IPEM
Institute of Physics and Engineering in Medicine

Nuclear Medicine Physics Workforce Survey Summary Report 2023

IPEM Institute of Physics and Engineering in Medicine

Introduction

This data is compiled from IPEM's Nuclear Medicine Workforce Survey 2023, carried out in August 2023. An invitation to respond was sent to heads of Nuclear Medicine at centres delivering a Nuclear Medicine Service in the UK, including NHS and Independent providers.

Nuclear Medicine services are delivered through a variety of service models, physics-led as either part of a larger medical physics service or not, radiographer-led and technologists led.

At the time of compiling this report, we achieved a response rate of 42% covering 59 Nuclear Medicine departments. Data was gathered on 2 professional groups: Clinical Scientists and Clinical Technologists, with information also gathered on other staff essential to the clinical service provision.

Executive Summary

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

The survey data shows that the Nuclear Medicine workforce is currently just coping to provide an adequate service, however staffing levels are, overall, 50% below where they should be to be able to accommodate training, research, development and implementing new technologies. The vacancies rates for Clinical Scientists and Clinical Technologists have increased since the last survey in 2021 and services are finding it especially hard to replace experienced staff, this coupled with a lack of cover for maternity or sick leave and increasing pressure on compliance with regulations is leaving some services strained.

- Nuclear Medicine services are varied across the UK, with 77% Clinical Scientist lead, 14% Clinical Technologists lead and 9% Radiographer lead; and 20% of responding services are run without Clinical Scientists
- The Nuclear Medicine workforce, in total, has an average vacancy rate of 12% with 14% of Clinical Technologist posts vacant
- This is a large increase in vacancy rate from our last Nuclear Medicine Physics survey in 2021 which found a vacancy rate for both Clinical Scientists and Clinical Technologists at 8%
- This vacancy rate is currently higher than other Medical Physics specialisms which have vacancy rates of between 7-10%
- To meet service's desirable staffing levels and the British Nuclear Medicine Society's recommended staffing levels, the workforce requires an uplift in staff of around 50% and double the current number of Medical Physics Experts
- The age profile for both Clinical Scientists and Clinical technologists is currently in a good place with only around 10% of the workforce approaching retirement age

- Recruitment is a challenge, especially in finding sufficiently trained staff for higher Agenda for Change Bands with multiple services stating Clinical Scientists being very hard to recruit into Nuclear Medicine

Services are struggling to recruit adequate staff and are having to train staff up to the skill levels required but not enough are being trained to meet demand. When highly trained staff leave the service, their skills are very hard to replace in the short term.

Further training posts and funded apprenticeship schemes are needed to increase staffing levels with the needed skill sets. Departments with the extra capacity to carry out the training should be prioritised, or training consortia could be created across multiple sites to alleviate the burden on smaller departments.

Workforce Headlines

	Whole Time Equivalence (WTE) of responding centres	Estimated Whole Time Equivalence (WTE) across UK*	Vacancy Rate
Clinical Scientists	269.4	446.9	12%
Clinical Technologists	506.5	836.4	14%
Other Staff	208.2	366.9	12%

We gave respondents the option of including Radiographers if it made it easier for the department to describe their workforce as it can be complicated based on varying service models.

	WTE of responding centres	Estimated WTE	Vacancy Rate
Radiographers	107.0	209.3	7%

	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	265	450	237.3	393.7
Clinical Technologists	485	823	436.2	718.5
Radiographers	139	258	100.0	196.1
Other Staff	230	403	184.1	329.4

*Estimates made from previous responses to workforce surveys from missing centres and scaling up by percentage of centres with no data.

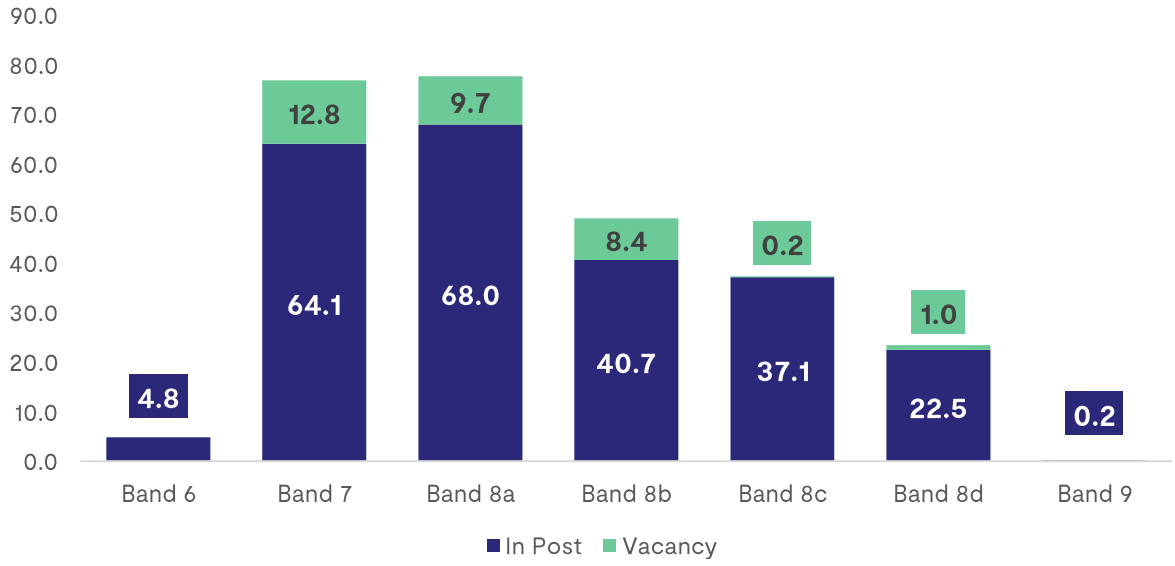
Service Leads

Service lead by	Percentage of services
Clinical Scientist	77%
Clinical Technologist	14%
Radiographer	9%

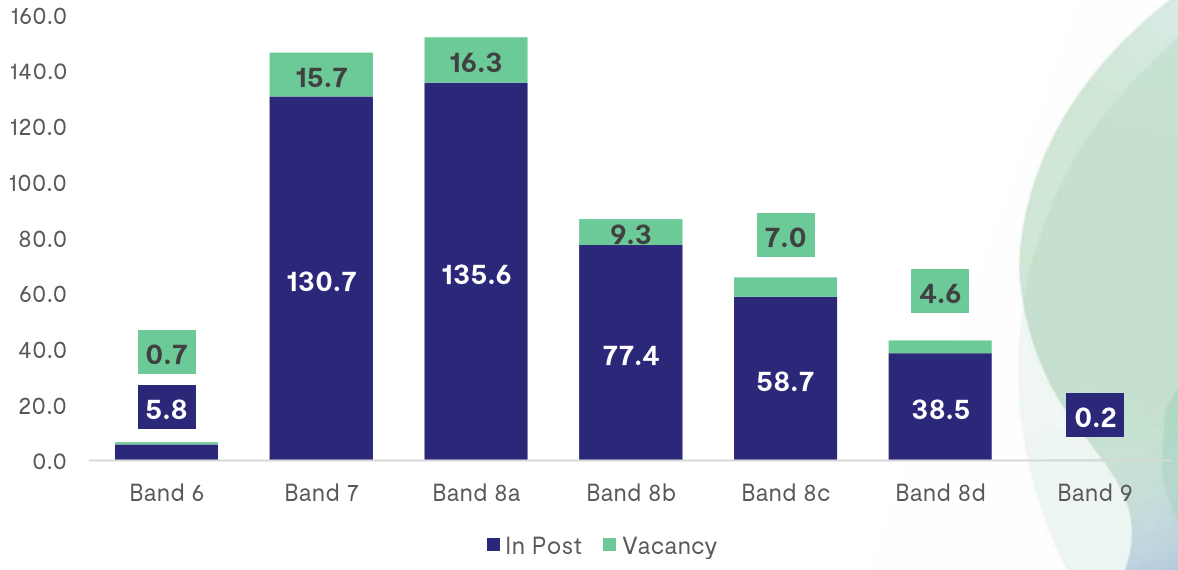
Establishment and Vacancies

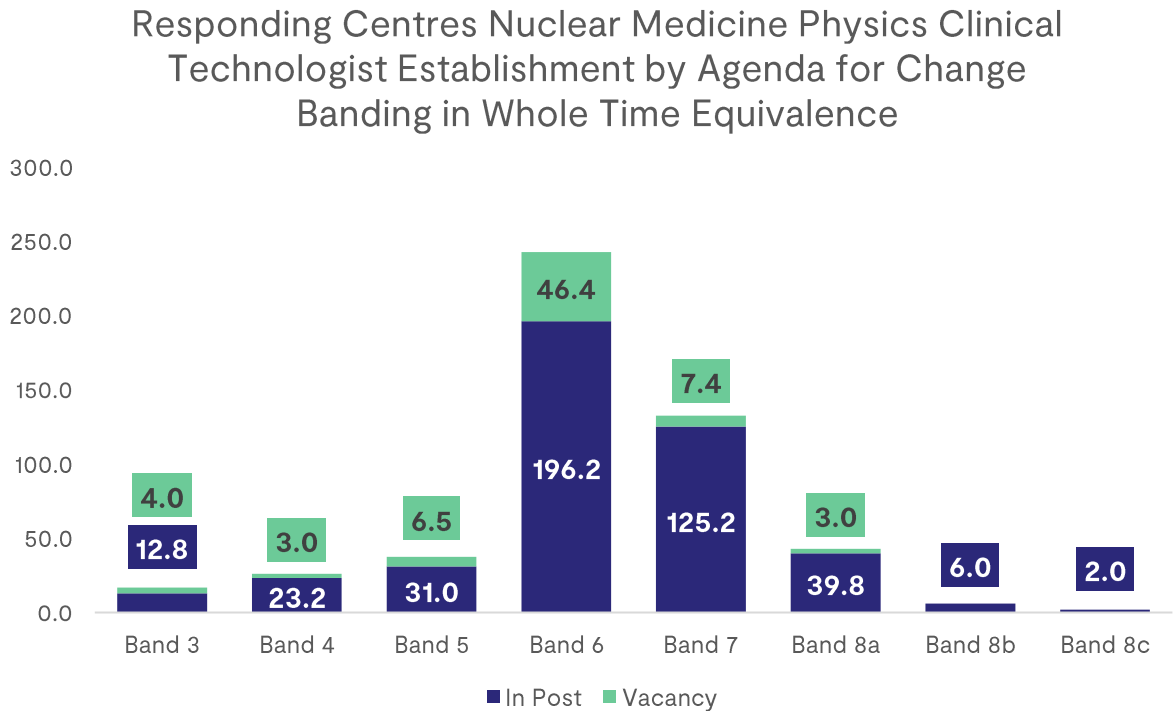
	Clinical Scientists	Clinical Technologists
Nuclear Medicine	12%	14%
Radiotherapy	8%	8%
Diagnostic Radiology and Radiation Protection	9%	7%

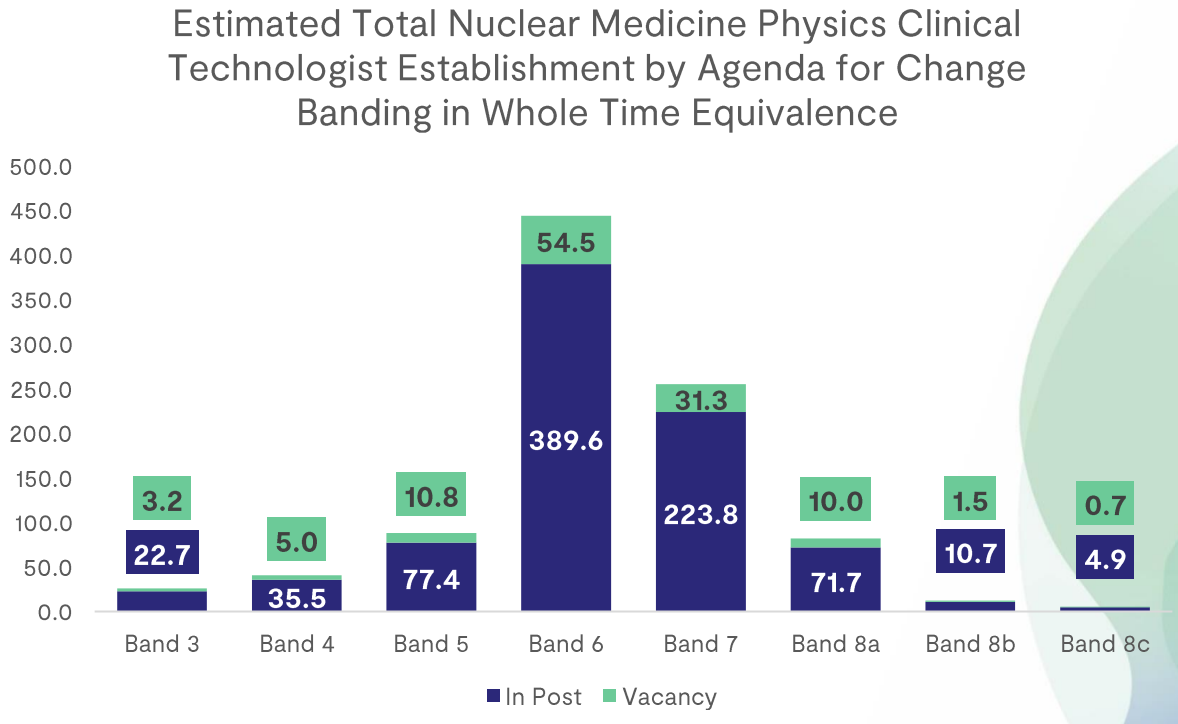
Responding Centres Nuclear Medicine Physics Clinical Scientist Establishment by Agenda for Change Banding in Whole Time Equivalence

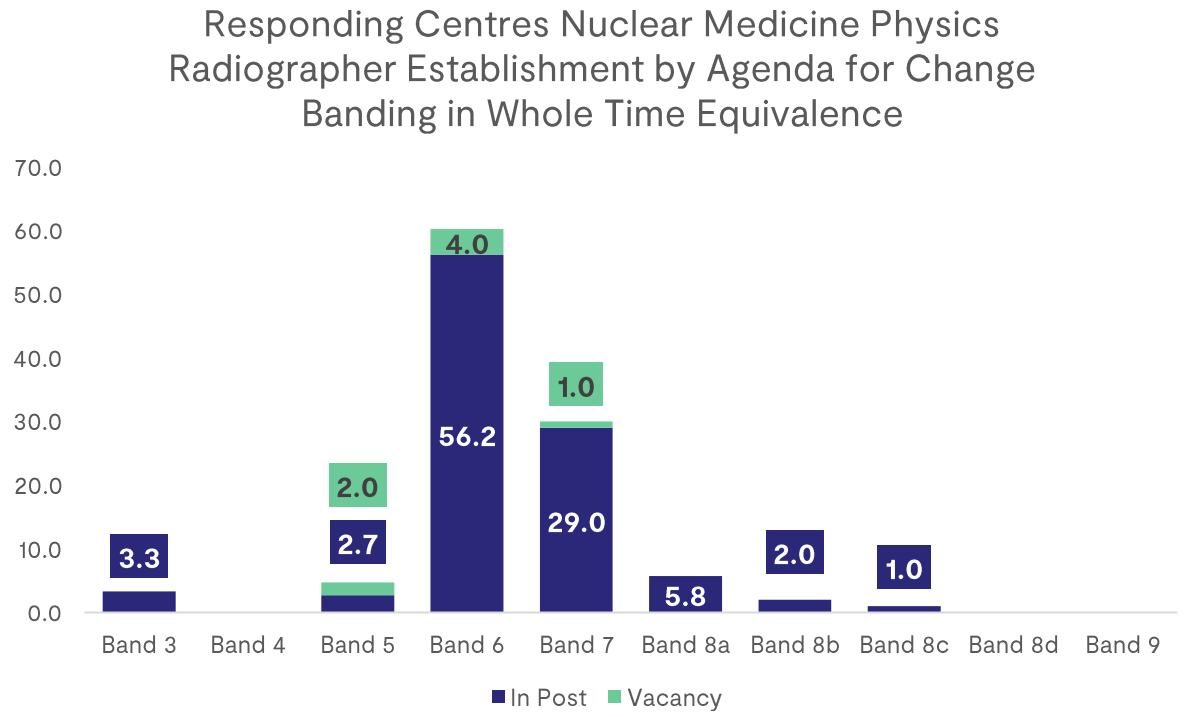


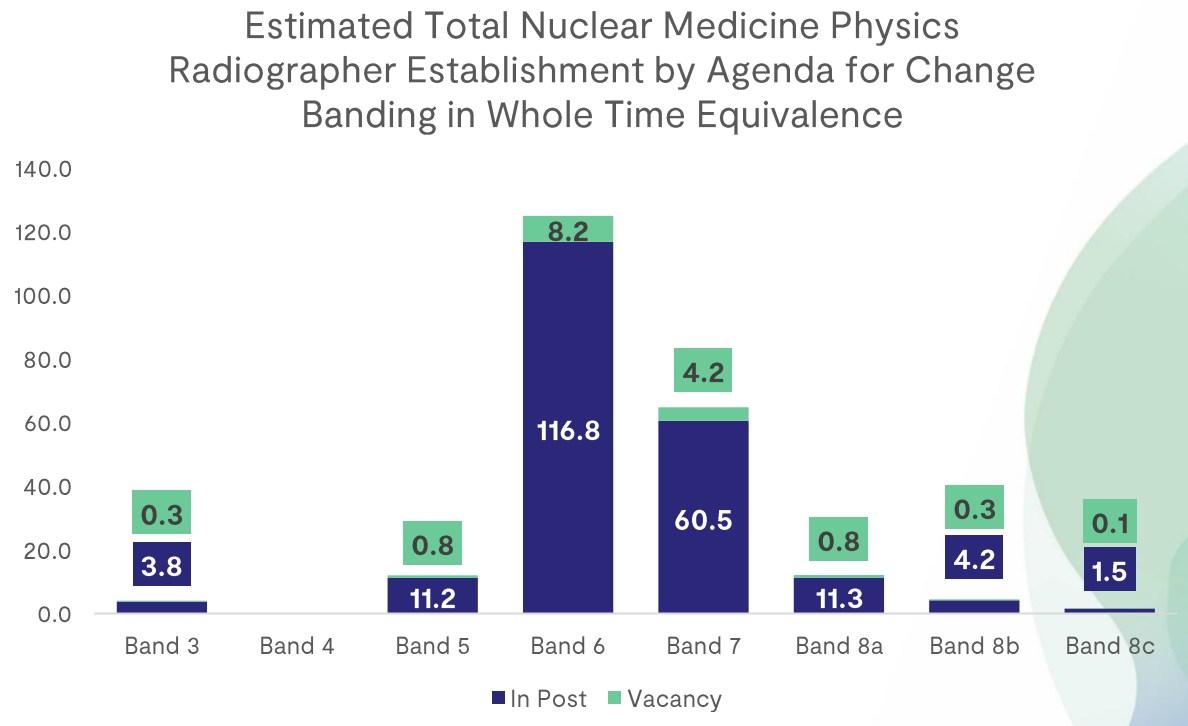
Estimated Total Nuclear Medicine Physics Clinical Scientist Establishment by Agenda for Change Banding in Whole Time Equivalence




Responding Centres Nuclear Medicine Physics Clinical Technologist Establishment by Agenda for Change Banding in Whole Time Equivalence
300.0
250.0
200.0
150.0
100.0
50.0
0.0
4.0
12.8
3.0
23.2
6.5
31.0
46.4
196.2
7.4
125.2
3.0
39.8
6.0
2.0
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
In Post
Vacancy


Estimated Total Nuclear Medicine Physics Clinical Technologist Establishment by Agenda for Change Banding in Whole Time Equivalence
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
3.2
22.7
5.0
35.5
10.8
77.4
54.5
389.6
31.3
223.8
10.0
71.7
1.5
10.7
0.7
4.9
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
In Post
Vacancy


Responding Centres Nuclear Medicine Physics Radiographer Establishment by Agenda for Change Banding in Whole Time Equivalence
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
3.3
2.0
2.7
4.0
56.2
1.0
29.0
5.8
2.0
1.0
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
Band 8d
Band 9
In Post
Vacancy


Estimated Total Nuclear Medicine Physics Radiographer Establishment by Agenda for Change Banding in Whole Time Equivalence
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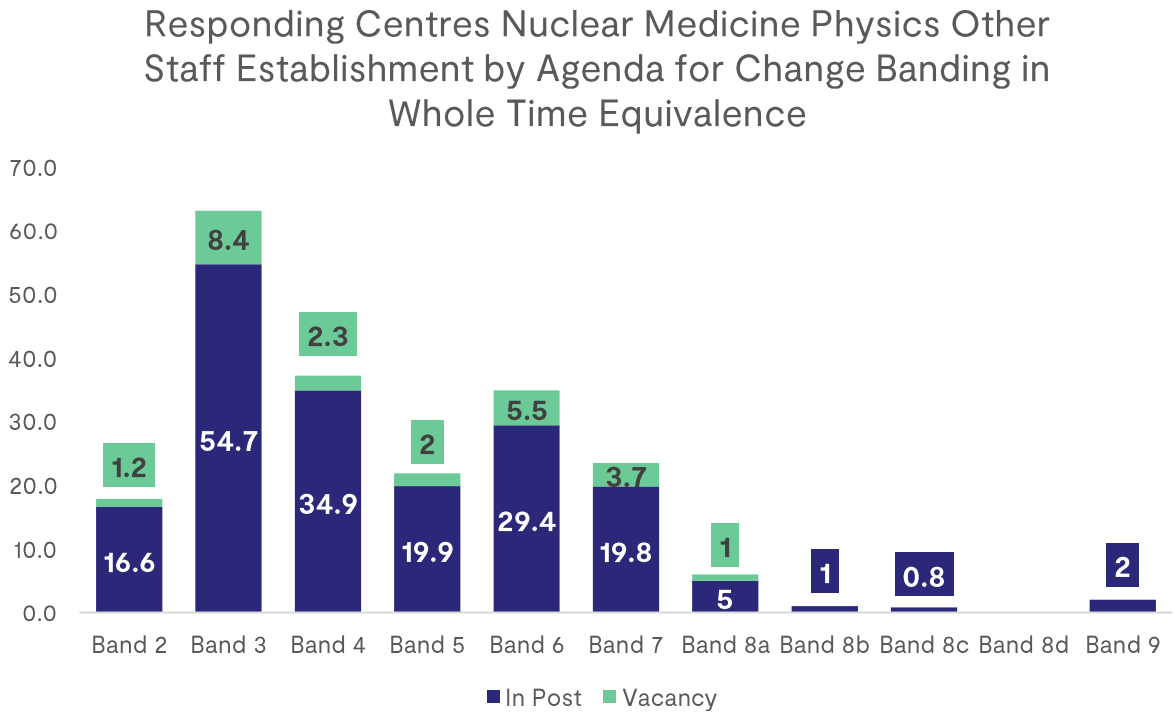
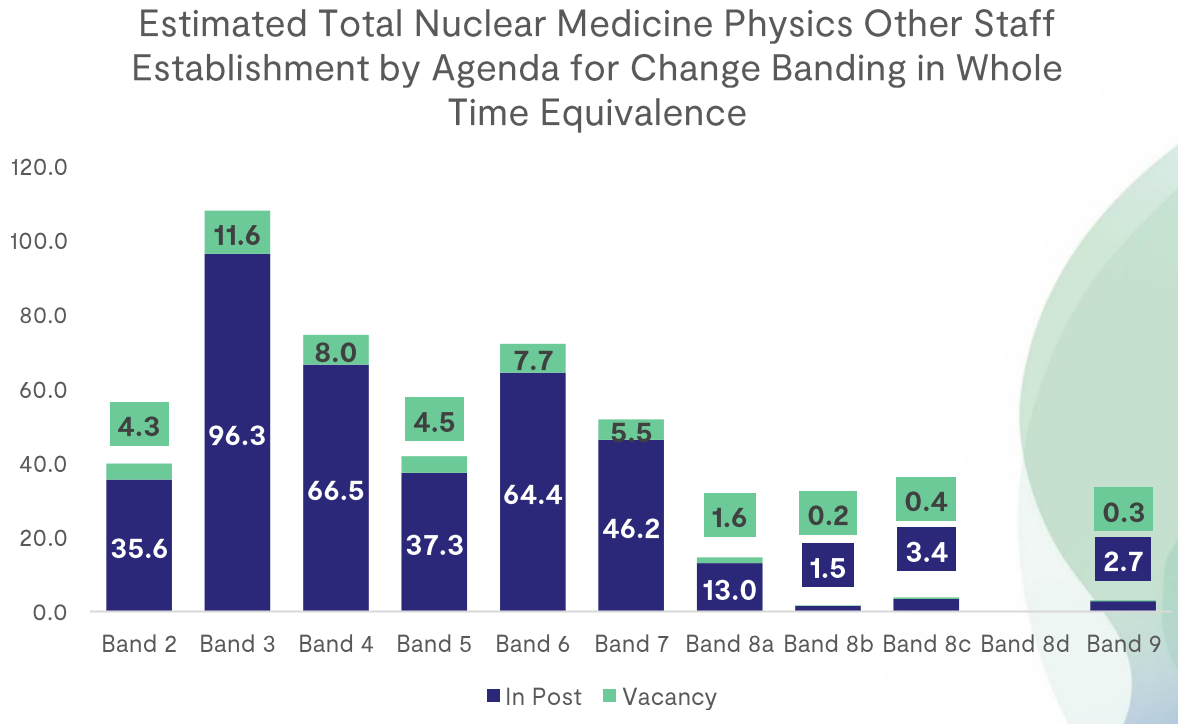
120.0
100.0
80.0
60.0
40.0
20.0
0.0
0.3
3.8
0.8
11.2
8.2
116.8
4.2
60.5
0.8
11.3
0.3
4.2
0.1
1.5
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
In Post
Vacancy

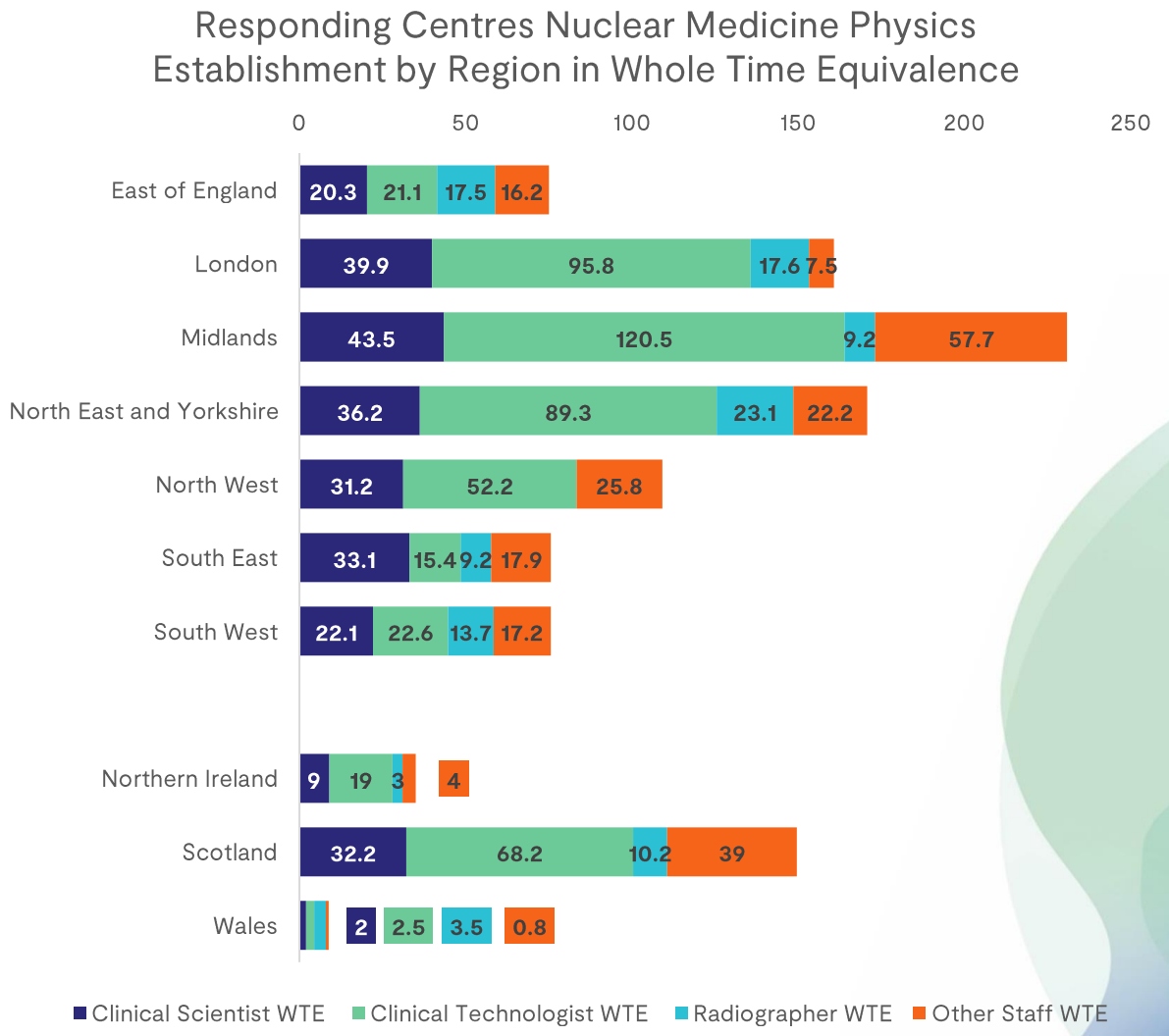

Responding Centres Nuclear Medicine Physics Other Staff Establishment by Agenda for Change Banding in Whole Time Equivalence
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1.2
16.6
8.4
54.7
2.3
34.9
2
19.9
5.5
29.4
3.7
19.8
1
5
1
0.8
2
Band 2
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
Band 8d
Band 9
In Post
Vacancy


Estimated Total Nuclear Medicine Physics Other Staff Establishment by Agenda for Change Banding in Whole Time Equivalence
120.0
100.0
80.0
60.0
40.0
20.0
0.0
4.3
35.6
11.6
96.3
8.0
66.5
4.5
37.3
7.7
64.4
5.5
46.2
1.6
13.0
0.2
1.5
0.4
3.4
0.3
2.7
Band 2
Band 3
Band 4
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
Band 8d
Band 9
In Post
Vacancy

Establishment by Region

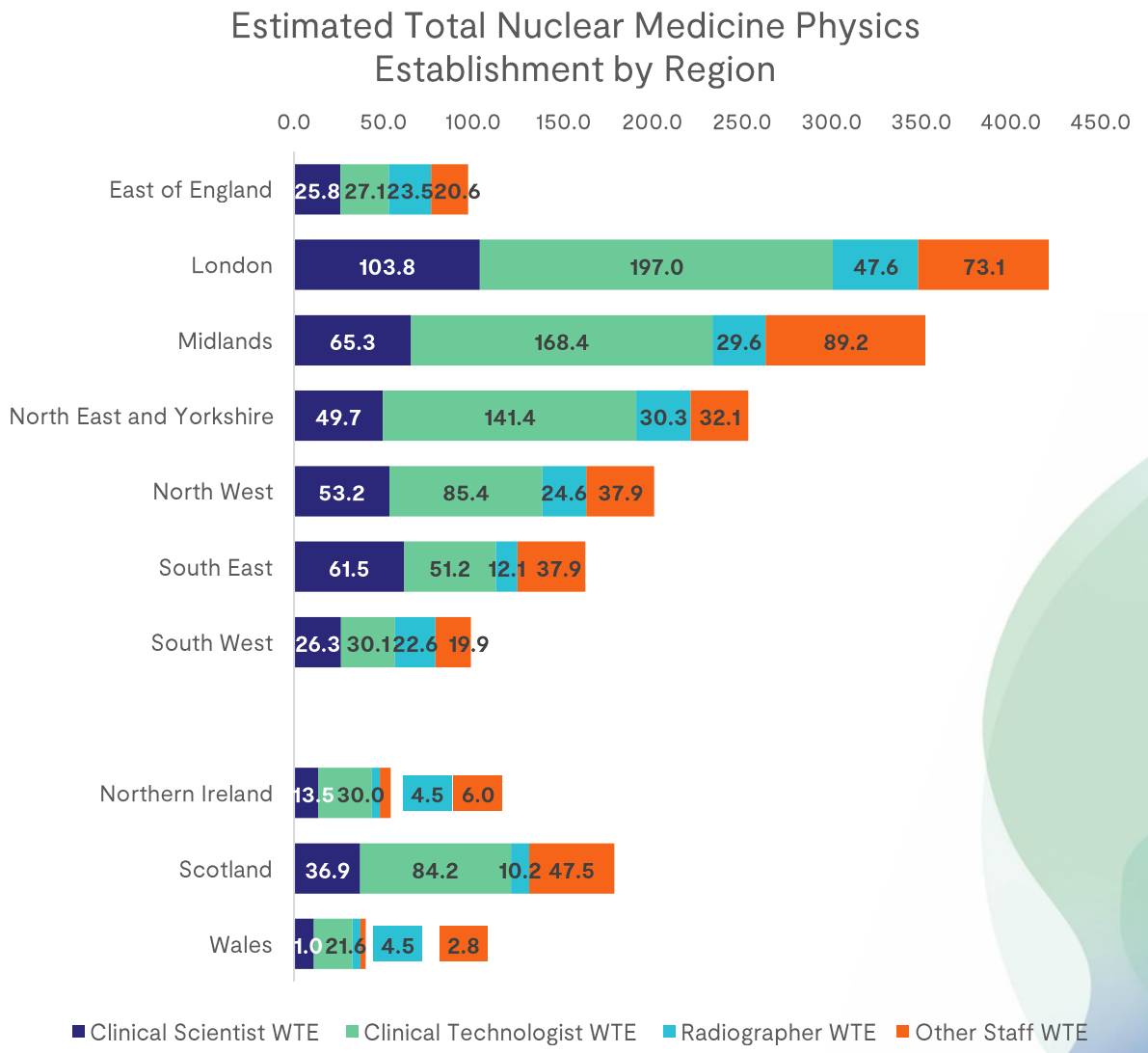
Responding Centres Nuclear Medicine Physics Establishment by Region

	Clinical Scientist WTE	Clinical Technologist WTE	Radiographer WTE	Other Staff WTE	Response Rate
East of England	20.3	21.1	17.5	16.2	55%
London	39.9	95.8	17.6	7.5	33%
Midlands	43.5	120.5	9.2	57.7	42%
North East and Yorkshire	36.2	89.3	23.1	22.2	47%
North West	31.2	52.2	0.0	25.8	24%
South East	33.1	15.4	9.2	17.9	44%
South West	22.1	22.6	13.7	17.2	73%
Northern Ireland	9.0	19.0	3.0	4.0	25%
Scotland	32.2	68.2	10.2	39.0	71%
Wales	2.0	2.5	3.5	0.8	33%



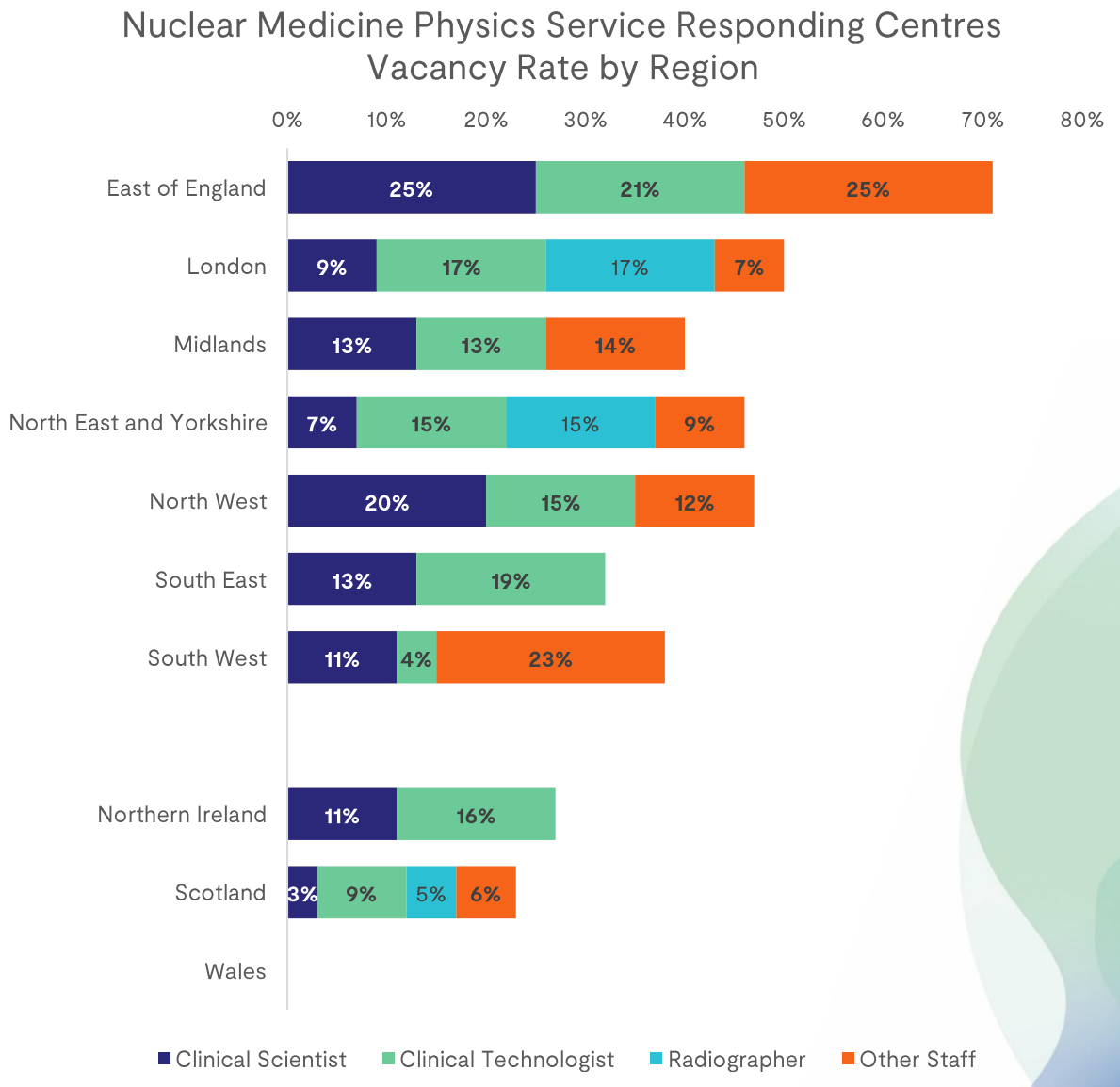
Estimated Total Nuclear Medicine Physics Establishment by Region

	Clinical Scientist WTE	Clinical Technologist WTE	Radiographer WTE	Other Staff WTE
East of England	25.8	27.1	23.5	20.6
London	103.8	197.0	47.6	73.1
Midlands	65.3	168.4	29.6	89.2
North East and Yorkshire	49.7	141.4	30.3	32.1
North West	53.2	85.4	24.6	37.9
South East	61.5	51.2	12.1	37.9
South West	26.3	30.1	22.6	19.9
Northern Ireland	13.5	30.0	4.5	6.0
Scotland	36.9	84.2	10.2	47.5
Wales	11.0	21.6	4.5	2.8

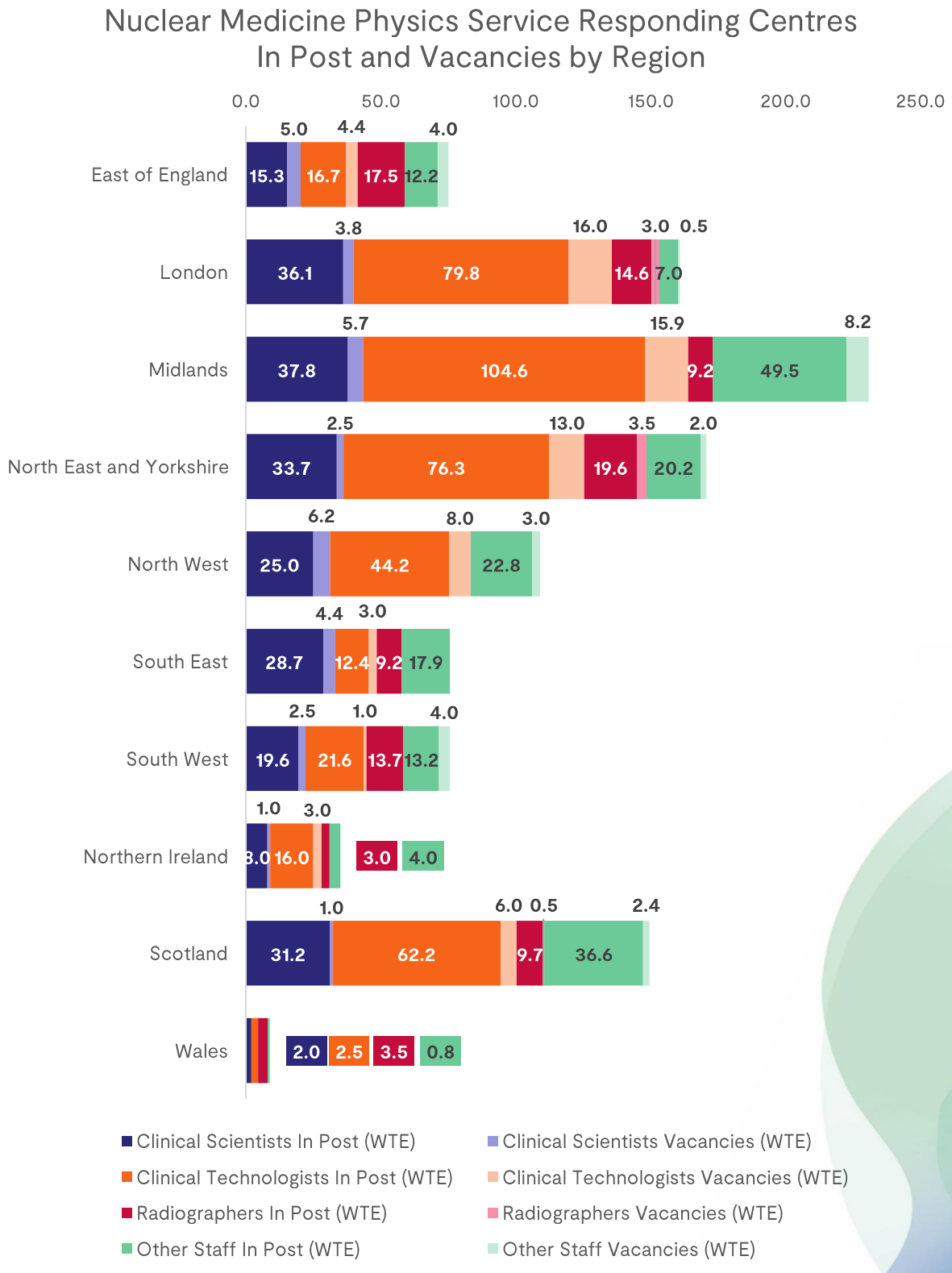


Nuclear Medicine Physics Vacancy Rate by Region

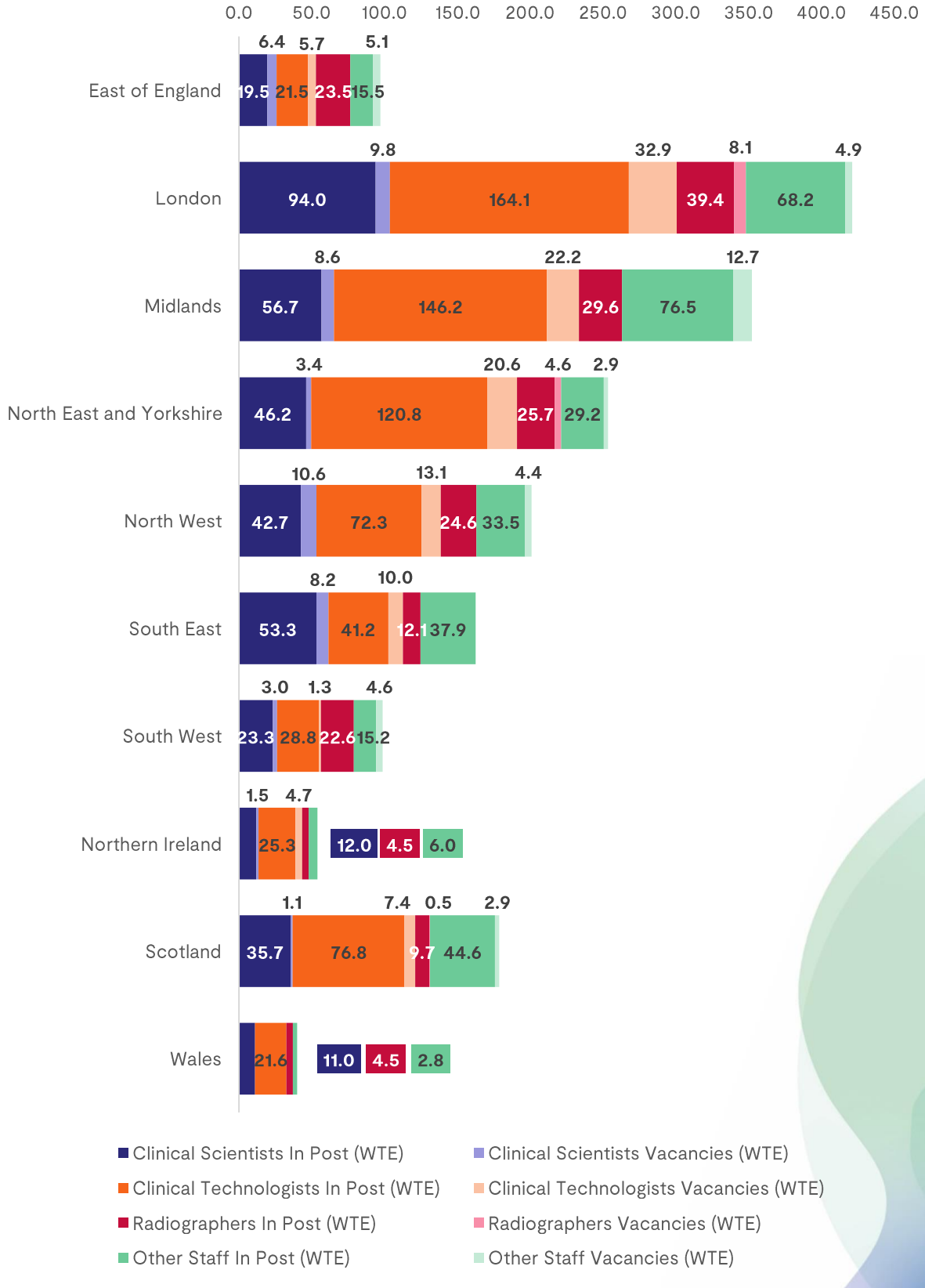
	Clinical Scientist	Clinical Technologist	Radiographer	Other Staff	Response Rate
East of England	25%	21%	0%	25%	55%
London	9%	17%	17%	7%	33%
Midlands	13%	13%	0%	14%	42%
North East and Yorkshire	7%	15%	15%	9%	47%
North West	20%	15%	0%	12%	24%
South East	13%	19%	0%	0%	44%
South West	11%	4%	0%	23%	73%
Northern Ireland	11%	16%	0%	0%	25%
Scotland	3%	9%	5%	6%	71%
Wales	0%	0%	0%	0%	33%



Filled and Vacant Positions in Nuclear Medicine Physics by Region



Estimated Total In Post and Vacancies in Nuclear Medicine Physics by Region



Desirable and Recommended Staffing Levels

We asked centres to provide their desirable and the British Nuclear Medicine Societies (BNMS) recommended staffing levels for their service. The BNMS staffing calculator gives a range, we then asked the respondents to give their recommended staffing level as a figure within the range. The BNMS recommended staffing range does not consider for centres providing external support. To account for this, some centres report higher recommended figures than the range suggests, especially in Northern Ireland and Scotland where a single centre covers much of the country.

The below figures represent the services that responded with both their desirable and recommended staffing levels. Response rates for answering these questions are, UK total 34% (48); England 34% (42); Scotland 71% (5); Wales 0% (0); Northern Ireland 25% (1).

	Current Establishment WTE	Desirable Establishment WTE	BNMS Recommended WTE	BNMS Range WTE (Min-Max)	Required to meet desirable WTE	Required to meet recommended WTE
Medical Physics Support	215.8	333.1	340.1	182.9-356.0	117.3	124.3
Medical Physics Expert	95.2	206.5	209.2	87.1-198.4	111.3	114.0

Wales have not been included as we received no response for recommended staffing levels

When asked for desirable and recommended staffing levels to deliver a comprehensive nuclear medicine service, departments have responded stating they would require, in total, around a 50% uplift in Medical Physics Support staffing levels and double the Medical Physics Experts over the current establishment.

Desirable Staffing by Country

England

	Current Establishment WTE	Desirable Establishment WTE	BNMS Recommended WTE	BNMS Range WTE (Min-Max)	Required to meet desirable WTE	Required to meet recommended WTE
Medical Physics Support	174.6	274.6	269.9	158.5–308.5	100.0	95.3
Medical Physics Expert	69.0	163.0	165.7	75.1–171.4	94.0	96.7

Northern Ireland

	Current Establishment WTE	Desirable Establishment WTE	BNMS Recommended WTE	BNMS Range WTE (Min-Max)	Required to meet desirable WTE	Required to meet recommended WTE
Medical Physics Support	9.0	14.0	25.0	5.5–11.0	5.0	16.0
Medical Physics Expert	5.0	8.0	11.0	2.5–6.0	3.0	6.0

Scotland

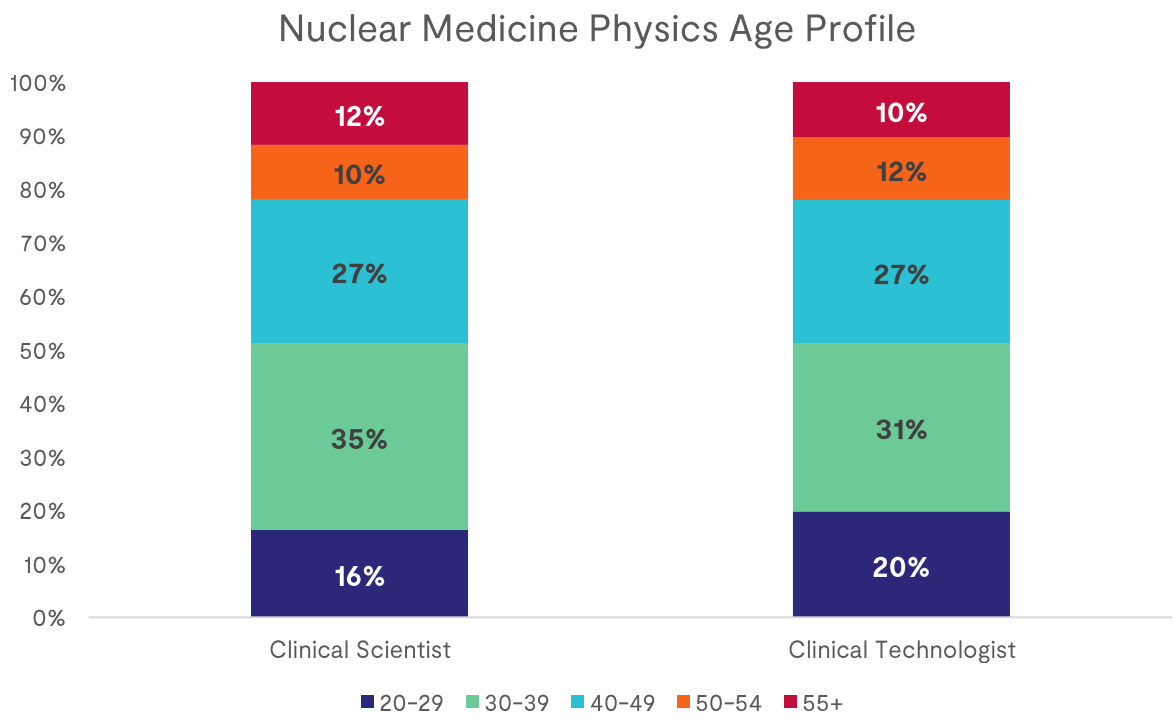
	Current Establishment WTE	Desirable Establishment WTE	BNMS Recommended WTE	BNMS Range WTE (Min-Max)	Required to meet desirable WTE	Required to meet recommended WTE
Medical Physics Support	32.2	44.5	45.2	18.9–36.5	12.3	13.0
Medical Physics Expert	21.2	35.5	32.5	9.5–21.0	14.3	11.3

Wales

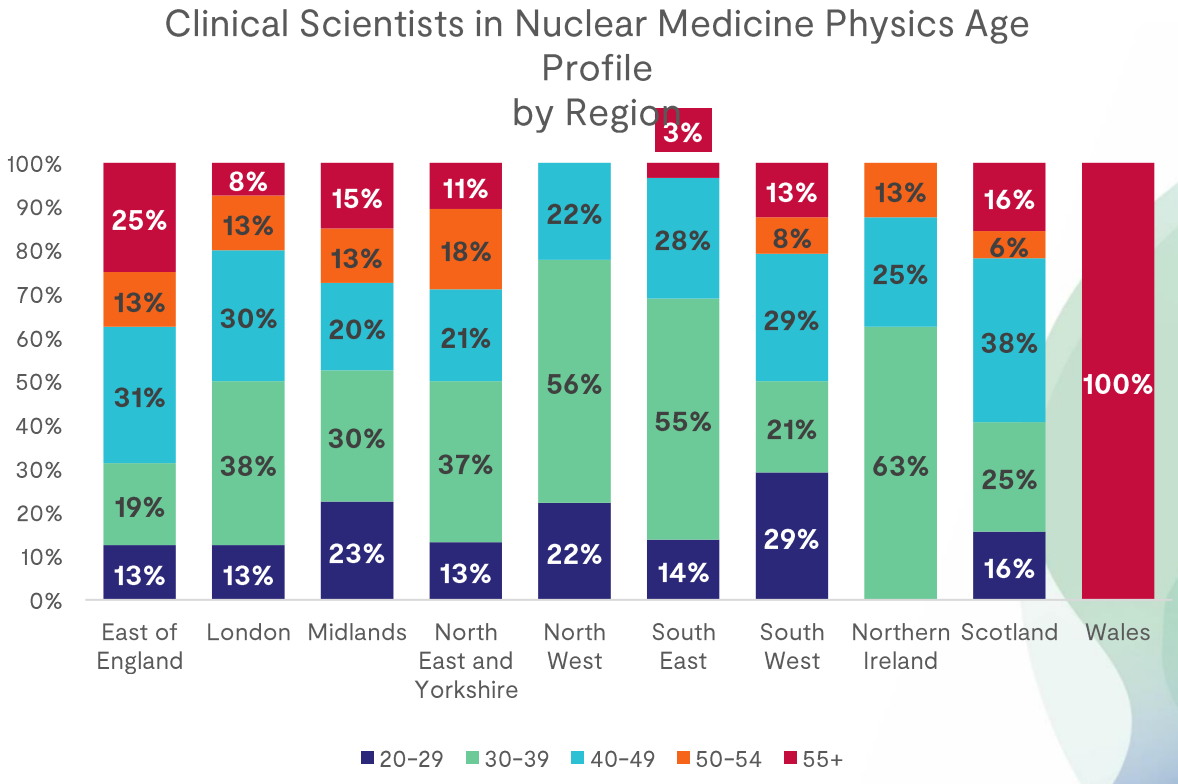
	Current Establishment WTE	Desirable Establishment WTE	BNMS Recommended WTE	BNMS Range WTE (Min-Max)	Required to meet desirable WTE	Required to meet recommended WTE
Medical Physics Support	2.0	4.0	No response	n/a	2.0	n/a
Medical Physics Expert	1.5	3.0	No response	n/a	1.5	n/a

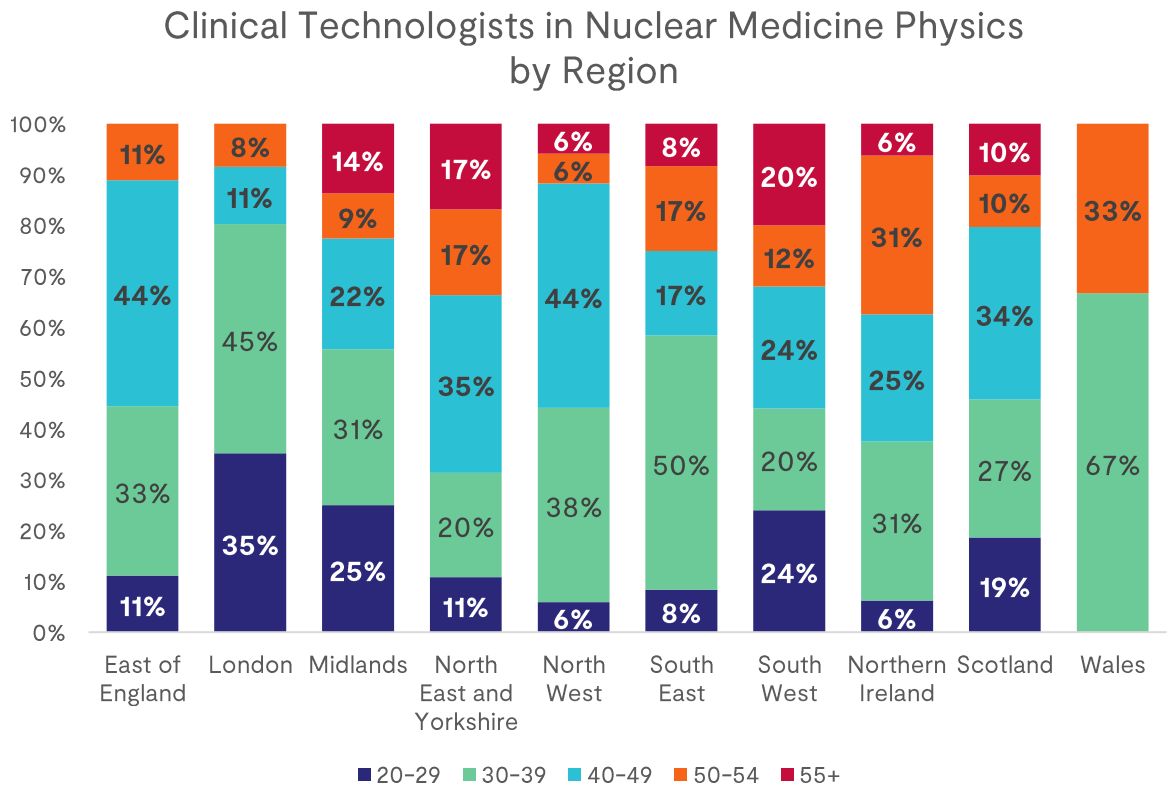
Not included in total for UK as no response to recommended staffing levels

Age Profiles

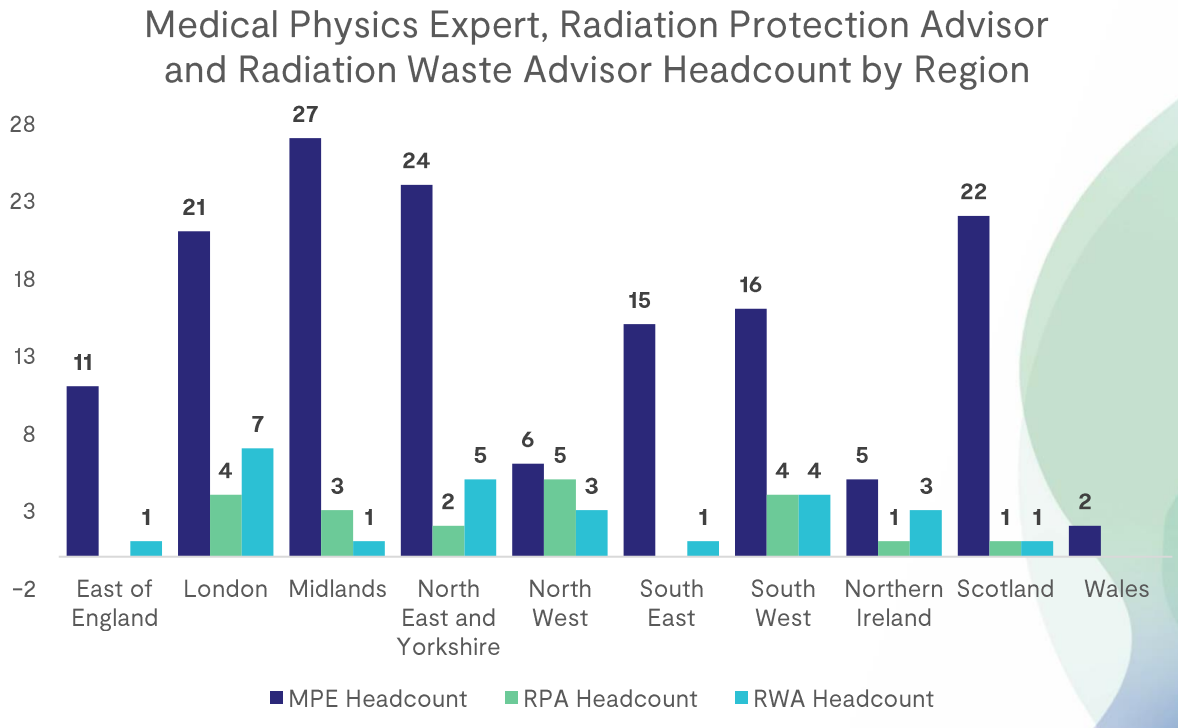


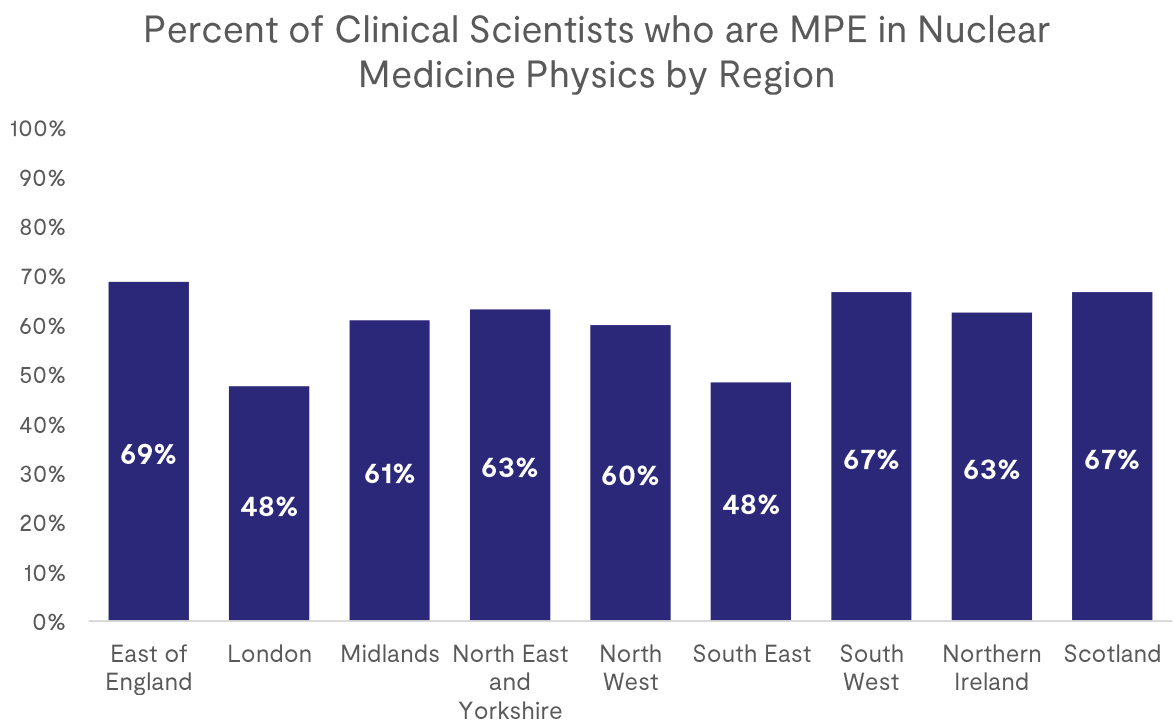
Age Profile by Region



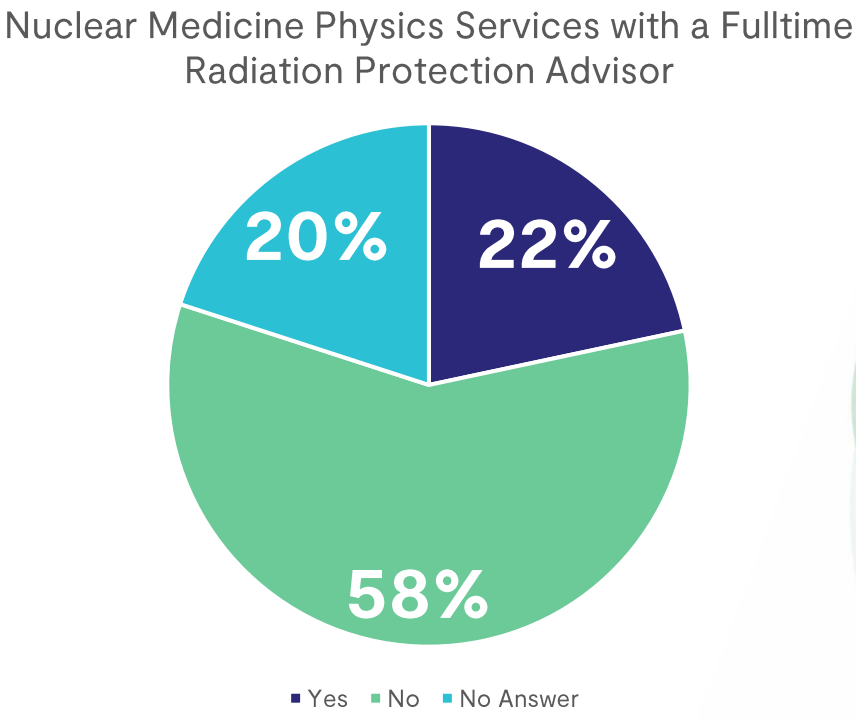


Medical Physics Experts, Radiation Protection Advisors and Radiation Waste Advisors

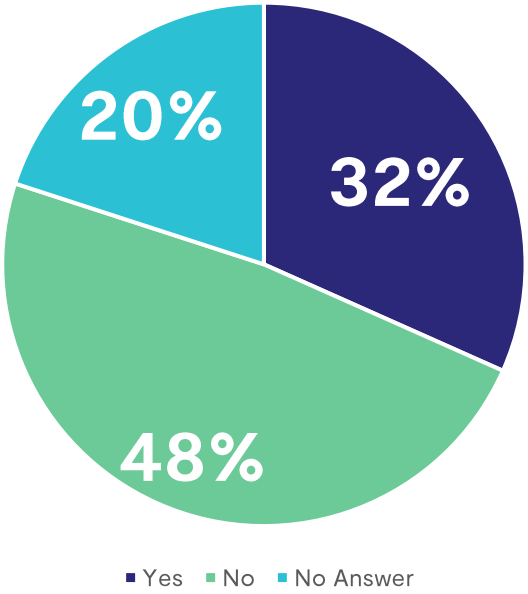




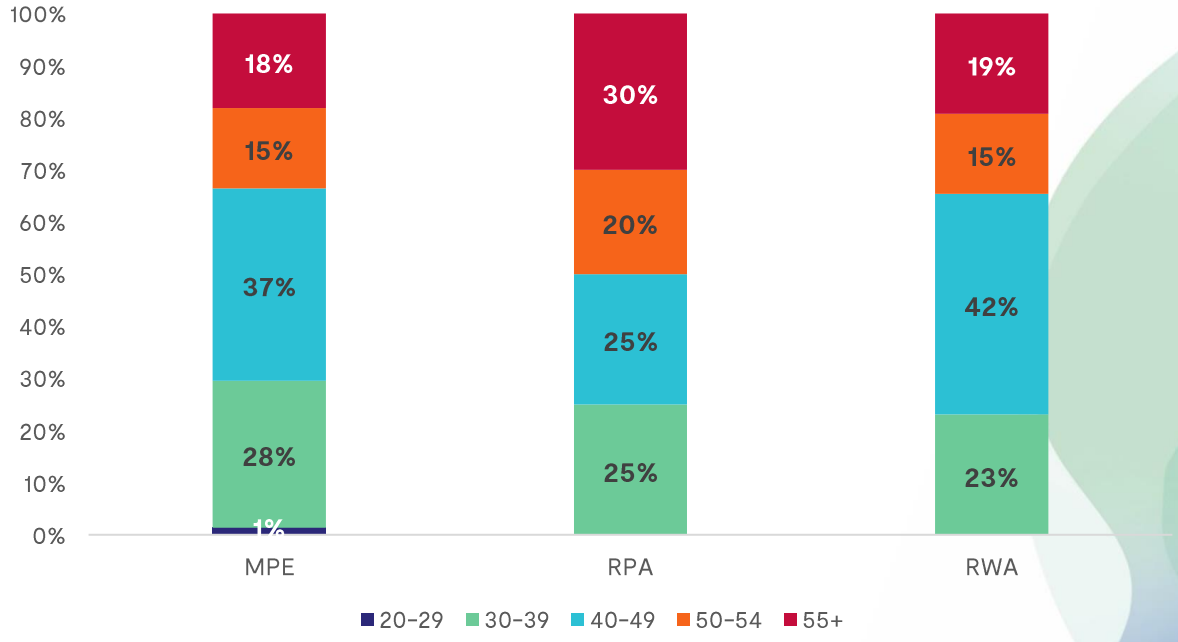
Wales have been removed as we only have MPE data for one centre where both their Clinical Scientists are Medical Physics Experts.



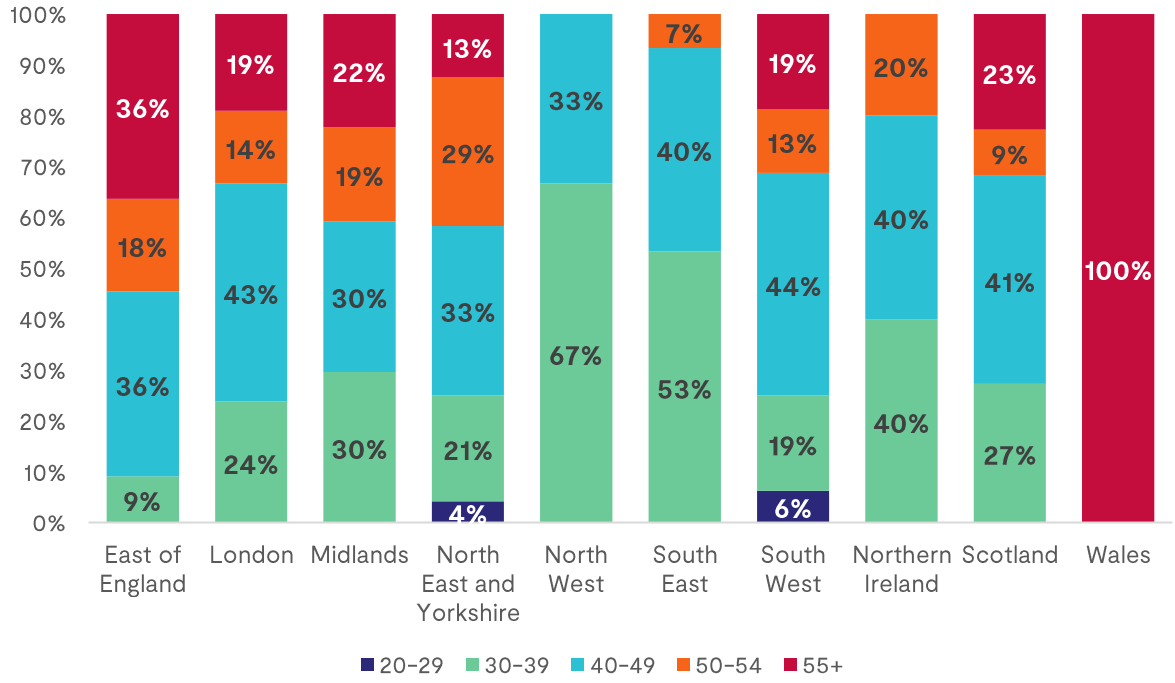
Nuclear Medicine Physics Services with a Fulltime Radiation Waste Advisor



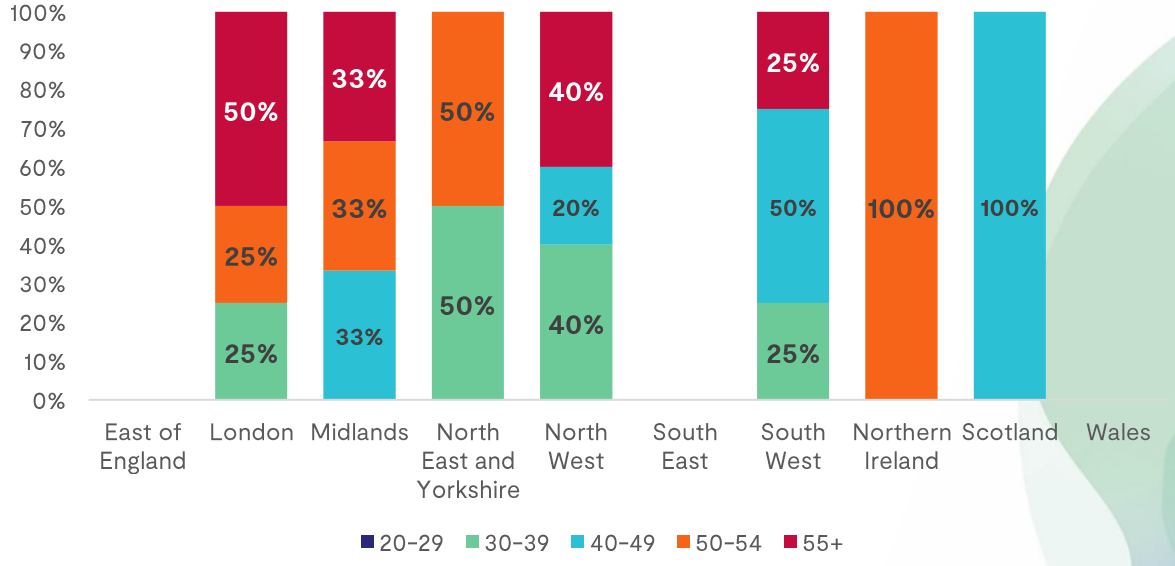
Medical Physics Expert, Radiation Protection Advisor and Radiation Waste Advisor in Nuclear Medicine Physics Age Profile

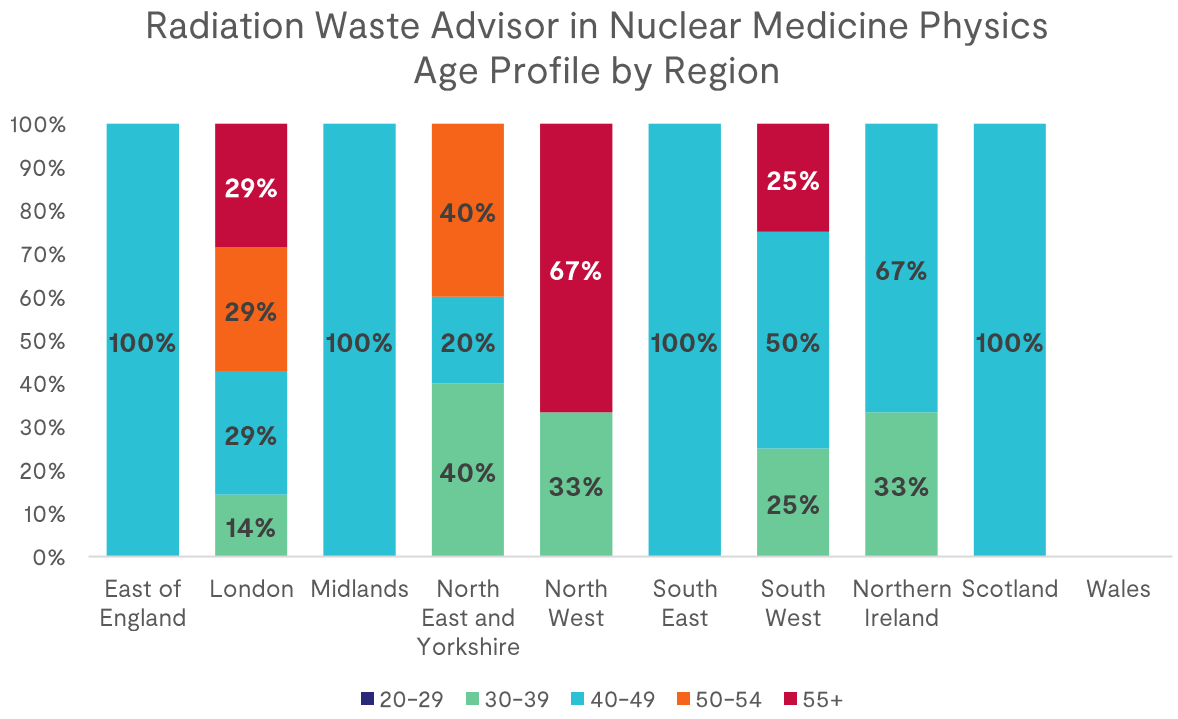


Medical Physics Expert in Nuclear Medicine Physics Age Profile by Region

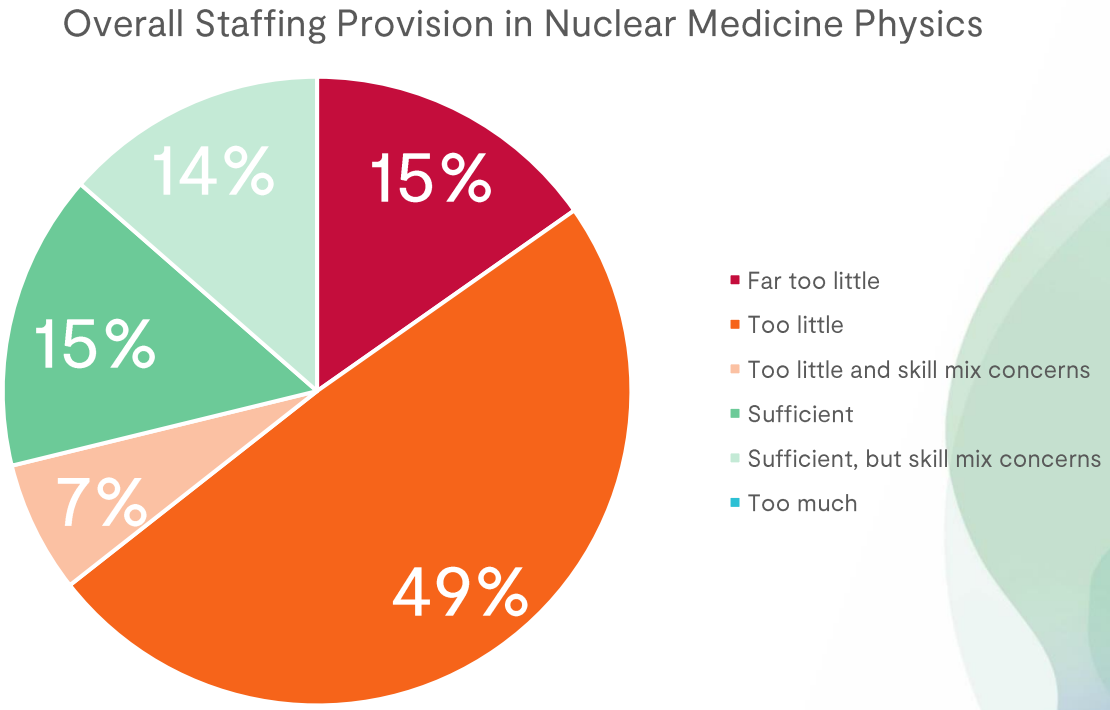


Radiation Protection Advisor in Nuclear Medicine Physics Age Profile by Region

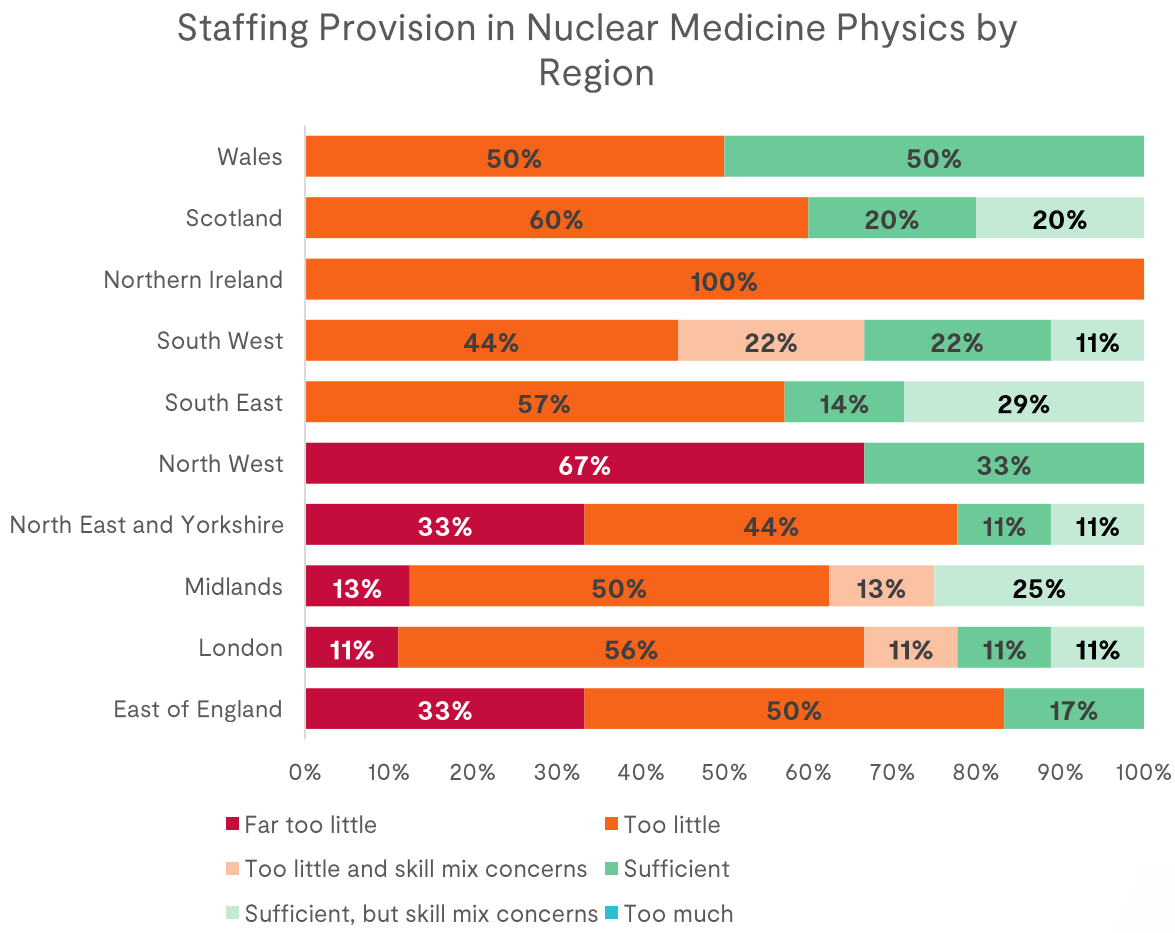




Staffing Provision



Staffing Provision by Region



Summary

The Nuclear Medicine Physics workforce is just-about-managing but has increasing vacancies and the highest of the Medical Physics specialisms. Services are struggling to recruit to experienced posts, having to train up internal staff to adequate levels, this coupled with little capacity to cover maternity or sick leave and increasing regulatory burden is leaving services strained. Vacancy rates in both Clinical Scientists and Clinical Technologists are the highest we've seen and are increasing with each workforce survey.

In addition to needing to fill the current vacancies, desirable and recommended staffing levels are 50% below where they should be to provide a comprehensive service with provisions for training, research, development and service improvement.

Further training posts and funded apprenticeship schemes at departments with the capacity to train are sorely needed to meet this shortfall, training consortia across regions could be developed to alleviate the burden of training staff at smaller departments where there is no capacity.