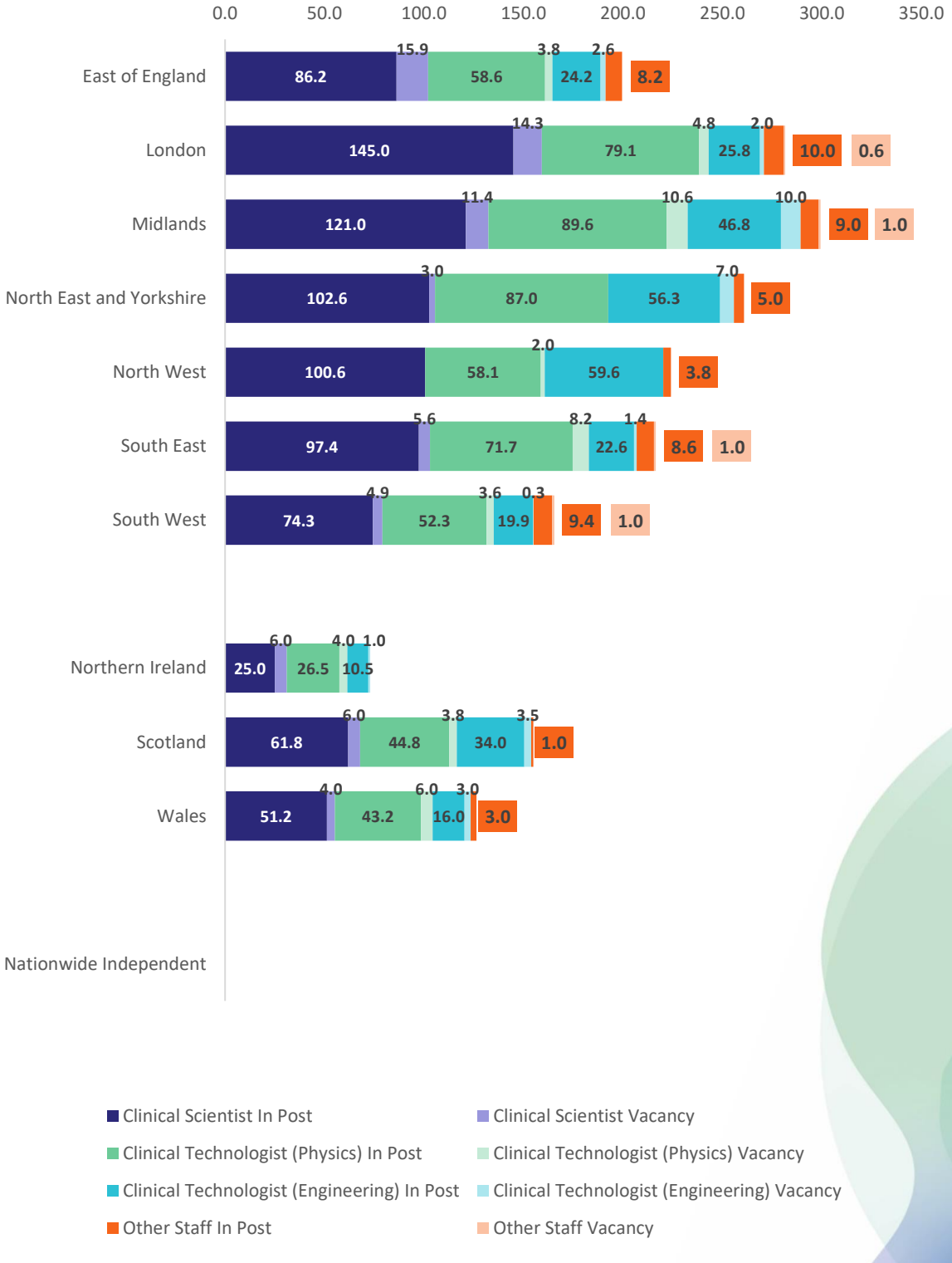
	Clinical Scientist	Clinical Technologist (Phys)	Clinical Technologist (Eng)	Other Staff	Response Rate
East of England	16%	6%	10%	0%	100%
London	9%	6%	7%	6%	100%
Midlands	9%	11%	18%	10%	100%
North East and Yorkshire	3%	0%	9%	0%	100%
North West	0%	3%	0%	0%	100%
South East	5%	10%	6%	10%	75%
South West	14%	6%	1%	10%	100%
Northern Ireland	19%	13%	9%	0%	100%
Scotland	9%	8%	9%	0%	100%
Wales	7%	12%	16%	0%	100%
Nationwide Independent*	0%	0%	0%	0%	0%

*Missing 5 of the 6 national independent providers

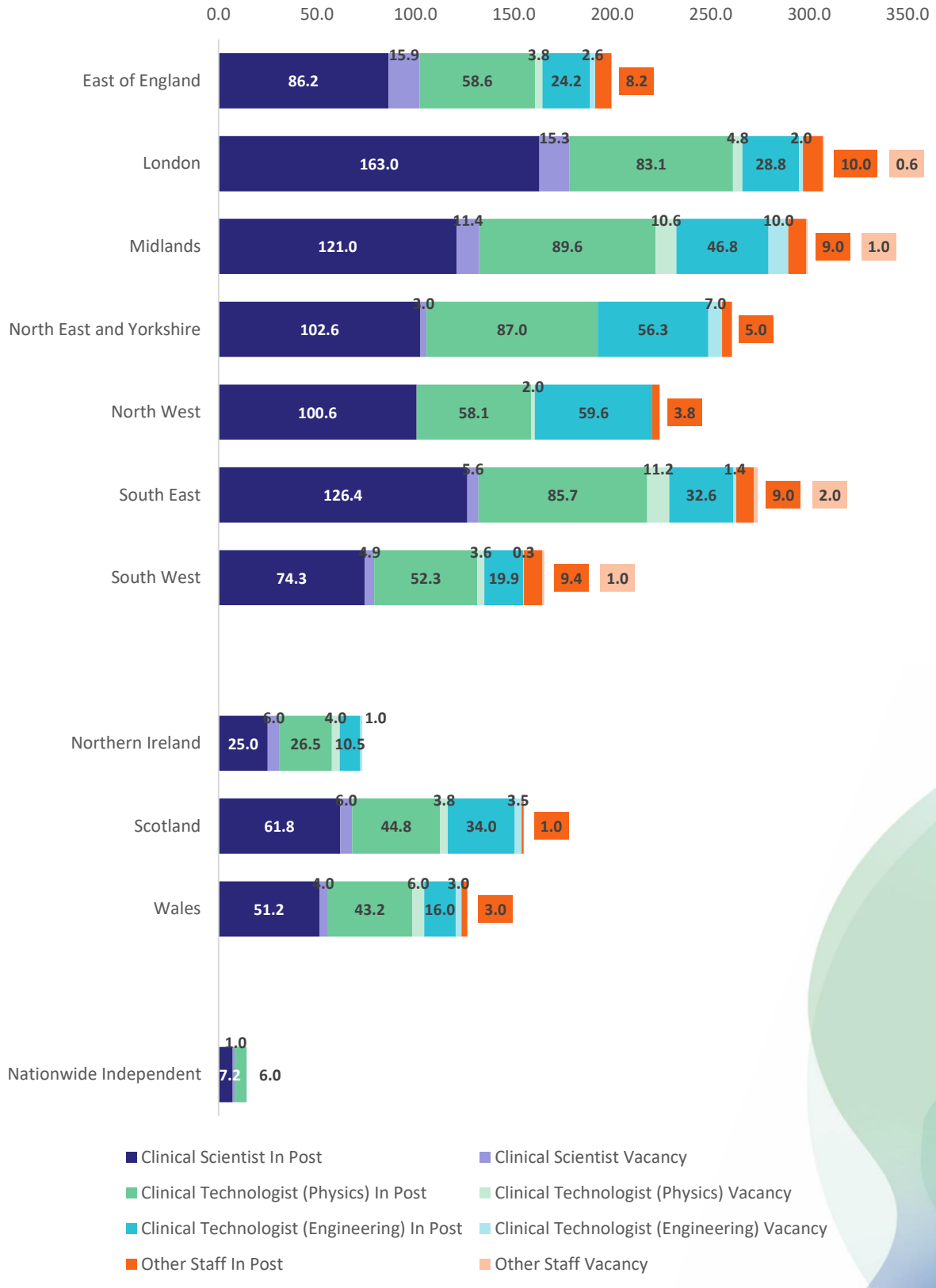


Filled and Vacant Positions by Region

Responding Centres In Post and Vacanct Positions in Whole Time Equivalence by Region



Estimated UK Total In Post and Vacanct Positions in Whole Time Equivalence by Region



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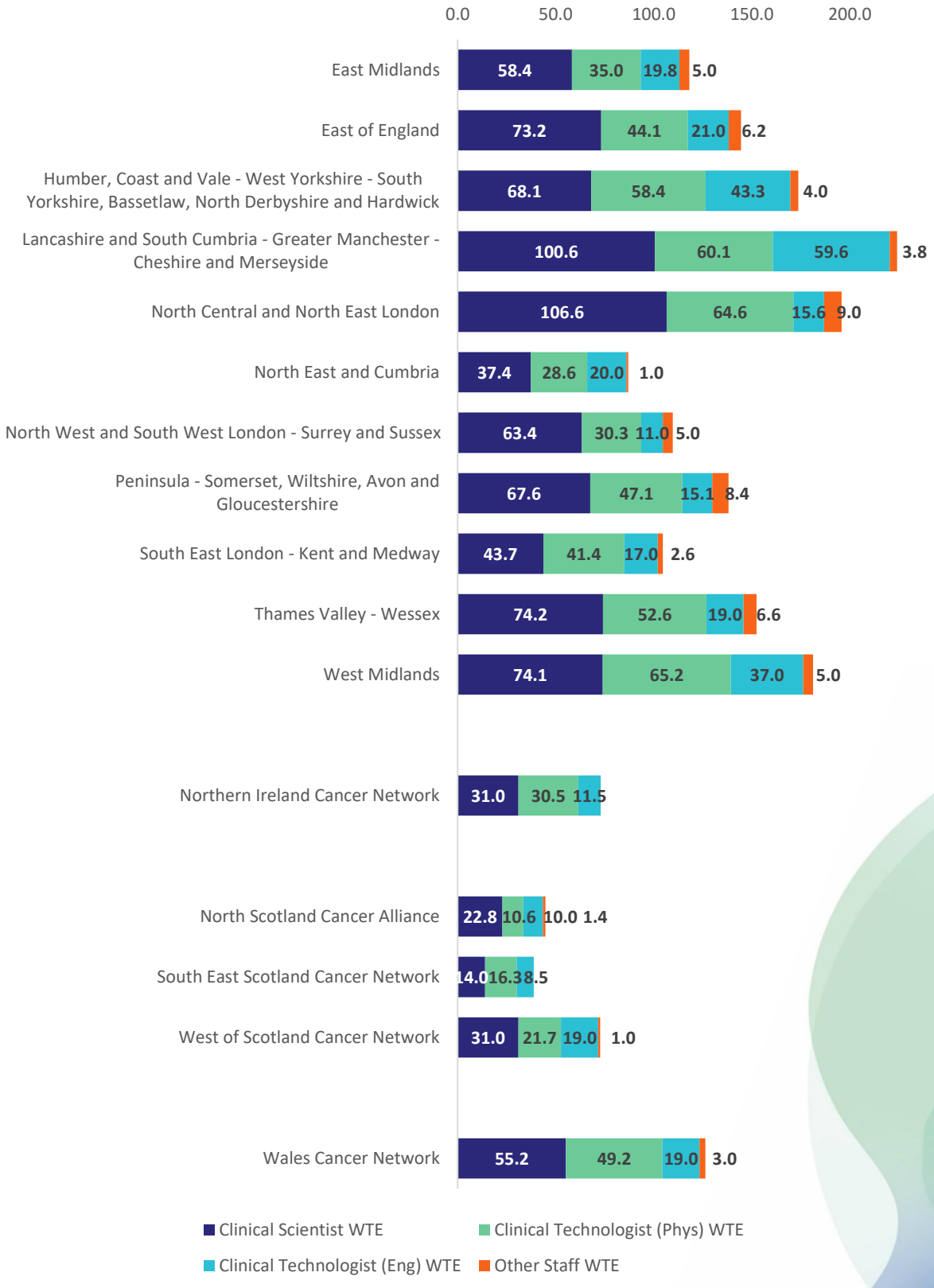
Establishment by Operational Delivery Network

Responding Centres Establishment in Whole Time Equivalence by Operational Delivery Network

	Clinical Scientist	Clinical Technologist (Phys)	Clinical Technologist (Eng)	Other Staff	Response Rate
East Midlands	58.4	35.0	19.8	5.0	100%
East of England	73.2	44.1	21.0	6.2	100%
Humber, Coast and Vale - West Yorkshire - South Yorkshire, Bassetlaw, North Derbyshire and Hardwick	68.1	58.4	43.3	4.0	100%
Lancashire and South Cumbria - Greater Manchester - Cheshire and Merseyside	100.6	60.1	59.6	3.8	100%
North Central and North East London	106.6	64.6	15.6	9.0	100%
North East and Cumbria	37.4	28.6	20.0	1.0	100%
North West and South West London - Surrey and Sussex	63.4	30.3	11.0	5.0	75%
Peninsula - Somerset, Wiltshire, Avon and Gloucestershire	67.6	47.1	15.1	8.4	100%
South East London - Kent and Medway	43.7	41.4	17.0	2.6	100%
Thames Valley - Wessex	74.2	52.6	19.0	6.6	83%
West Midlands	74.1	65.2	37.0	5.0	100%
Northern Ireland Cancer Network	31.0	30.5	11.5	0.0	100%
North Scotland Cancer Alliance	22.8	10.6	10.0	1.4	100%
South East Scotland Cancer Network	14.0	16.3	8.5	0.0	100%
West of Scotland Cancer Network	31.0	21.7	19.0	1.0	100%
Wales Cancer Network	55.2	49.2	19.0	3.0	100%

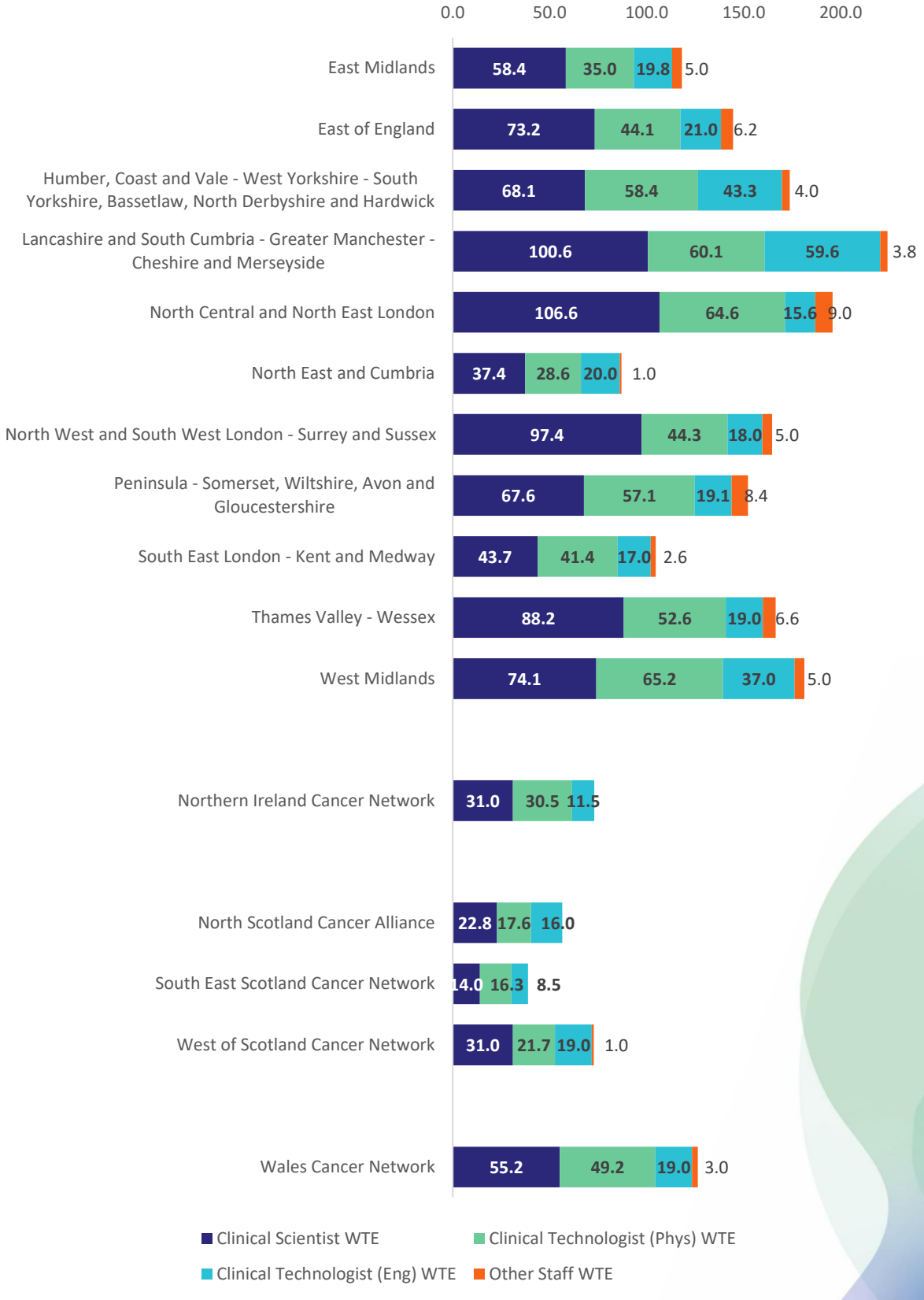
Establishment in Whole Time Equivalence by Operational Delivery Network from Responses



Estimated UK Total Establishment in Whole Time Equivalence by Operational Delivery Network

	Clinical Scientist	Clinical Technologist (Phys)	Clinical Technologist (Eng)	Other Staff
East Midlands	58.4	35.0	19.8	5.0
East of England	73.2	44.1	21.0	6.2
Humber, Coast and Vale - West Yorkshire - South Yorkshire, Bassetlaw, North Derbyshire and Hardwick	68.1	58.4	43.3	4.0
Lancashire and South Cumbria - Greater Manchester - Cheshire and Merseyside	100.6	60.1	59.6	3.8
North Central and North East London	106.6	64.6	15.6	9.0
North East and Cumbria	37.4	28.6	20.0	1.0
North West and South West London - Surrey and Sussex	97.4	44.3	18.0	5.0
Peninsula - Somerset, Wiltshire, Avon and Gloucestershire	67.6	57.1	19.1	8.4
South East London - Kent and Medway	43.7	41.4	17.0	2.6
Thames Valley - Wessex	88.2	52.6	19.0	6.6
West Midlands	74.1	65.2	37.0	5.0
Northern Ireland Cancer Network	31.0	30.5	11.5	0.0
North Scotland Cancer Alliance	22.8	17.6	16.0	0.0
South East Scotland Cancer Network	14.0	16.3	8.5	0.0
West of Scotland Cancer Network	31.0	21.7	19.0	1.0
Wales Cancer Network	55.2	49.2	19.0	3.0

Establishment in Whole Time Equivalence by Operational Delivery Network Estimated Total



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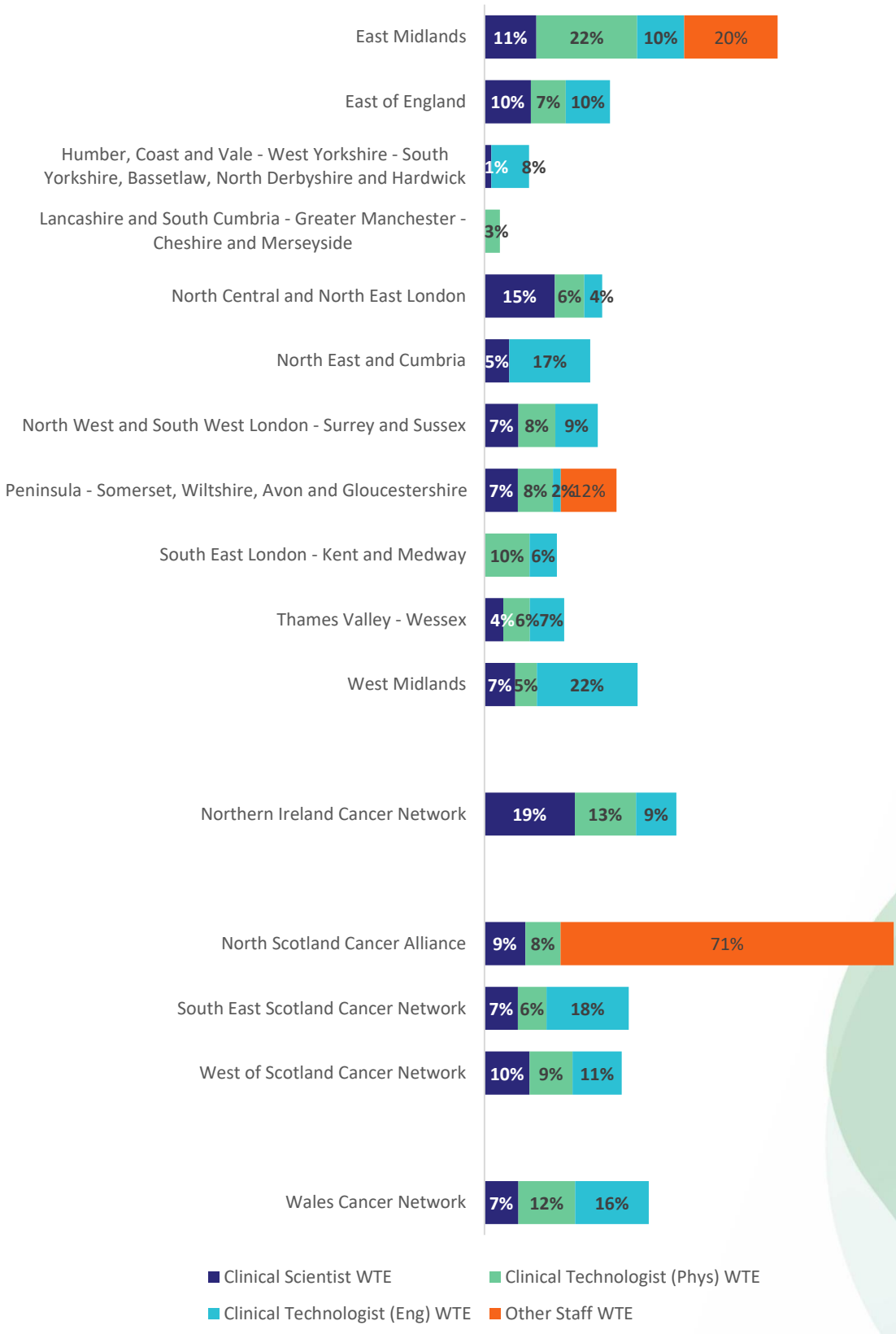
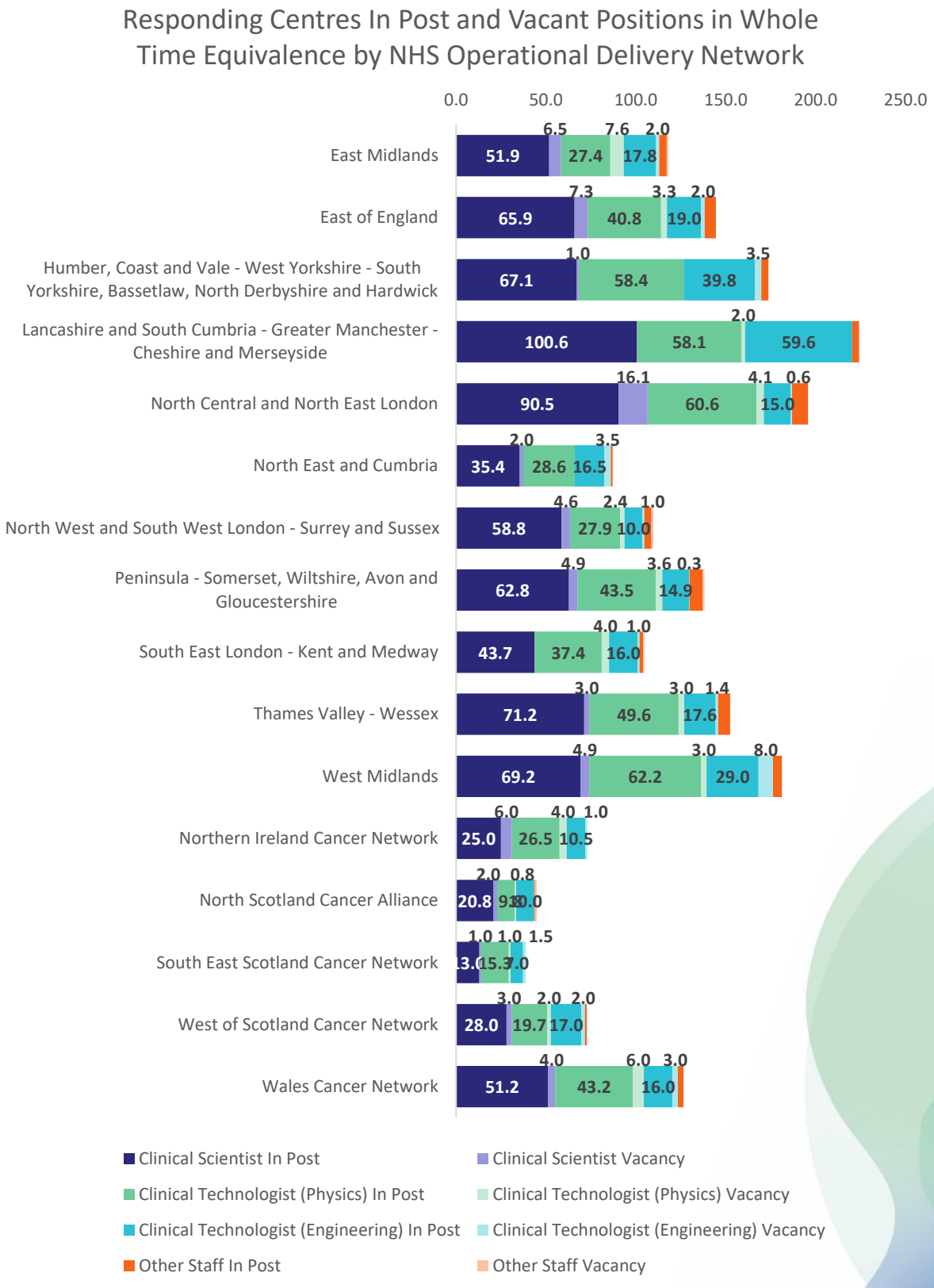
Vacancy Rate by Operational Delivery Network

	Clinical Scientist	Clinical Technologist (Phys)	Clinical Technologist (Eng)	Other Staff
East Midlands	11%	22%	10%	20%
East of England	10%	7%	10%	0%
Humber, Coast and Vale - West Yorkshire - South Yorkshire, Bassetlaw, North Derbyshire and Hardwick	1%	0%	8%	0%
Lancashire and South Cumbria - Greater Manchester - Cheshire and Merseyside	0%	3%	0%	0%
North Central and North East London	15%	6%	4%	0%
North East and Cumbria	5%	0%	17%	0%
North West and South West London - Surrey and Sussex	7%	8%	9%	0%
Peninsula - Somerset, Wiltshire, Avon and Gloucestershire	7%	8%	2%	12%
South East London - Kent and Medway	0%	10%	6%	0%
Thames Valley - Wessex	4%	6%	7%	0%
West Midlands	7%	5%	22%	0%
Northern Ireland Cancer Network	19%	13%	9%	0%
North Scotland Cancer Alliance	9%	8%	0%	71%
South East Scotland Cancer Network	7%	6%	18%	0%
West of Scotland Cancer Network	10%	9%	11%	0%
Wales Cancer Network	7%	12%	16%	0%

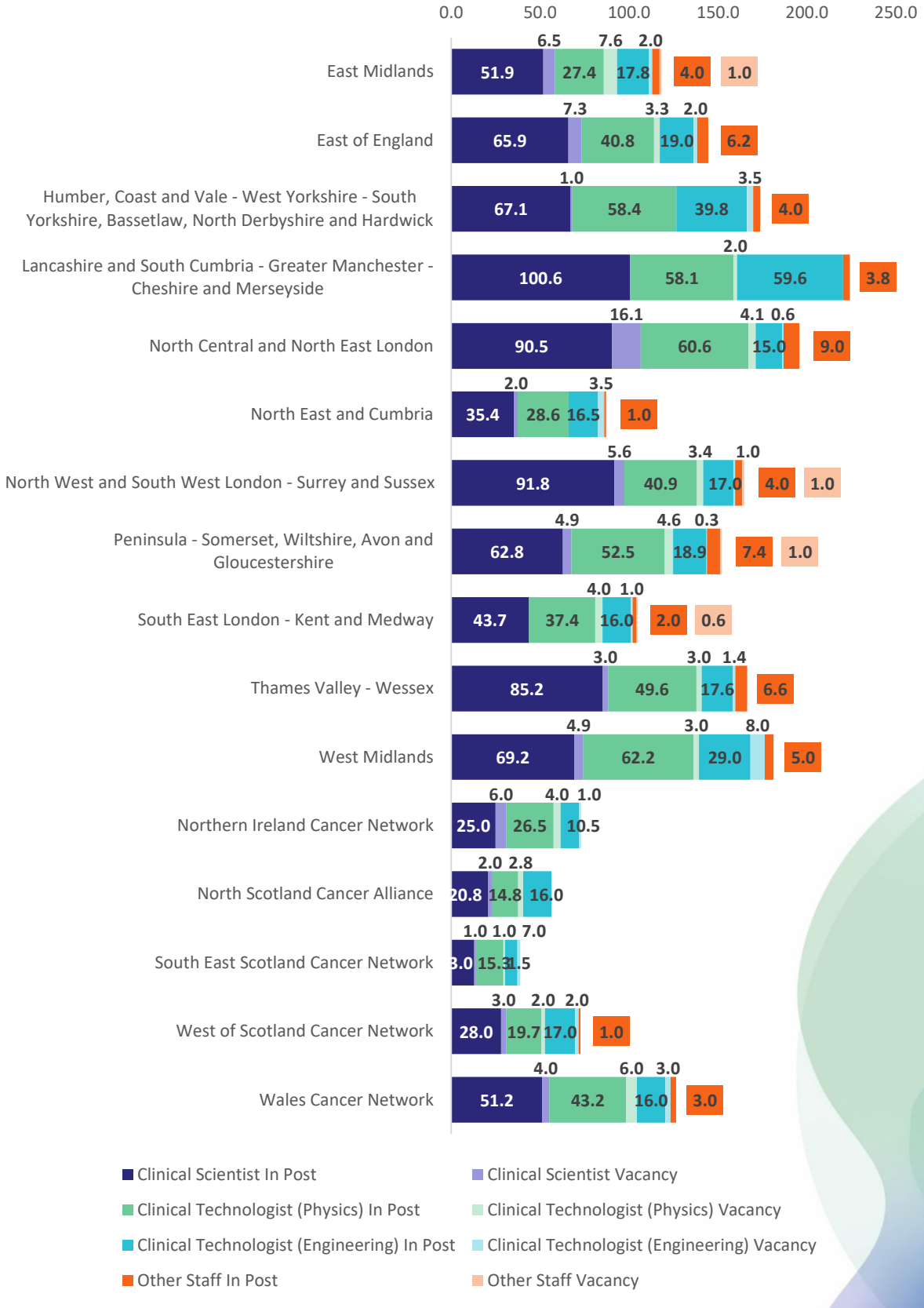
Vacancy Rate by Operational Delivery Network



Filled and Vacant Positions by Operational Delivery Network

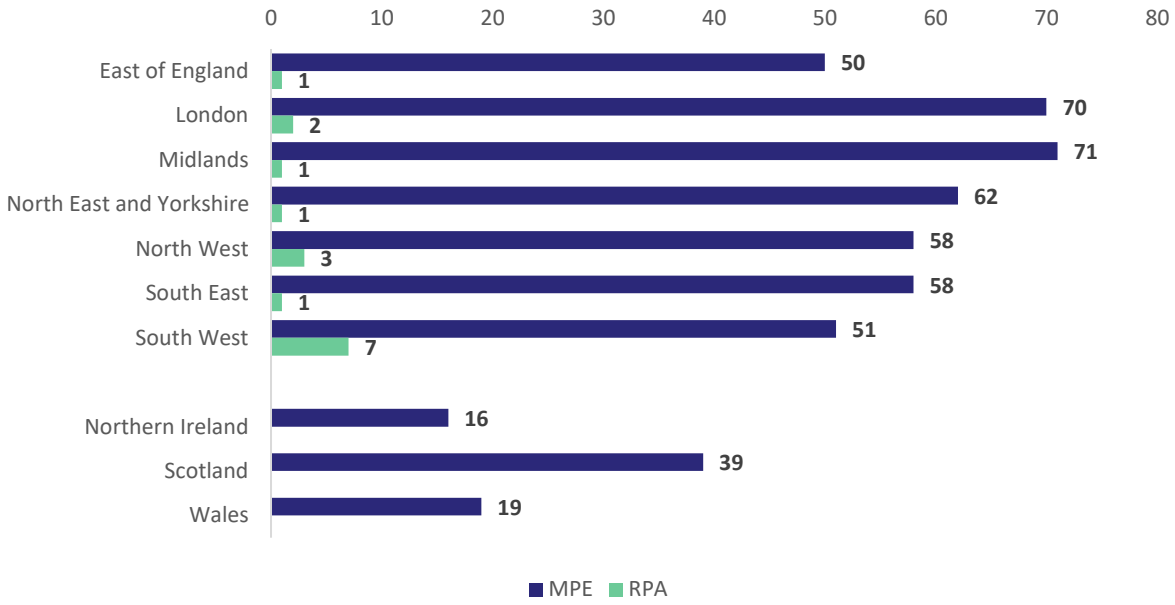


Estimated UK Total In Post and Vacant Positions in Whole Time Equivalence by NHS Operational Delivery Network

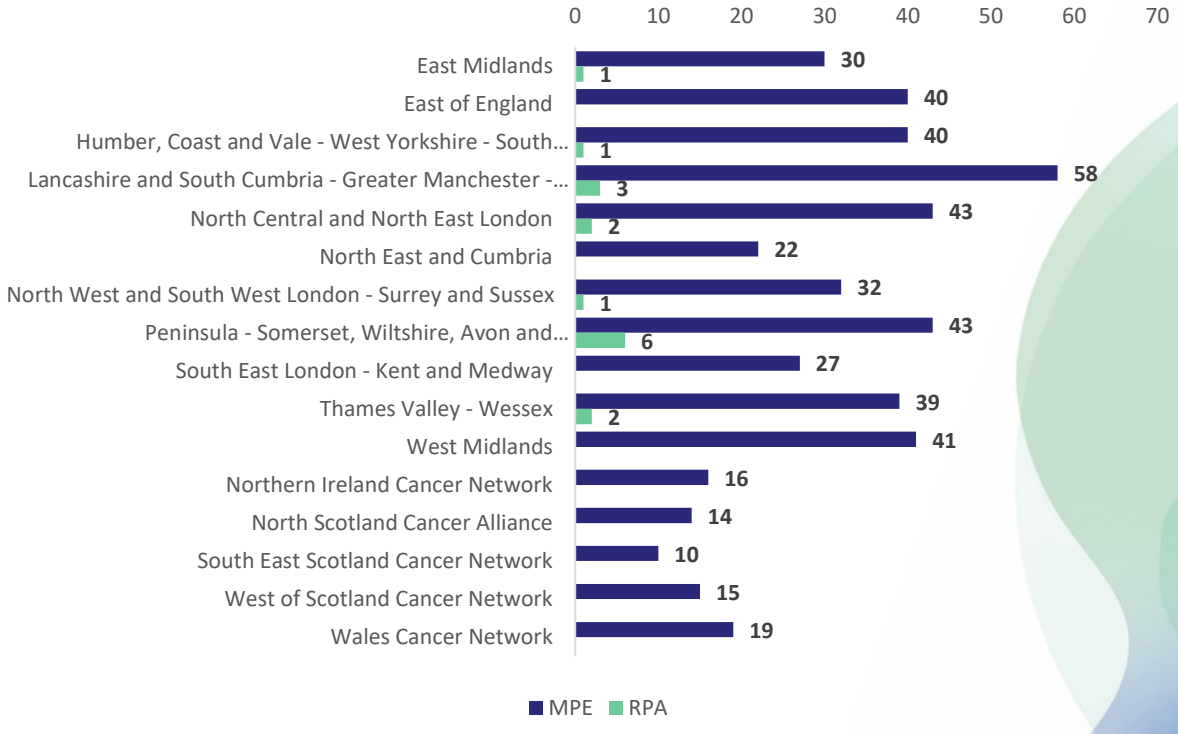


Medical Physics Experts and Radiation Protection Advisers

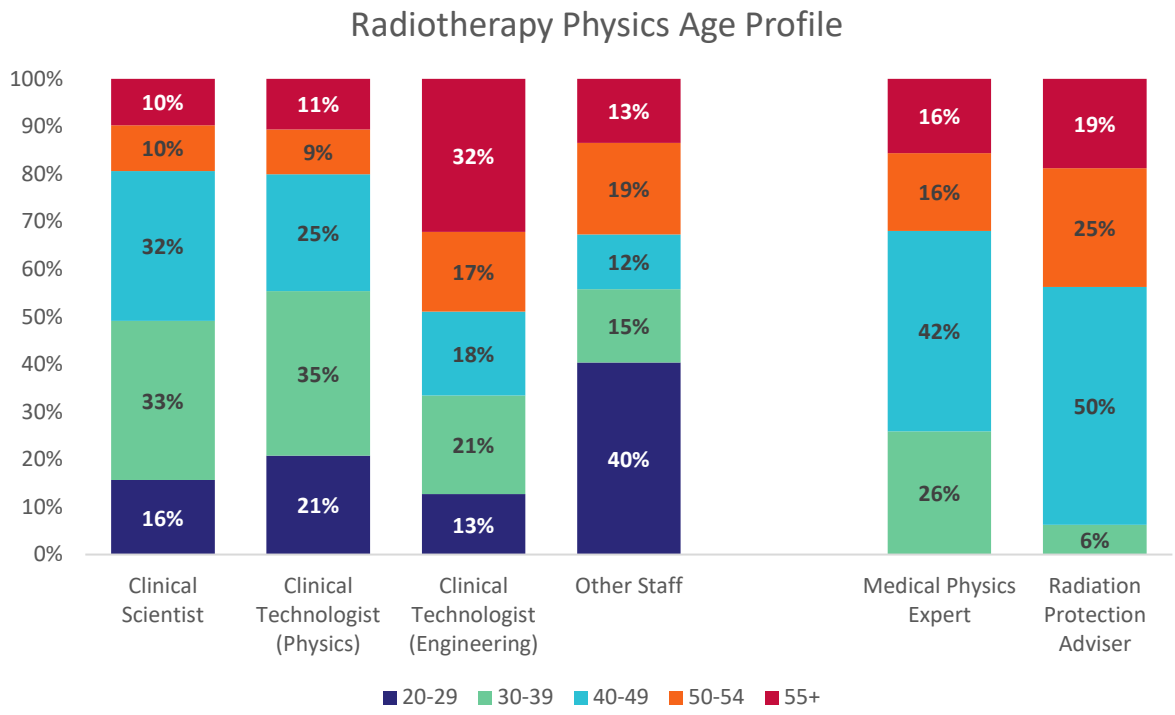
Headcount of MPE and RPA employed within Radiotherapy Physics by Region



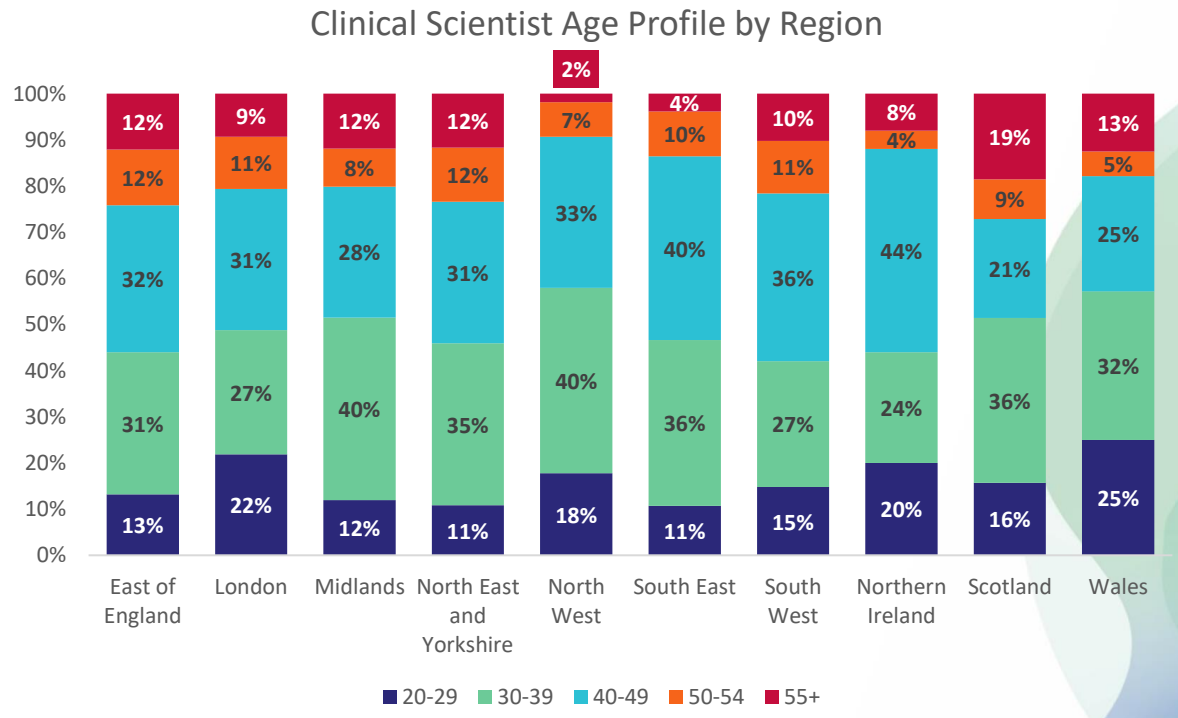
Headcount of MPE and RPA employed within Radiotherapy Physics by Operational Delivery Network



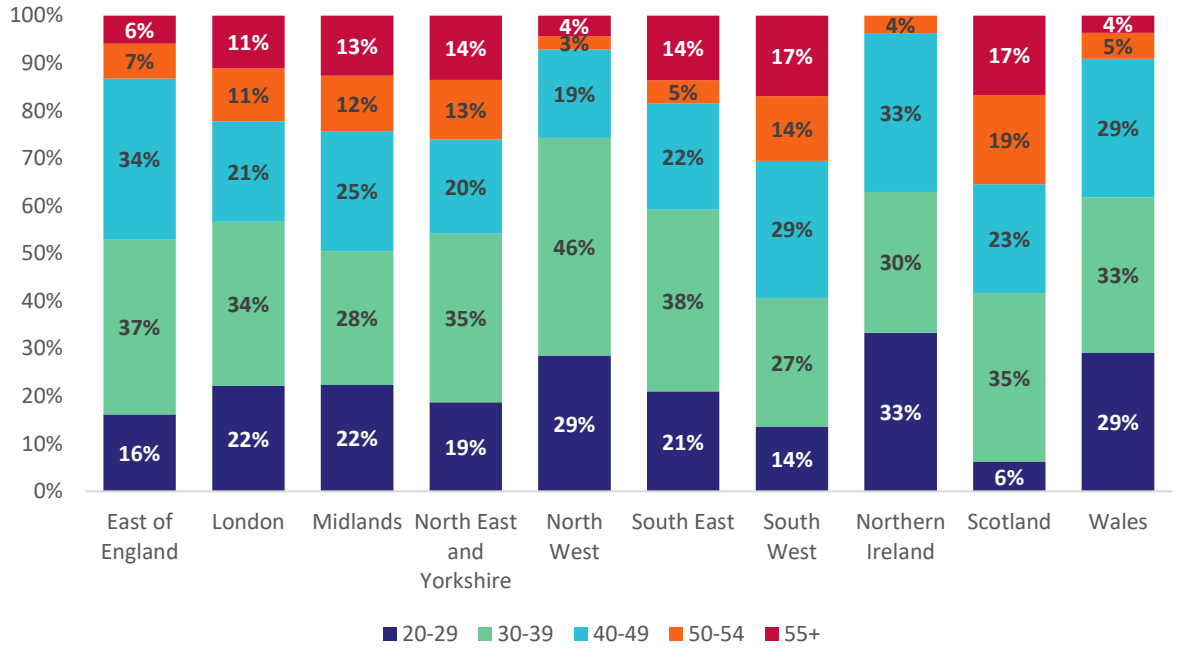
Age Profiles



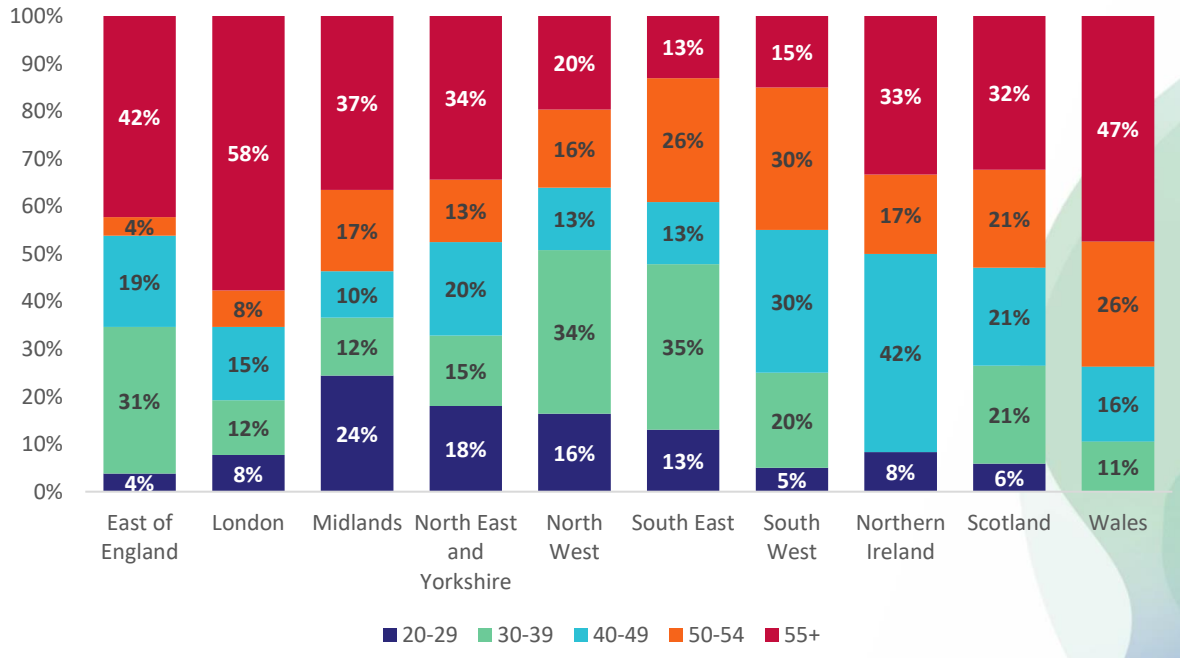
Age Profile by Region



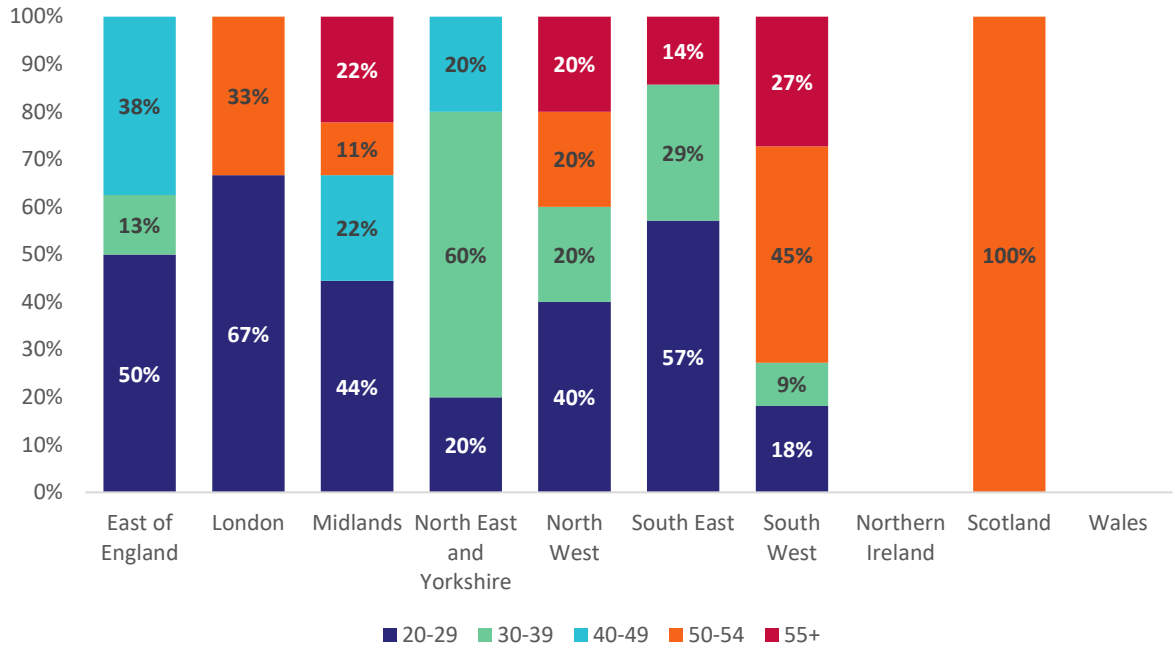
Clinical Technologist (Physics) Age Profile by Region



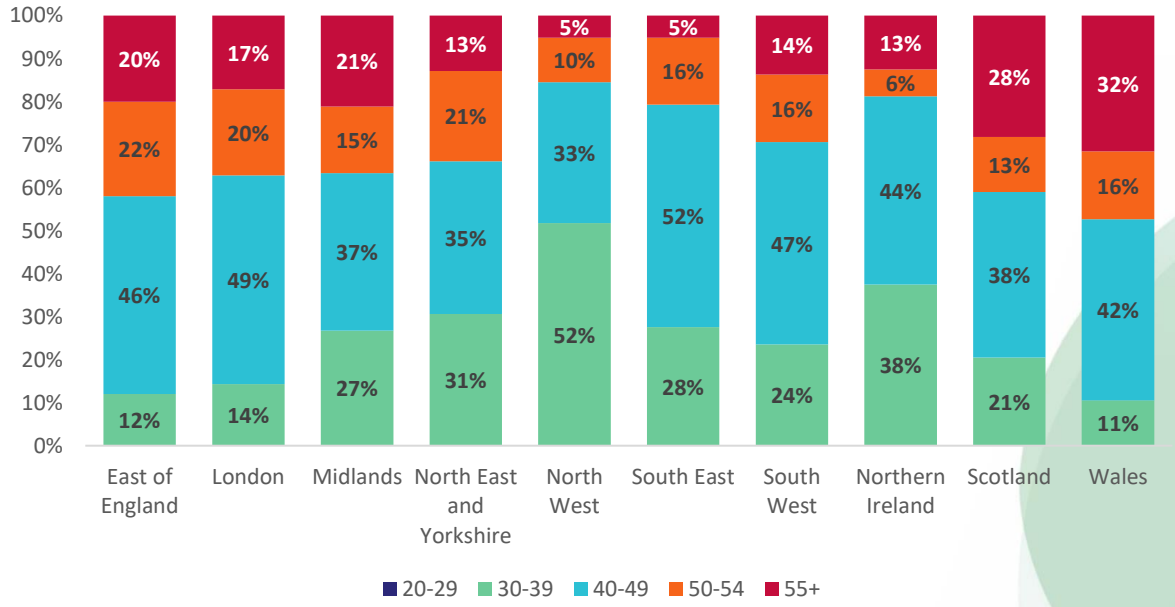
Clinical Technologists (Engineering) by Region

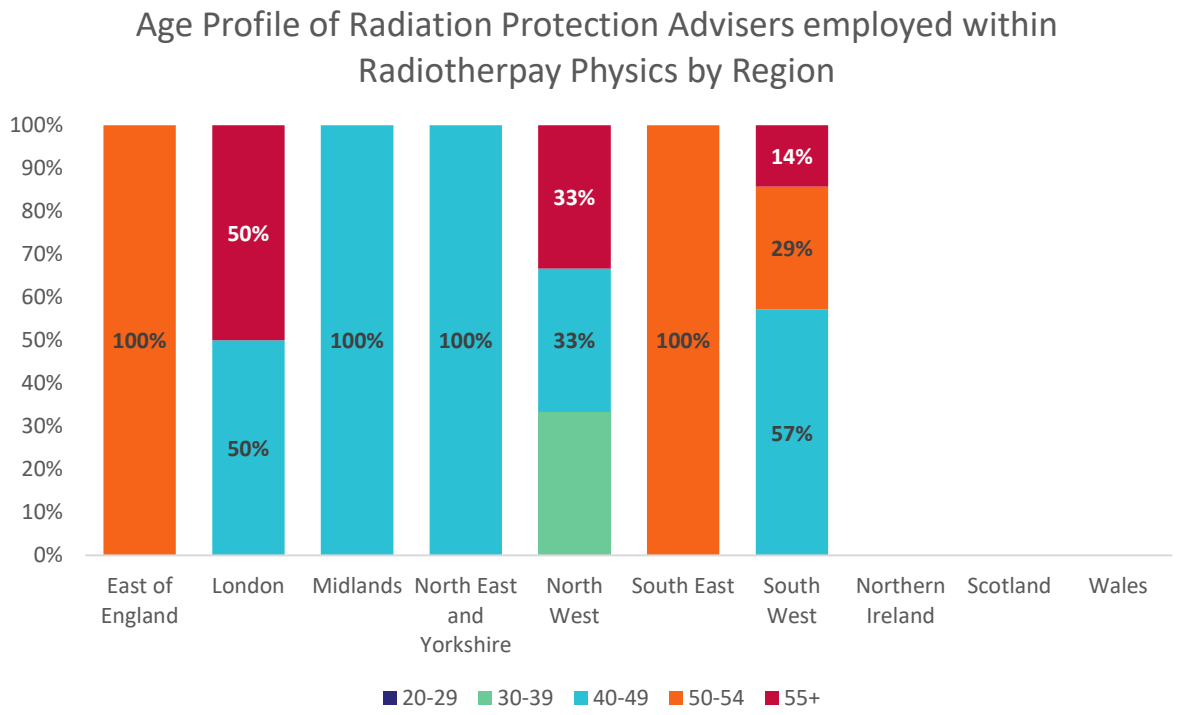


Other Staff Age Profile by Region

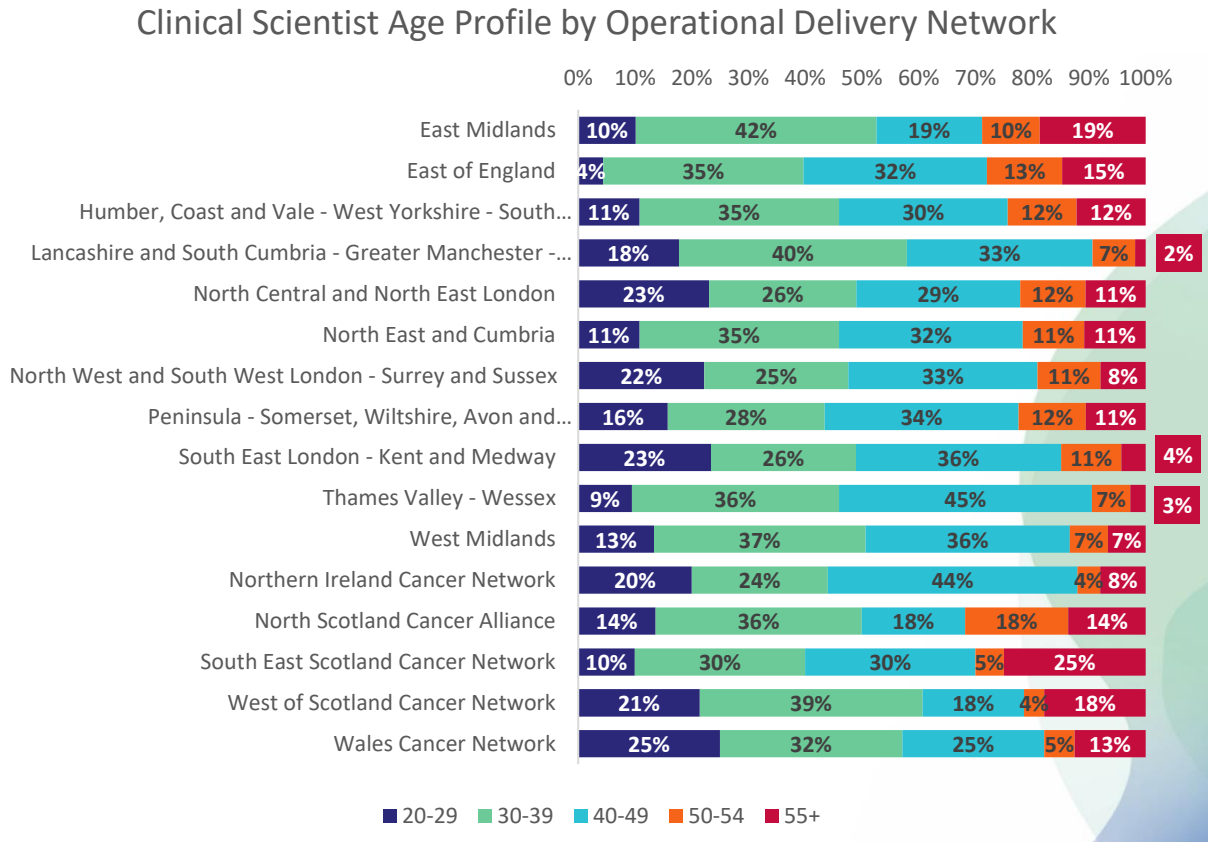


Age Profile of Medical Physics Experts employed within Radiotherapy Physics by Region

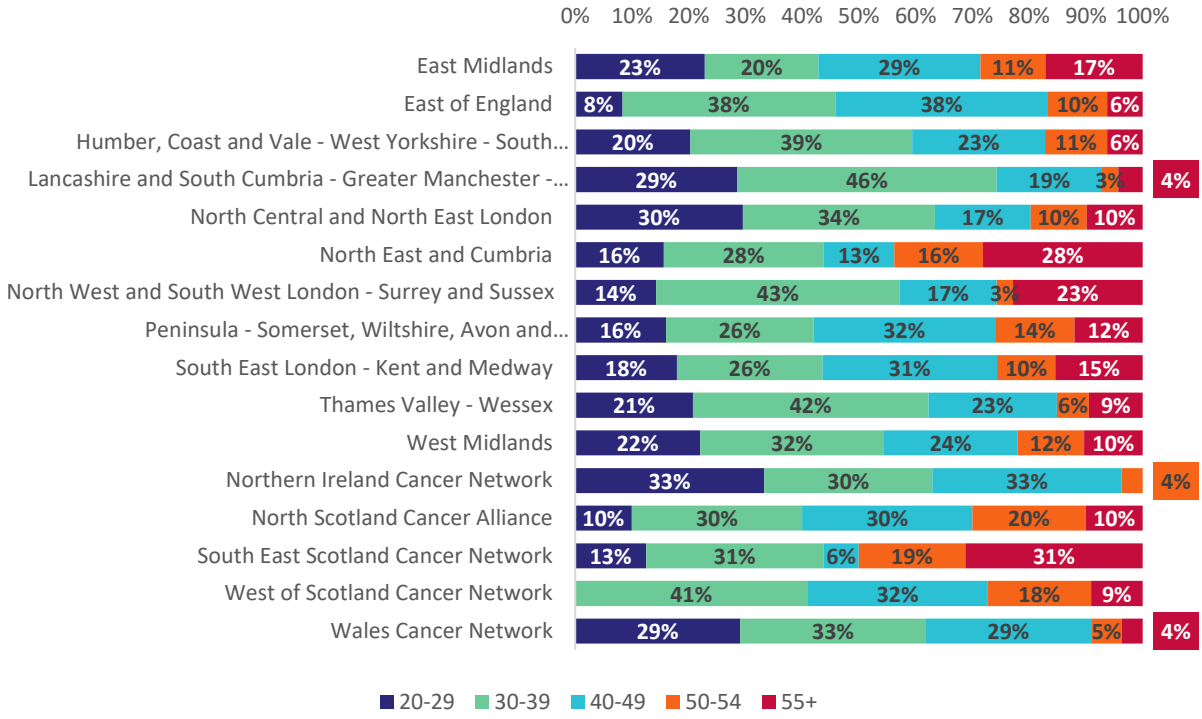




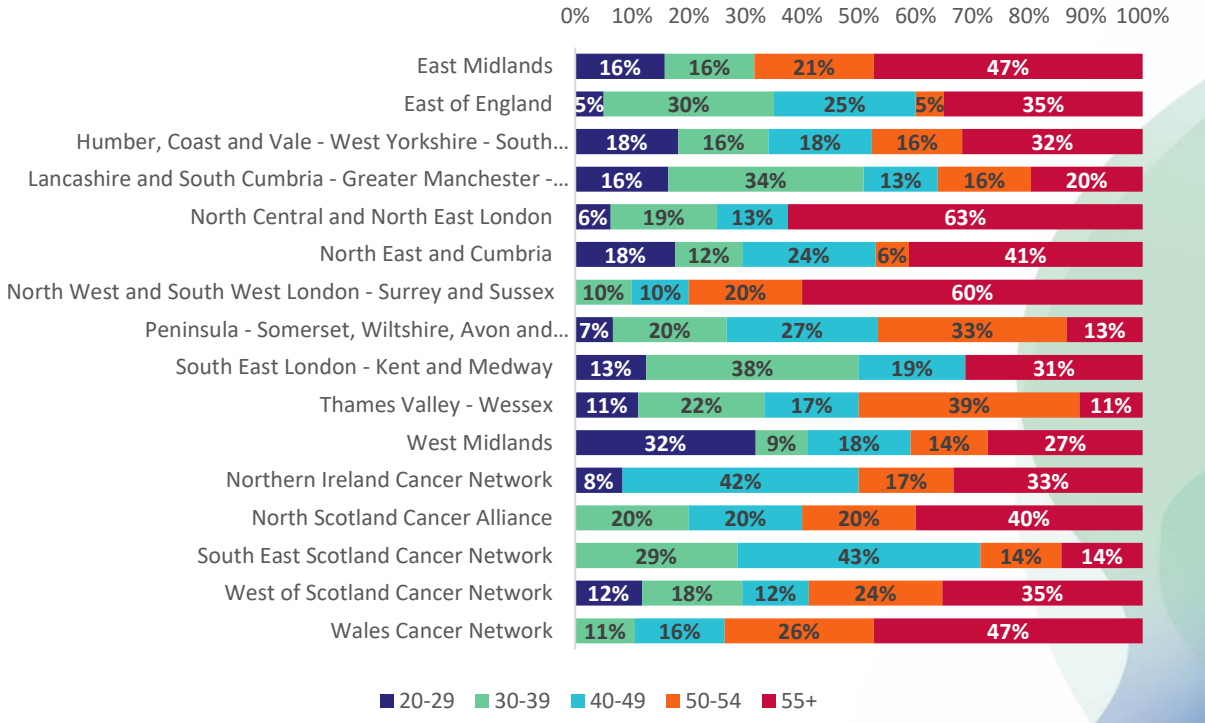
Age Profile by Operational Delivery Network



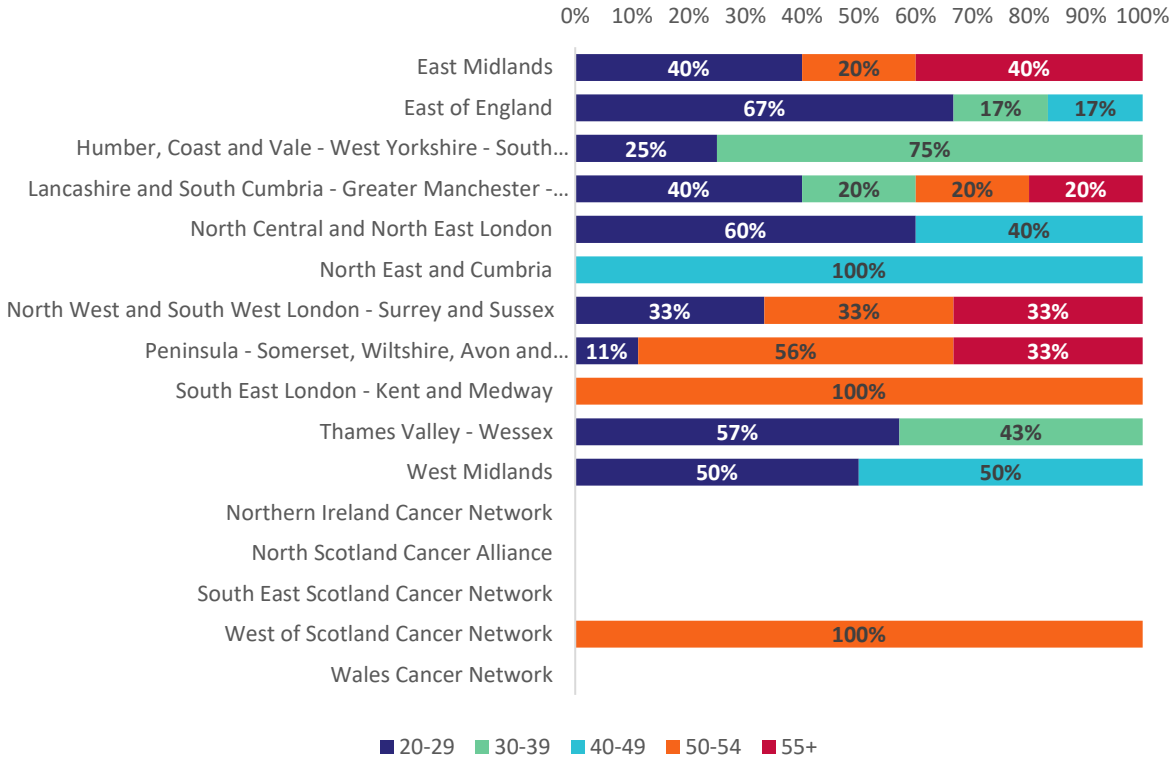
Clinical Technologist (Physics) Age Profile by Operational Delivery Network



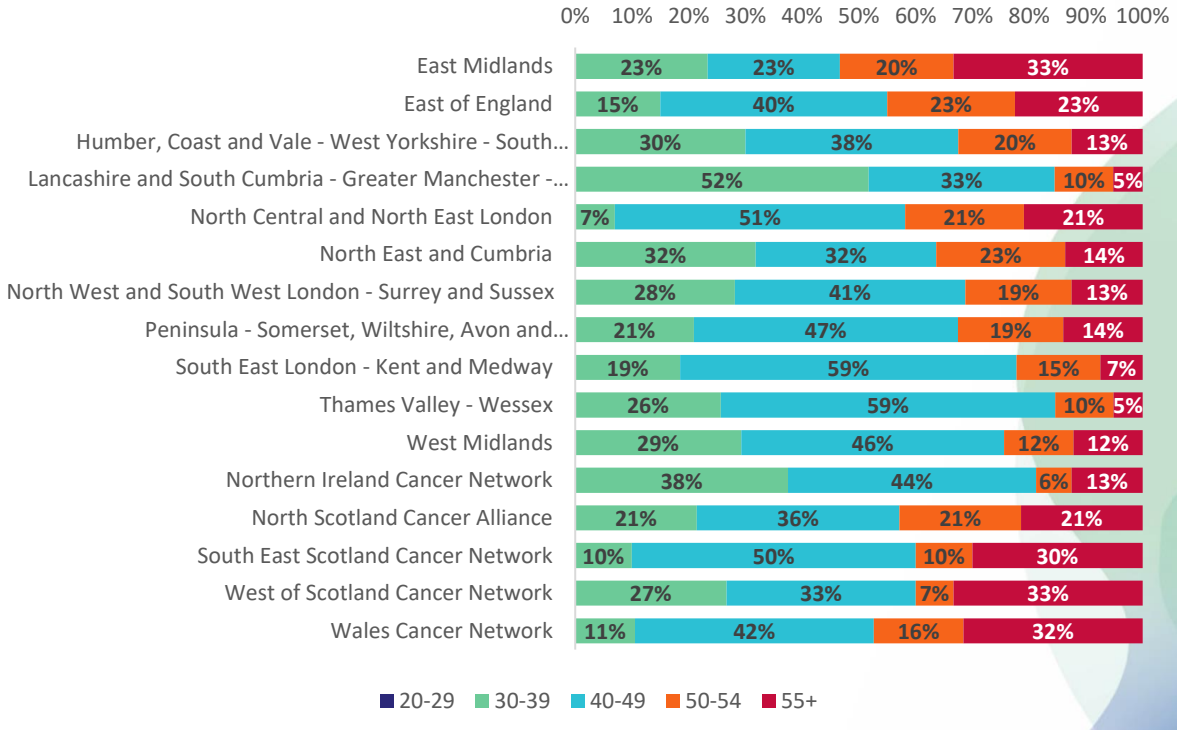
Clinical Technologists (Engineering) Age Profile by Operational Delivery Network



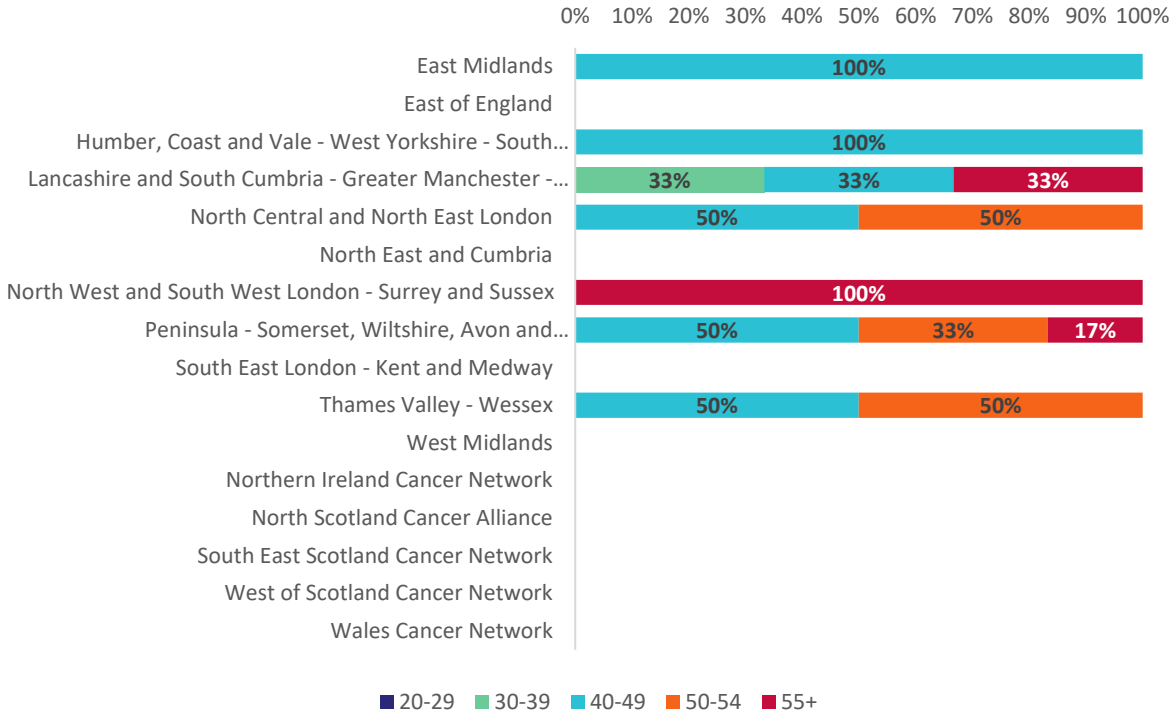
Other Staff Age Profile by Operational Delivery Network



Age Profile of Medical Physics Experts employed within Radiotherapy Physics by Operational Delivery Network

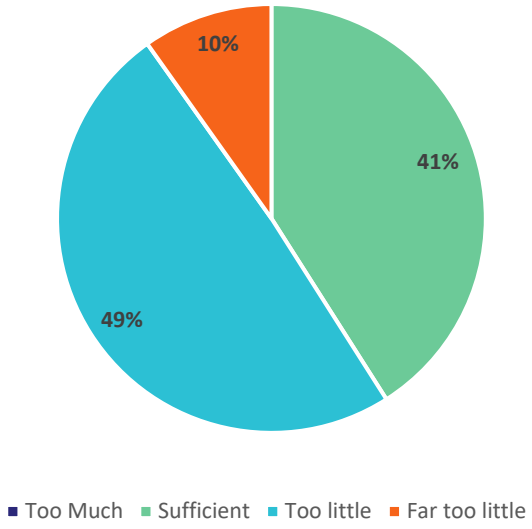


Age Profile of Radiation Protection Adviser Experts employed within Radiotherapy Physics by Operational Delivery Network

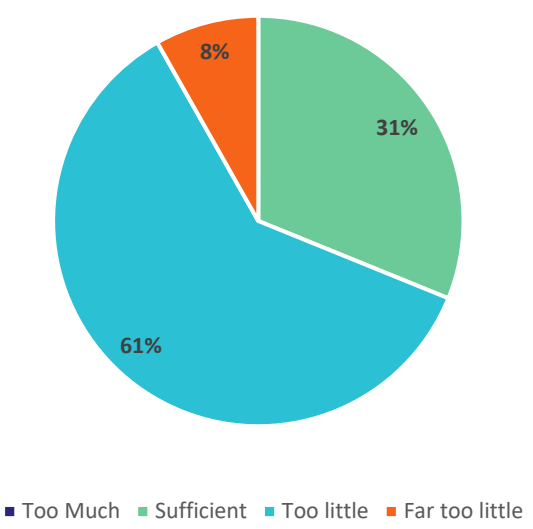


Staffing Provision

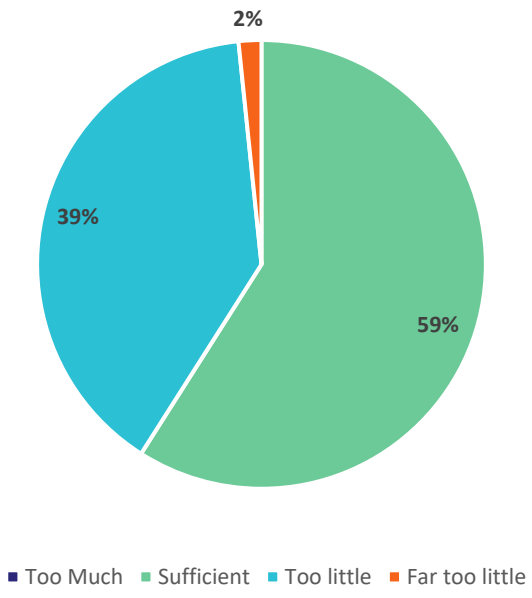
Clinical Scientist Staffing Provision Satisfaction



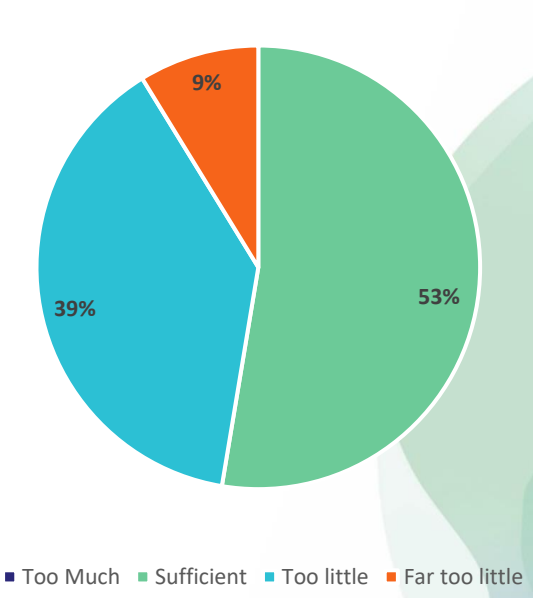
Clinical Technologist Staffing Provision Satisfaction



Medical Physics Experts Staffing Provision Satisfaction

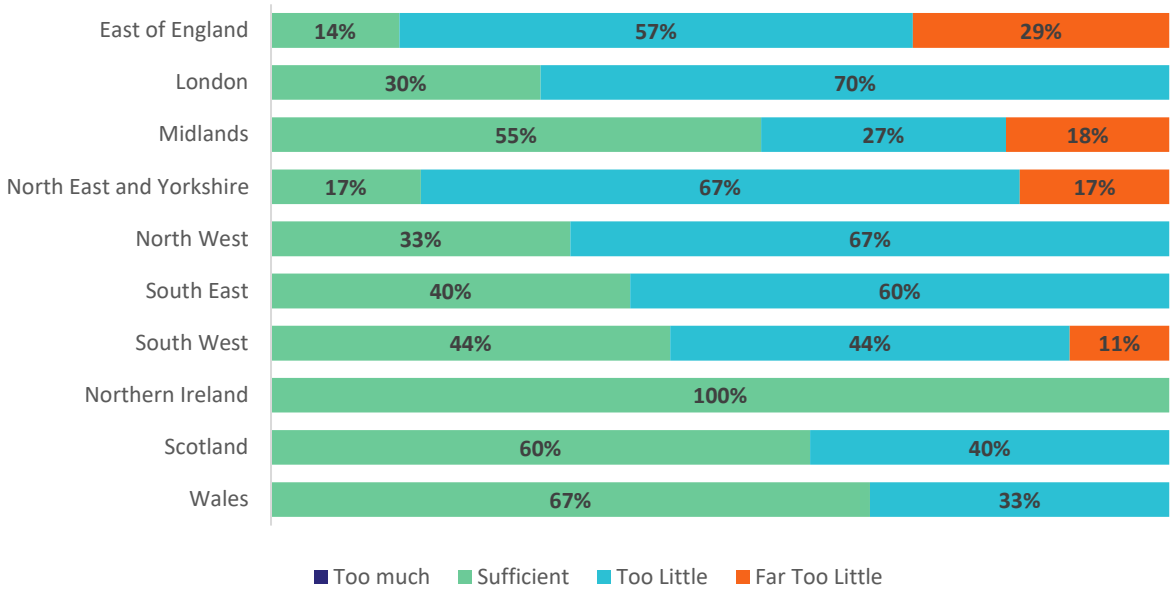


Radiation Protection Advisers Staffing Provision Satisfaction

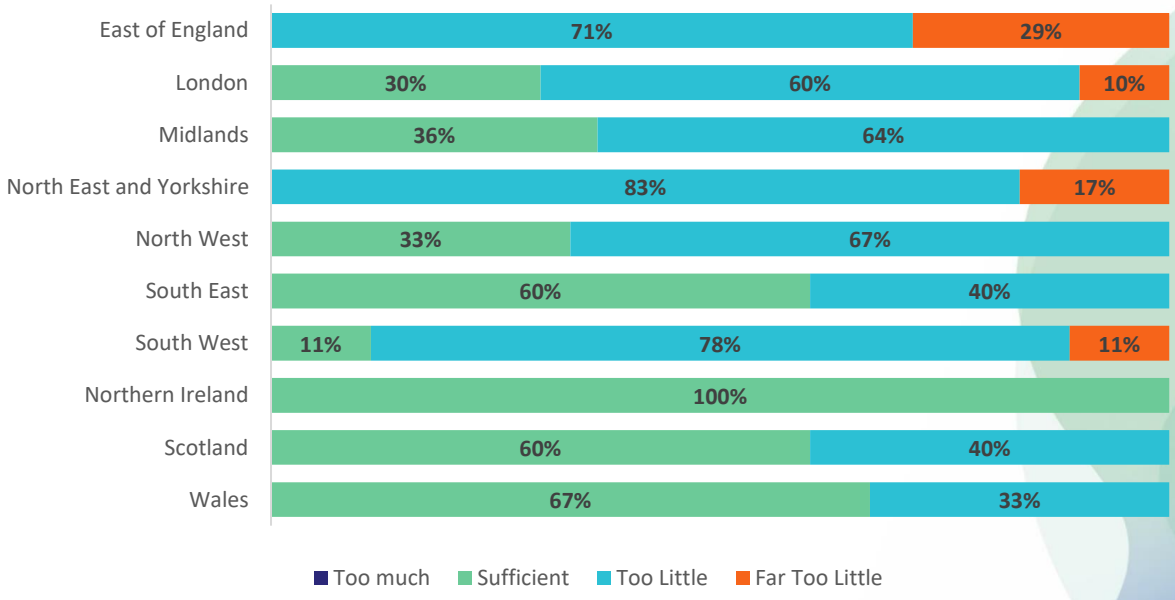


Staffing Provision by Region

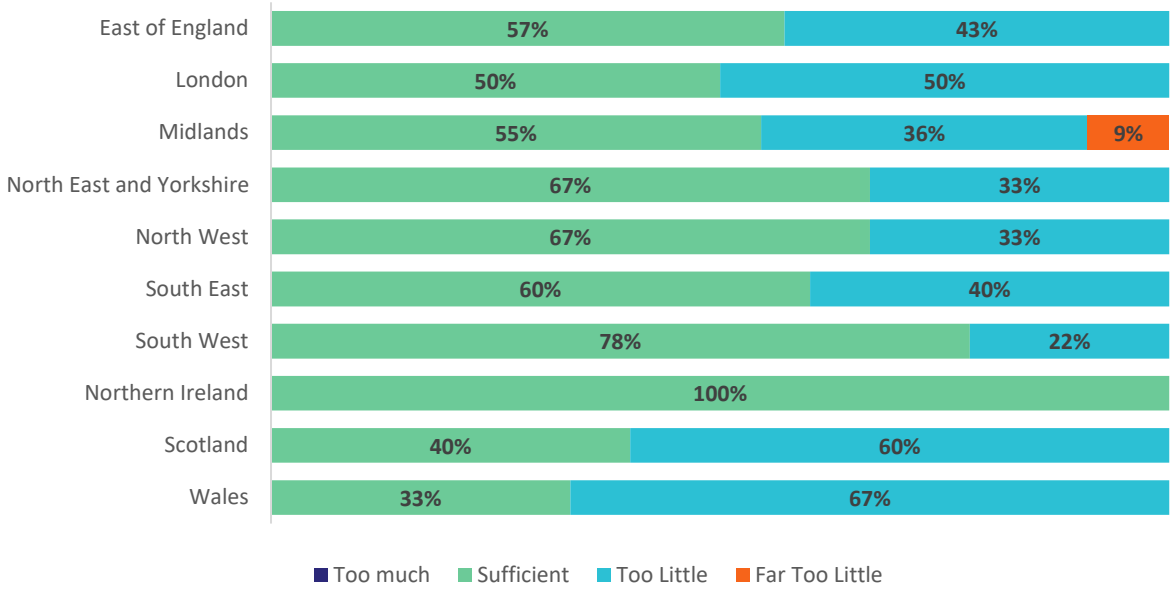
Staffing Provision Satisfaction of Clinical Scientists by Region



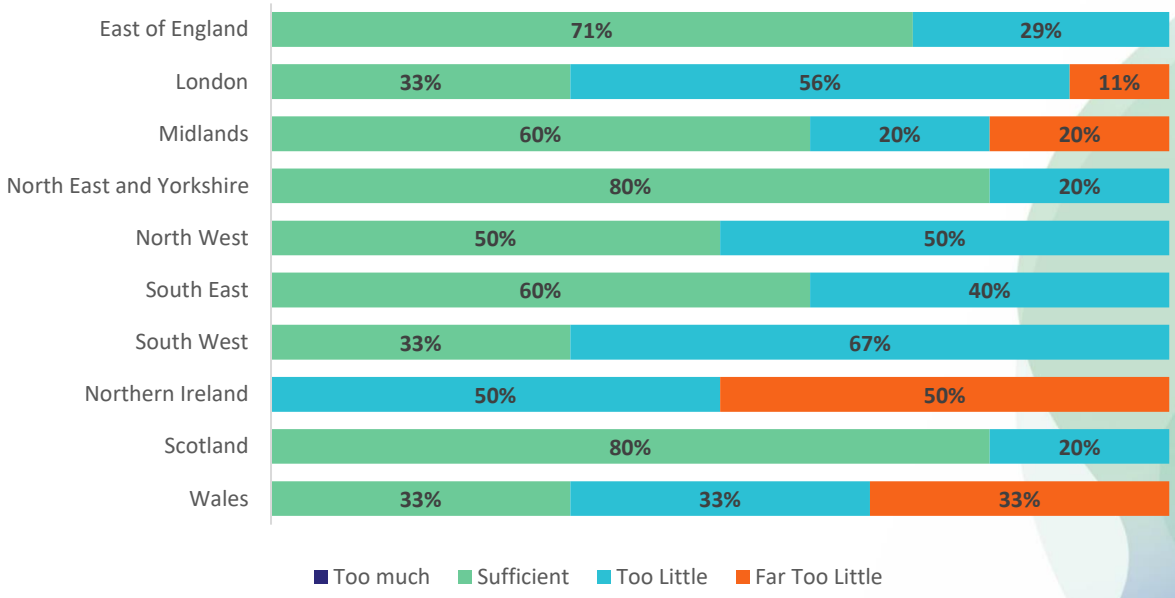
Staffing Provision Satsifaction of Clinical Technologists by Region



Staffing Provision Satisfaction of Medical Physics Experts by Region

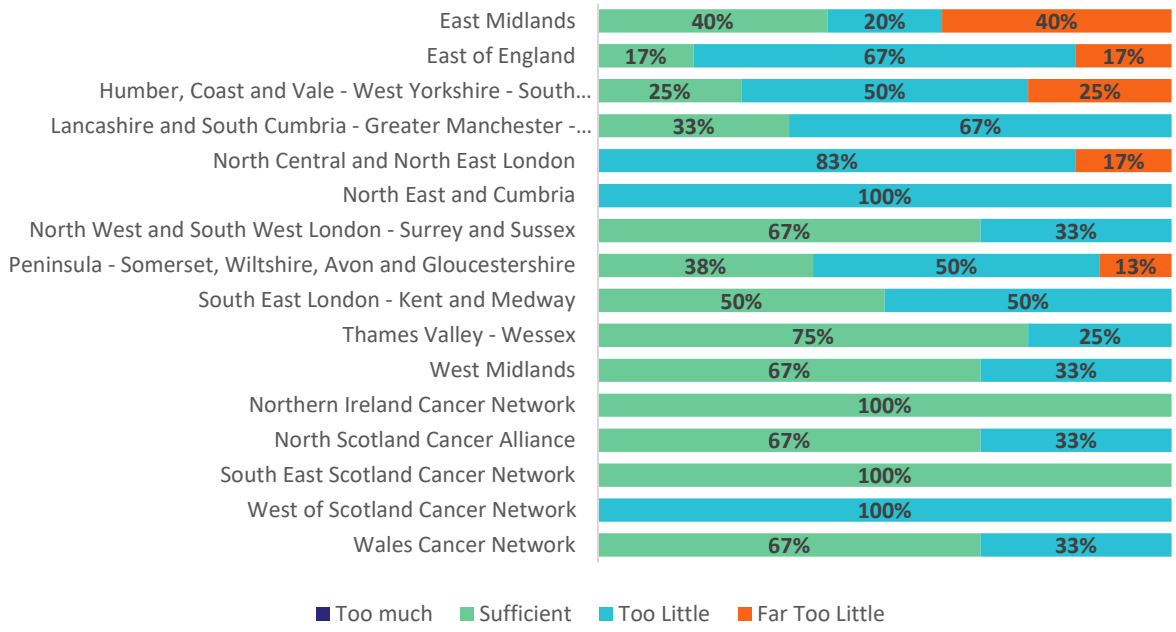


Staffing Provision Satisfaction of Radiation Protection Advisors by Region

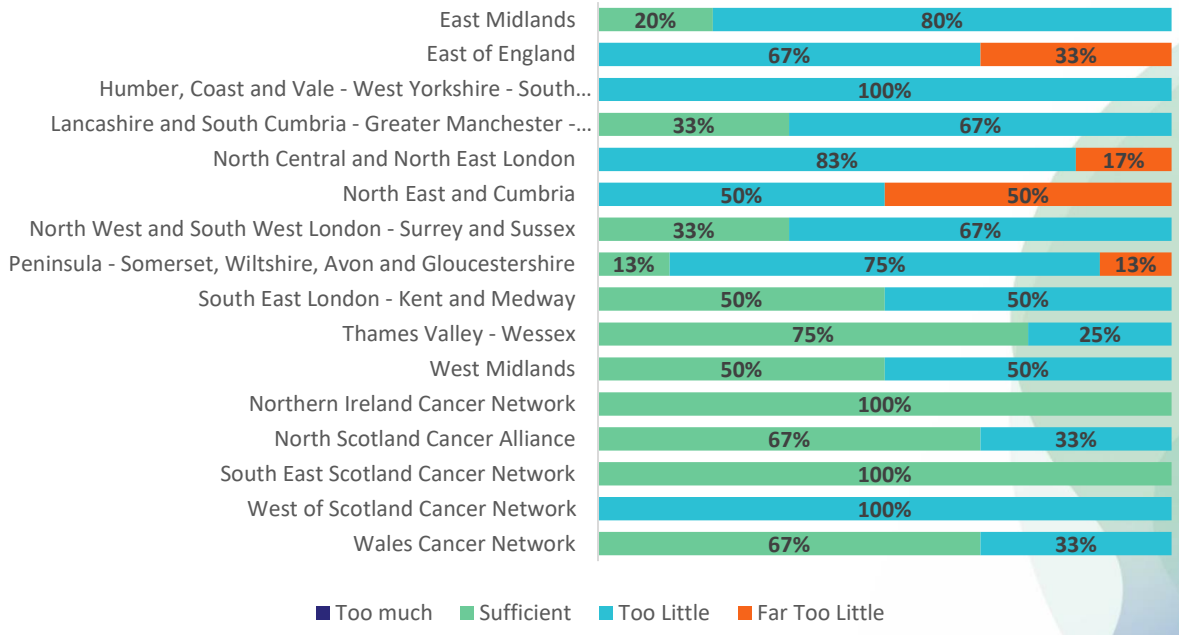


Staffing Provision by Operational Delivery Network

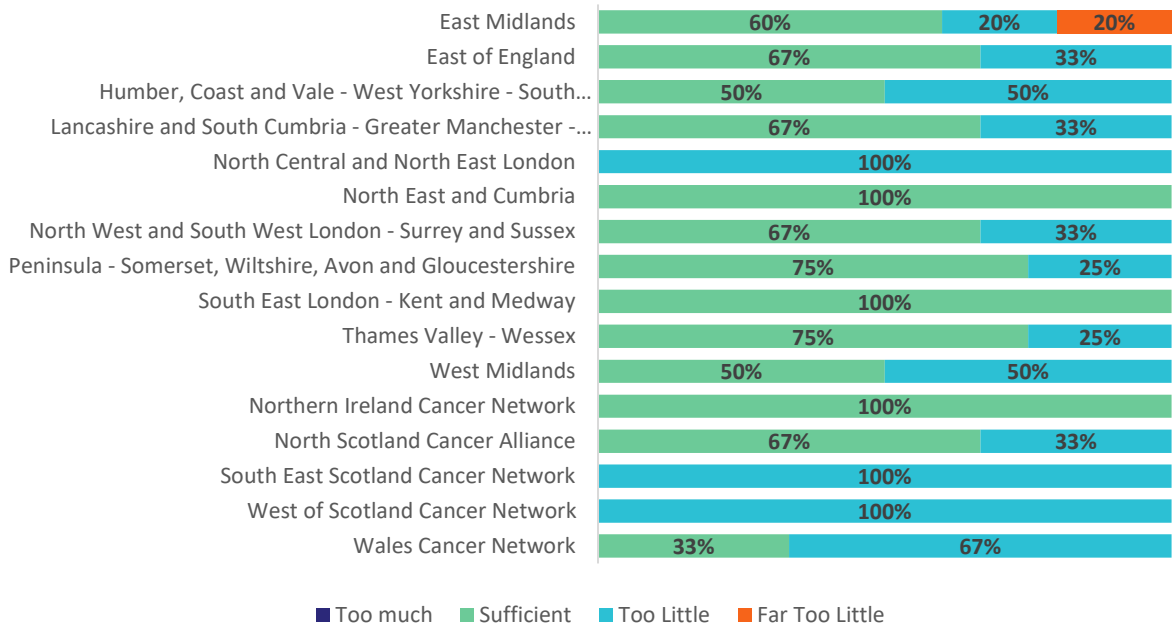
Clinical Scientist Staffing Provision Satisfaction by Operational Delivery Network



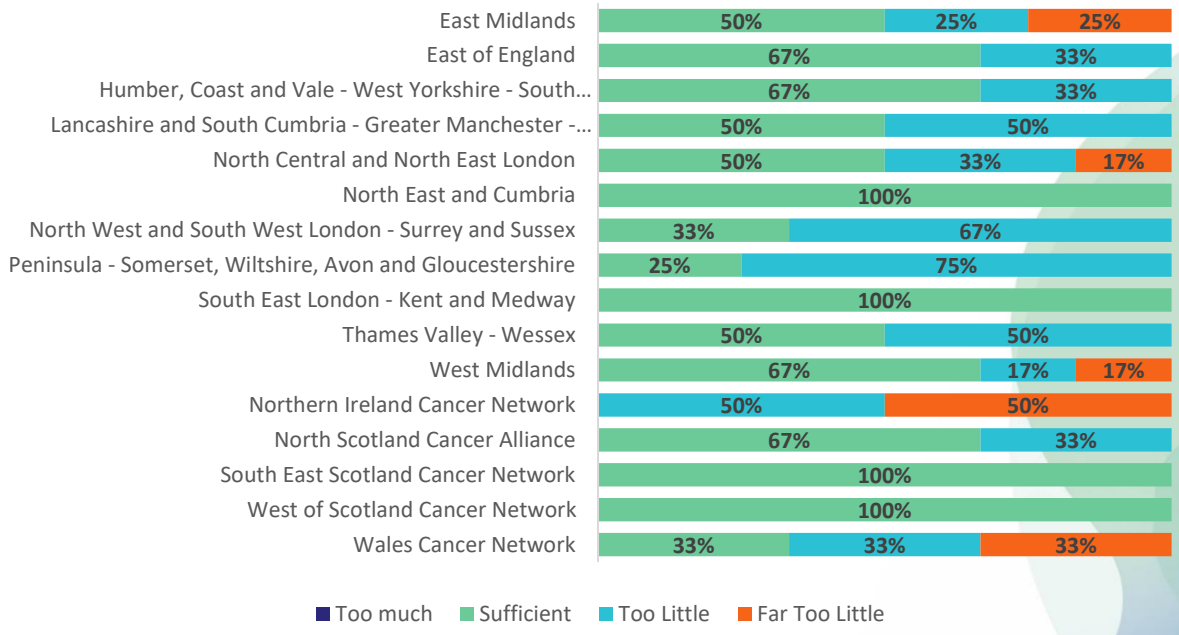
Clinical Technologist Staffing Provision Satisfaction by Operational Delivery Network



Medical Physics Expert Staffing Provision Satisfaction by Operational Delivery Network



Radiation Protection Adviser Staffing Provision Satisfaction by Operational Delivery Network



Summary

The Radiotherapy workforce is just managing to provide an adequate service, however this could be in jeopardy if more people leave the profession and there is currently little to no provision for training or 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.

Centres are not satisfied with their staffing provision of Clinical Scientists or Clinical Technologists, with only 40% satisfied with their number of Clinical Scientists and only 30% satisfied with their number of Clinical Technologists.

Vacancies are greatest for entry level positions with 9-20% of positions at these levels not filled. This has slightly improved since the 2021 census, however if not fully addressed, this could 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 Medical Physics as whole currently has an average vacancy rate of 10%. Therefore, further input to the workforce must come from additional training and not diverting existing training places from other specialisms.

When the vacancies are broken down by region, the worst affected regions are the East of England, the Midlands, Northern Ireland and Wales which all have an average vacancy rate of over 10%, however Northern Ireland and Wales have significantly less staff over all when compared to the English regions. Almost 20% of Clinical Technologist (Engineering) posts in the Midlands are currently vacant and the same for Clinical Scientists in Northern Ireland.

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 32% approaching retirement age (being over the age of 55). They also have the smallest number of staff in entry level positions across the professional groups. This has not improved since the 2021 census meaning the problem is only exacerbating as staff get older.

These points, along with historical data showing the same issues, 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. Training routes, such as route 2, or apprenticeships need to be increased across the board to address the issues, with the Clinical Technologist workforce being a priority.