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Clinical Radiology
The Royal College of Radiologists

Clinical Radiology UK workforce census 2014 report

Faculty of Clinical Radiology

Contents

Foreword

The census for 2014 sees a repeat of the successes of previous years by delivering a 100% response rate from clinical directors and workforce leads of UK clinical radiology departments. In sustaining this level of response over time, we can obtain a reliable insight into emerging trends and patterns, increasing our ability to influence health policy, direct and manage changes in service delivery, and continue to highlight the difficulties departments are facing in the provision of safe, high-quality services. One of the main, ongoing difficulties is a shortage of radiologists to meet the increasing demands made on their professional work. This conclusion emerges from both the quantitative and qualitative data provided by those who have an informed and frontline view of radiological services in the UK – clinical directors and workforce leads.

This year we shifted the data collection point from the end of December to the end of March, so that the data would be easier for departments to acquire, coinciding with many Trust and Health Board data collection points. This is why in some of the tables there appears to be no data for 2013.

In total, 208 radiology departments in the NHS took part in the census. I would like to thank all Regional Chairs, clinical directors, workforce leads and others who participated. The Royal College of Radiologists (RCR) looks forward to their continuing support in future censuses and data collection exercises.

Dr Sue Barter
Medical Director of Professional Practice, Clinical Radiology
The Royal College of Radiologists

1. Main findings from the 2014 census

Shortage of radiologists in the UK

Between 2012 and 2014, there was a slight increase in the numbers of consultant radiologists in the UK measured by headcount, whole-time equivalent (WTE) and per 100,000 people. The increases were between 1% and 2%. During the same period, workload has increased substantially, as demonstrated by the continuing 10–12% yearly increases in numbers of imaging and radiodiagnostic (particularly magnetic resonance imaging [MRI] and computed tomography [CT]) examinations.[1] These sets of figures could be interpreted as radiology departments becoming more efficient – doing more with the same number of or less radiologists. However, the census has found that 88% of departments were unable to meet their reporting requirements during 2013–14. This inability is due mainly to a shortage of radiologists to manage departmental workload, confirmed by comments received through the census from clinical directors and workforce leads of departments.

Shrinking workforce in radiology

The overall increase in numbers of consultant radiologists has not been experienced across the UK. On the contrary, there has been a decrease of up to 7% in WTEs per 100,000 people in eight of the 14 regions/countries. This is an obvious concern given the ever-increasing demands made on radiology departments to deliver diagnostic services. This concern may be further compounded in the long-term by retirement rates amongst radiologists. In some UK regions/countries it is estimated that up to 20% of the consultant workforce will retire by 2019 and 53% by 2029. Another consideration that could reduce the WTE (although not necessary the headcount) figure is less than full-time (LTFT) working. There are signs that LTFT working is increasing among radiologists and this increase could possibly continue in the future. Nearly one-quarter of all consultant radiologists already work LTFT.

Difficulties in recruiting radiologists

Radiology departments in the UK face considerable difficulties in recruiting consultant radiologists. The census found that over 41% of unfilled consultant posts were advertised but failed to appoint. The reasons given for failures to appoint to posts include that there were no suitable candidates being identified for interview or appointment, or there were no candidates applying in the first place. Of all substantive consultant radiologist posts in the UK, 12% were vacant (on 31 March 2014), and in some regions the rate was as high as 17%. This is made worse by the fact that many of these posts have remained unfilled for considerable periods of time. Nearly 50% of all vacancies have been unfilled for eight months or more, and 40% for more than a year.

Spending by radiology departments on outsourcing

A consequence of the workload not being met by NHS radiology departments, given the staffing resources available, is outsourcing of work to commercial organisations. Work that is outsourced includes the reporting of images and scans. Outsourcing helps towards radiology departments meeting the demands made on them. Based on data collected through the census, it is projected that total spending on outsourcing, during 2013–14 across the UK was approximately £58 million. This projection is equivalent to the combined annual salaries of around 685 full-time NHS consultants.

Additional work by radiologists

Six-in-ten departments relied partly on the goodwill of their radiologists to provide additional, unpaid reporting of images to meet workload demands. This additional work is often not adequately reflected in figures on workforce and workload. Also, WTE figures are calculated according to the NHS convention of excluding programmed activities (PAs) that exceed ten PAs. However, most consultant radiologists work in excess of ten PAs. The sum of the excess worked by all radiologists nationally, as recorded by the census, is equivalent to an additional 230 WTE consultants.

2. Background and methodology

Background

The RCR first carried out a workforce census in 2008 and has repeated the exercise ever since. The intention is to capture data relating primarily to the radiology workforce in the UK. More recently, including for 2014, the census has introduced new questions relating to departmental workload. This was seen to be necessary as workforce planning is only effective when the process considers both the supply (number of radiologists) and demand (represented by workload) elements.

The College recognises the importance of effective workforce planning. We therefore aim to collect accurate data on the composition of and demands made on the UK radiology workforce. The intention is that the College and stakeholder organisations use this data when contributing to the planning of the NHS workforce. This is an important consideration as radiologists perform a vital role in using their expertise to diagnose and treat serious diseases including cancer.

The census also intends to establish trend data relating to workforce and workload issues in radiology. A response rate of 100% since 2010 (with the exception of 2013 when a census was not carried out) has greatly helped in this endeavour. Where deemed appropriate, this report includes data from previous censuses, mainly 2010 and 2012, to allow for comparisons to be made with the 2014 data.

Methodology

Census questions
The 2014 census captured information in two related domains, workforce and workload.

- Workforce – information was collected on all consultant clinical radiologists in substantive posts, including their demographic details, work roles, professional activities and subspecialty interests. Information on unfilled posts in radiology departments was also collected.
- Workload – information was collected on whether radiology departments met their reporting requirements, the extent of out-of-hours (including night and weekend) radiology and time spent by consultant radiologists preparing for and attending multidisciplinary team (MDT) meetings with other health professionals to discuss patient cases. A consequence of workload not being met in radiology departments, given the resources available, is outsourcing of work, including the reporting of images and scans, to commercial organisations. Expenditure on outsourcing has therefore been collected through the census.

The census questions used can be found in Appendix 1.

Collection of data
The data collection process was through a secure website. Respondents – clinical directors and workforce leads of radiology departments – were emailed a link and asked to provide data to reflect their workforce at the census date of 31 March 2014. Information on departmental activity and spending was sought based on the date range 1 April 2013 to 31 March 2014.

Reporting of data
The data collected were verified against that collected from previous censuses and the College membership database. Where discrepancies and outliers were identified clarification was sought from respondents.

All data are reported as headcount, unless otherwise stated. Where WTE is used, the calculation conforms to the current NHS convention of excluding PAs that exceeding ten.

Census completion and response rate
All 208 radiology departments in the UK completed the 2014 census – a 100% response rate.

Table 1. Census completion 2008 to 2014

Census year	Census date	Response rate
2008 (pilot)	1 July 2008	79%
2009	1 October 2009	87%
2010	1 October 2010	100%
2011	31 December 2011	100%
2012	31 December 2012	100%
2013*	–	–
2014	31 March 2014	100%

*2013 – It was decided to postpone the end of year census until 31 March 2014 to allow departments to tie-in the data collection process with their data returns to trusts and health boards.

3. UK radiology workforce – overview

Consultant and trainee workforce – headcount

As of 31 March 2014, the number of consultant radiologists in a substantive post in the UK was 3,239. This was an increase of 2% on 2012 and 13% on 2010 figures. The number of trainee radiologists in training schemes on this date was 1,035, an increase of just under 2% on both the 2012 and 2010 figures.

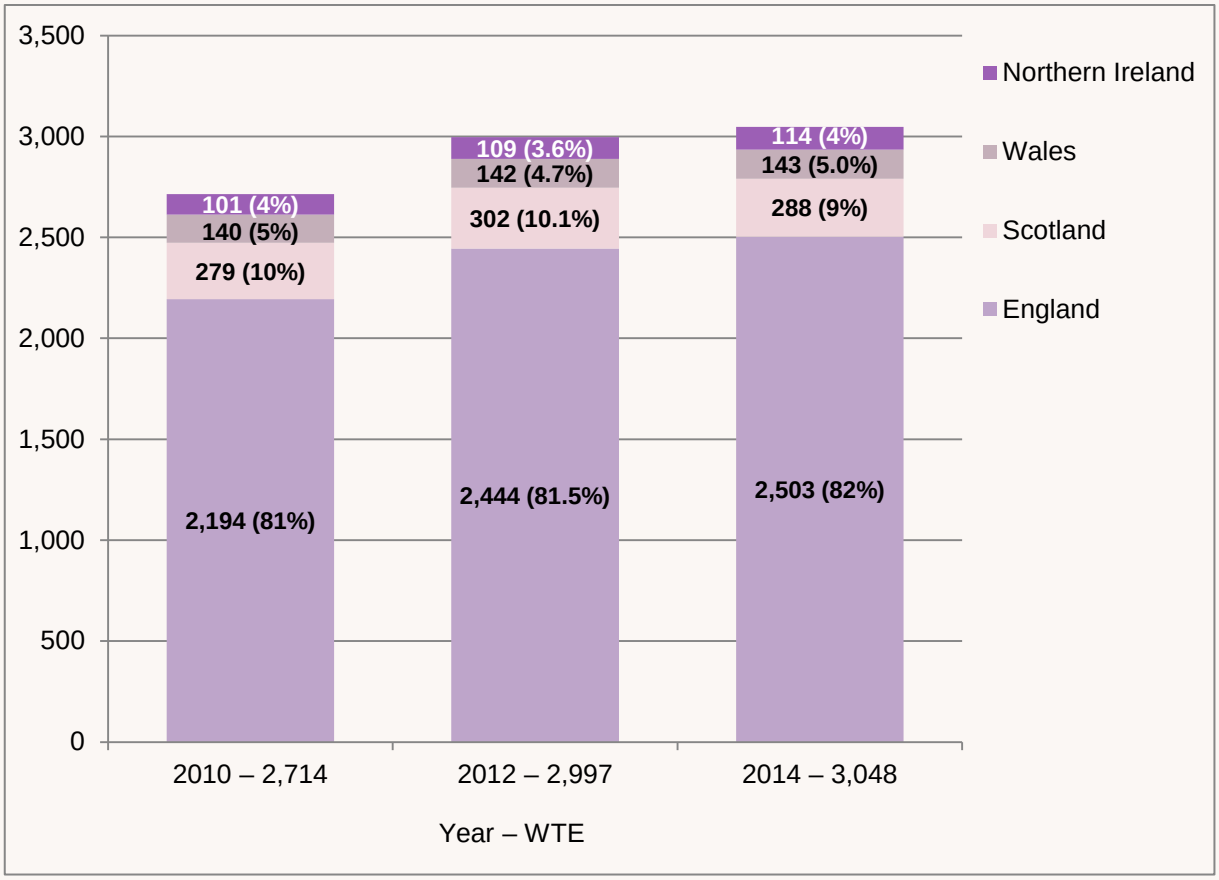
Table 2. Consultant and trainee headcount by UK country, 2014

	England	Northern Ireland	Scotland	Wales	UK total
Consultants	2,663	119	307	150	3,239
Trainees	883	34	92	26	1,035

Consultant workforce – whole-time equivalent

There were 3,048 WTE consultant radiologists employed in substantive posts in the UK. Figure 1 provides a breakdown by UK country for 2010 to 2014. The proportion of WTE consultants in each country has not changed significantly since 2012. The UK population ratio (England, 84%; Northern Ireland, 3%; Scotland, 8%; and Wales, 5%) more or less matches the proportion of WTE consultants in each of the four countries.

Figure 1. Number of WTE consultants in UK countries, 2014



There has been a 1.7% increase since 2012 in the number of WTE consultants in the UK. However, not all countries and regions experienced this increase. Of particular concern is a 5% decrease in Scotland between 2012 and 2014, and smaller decreases in the East Midlands, South East and Yorkshire and Humber regions.

Table 3. Consultant WTEs by UK region, 2010–2014

	2010 WTEs	2012 WTEs	2014 WTEs
England – East Midlands	139	166	163
England – East	210	222	225
England – London	435	466	496
England – North East	102	122	130
England – North West	328	354	359
England – South Central	161	183	199
England – South East	120	160	156
England – South West	228	260	263
England – West Midlands	233	251	261
England – Yorks and Humber	239	259	251
Northern Ireland	101	109	114
Scotland	279	302	288
Wales	140	142	143
UK total	**2,714**	**2,997**	**3,048**

Consultant workforce – uncapped WTE data

Where WTE data are shown, the calculation conforms to the current NHS convention of excluding programmed activities (PAs) that exceed ten PAs. The conventional WTE consultant radiologist figure for the UK in 2014 is 3,048, however, many consultants work in excess of ten PAs and if this were taken into account the uncapped WTE figure for 2014 would be 3,278 (up from 3,247 in 2012). The overall 'excess' that is worked (that is, the difference between the conventional and uncapped WTE figures) is equivalent to an additional 230 WTE consultants.

Figure 2. WTE consultant clinical radiologists – uncapped comparison

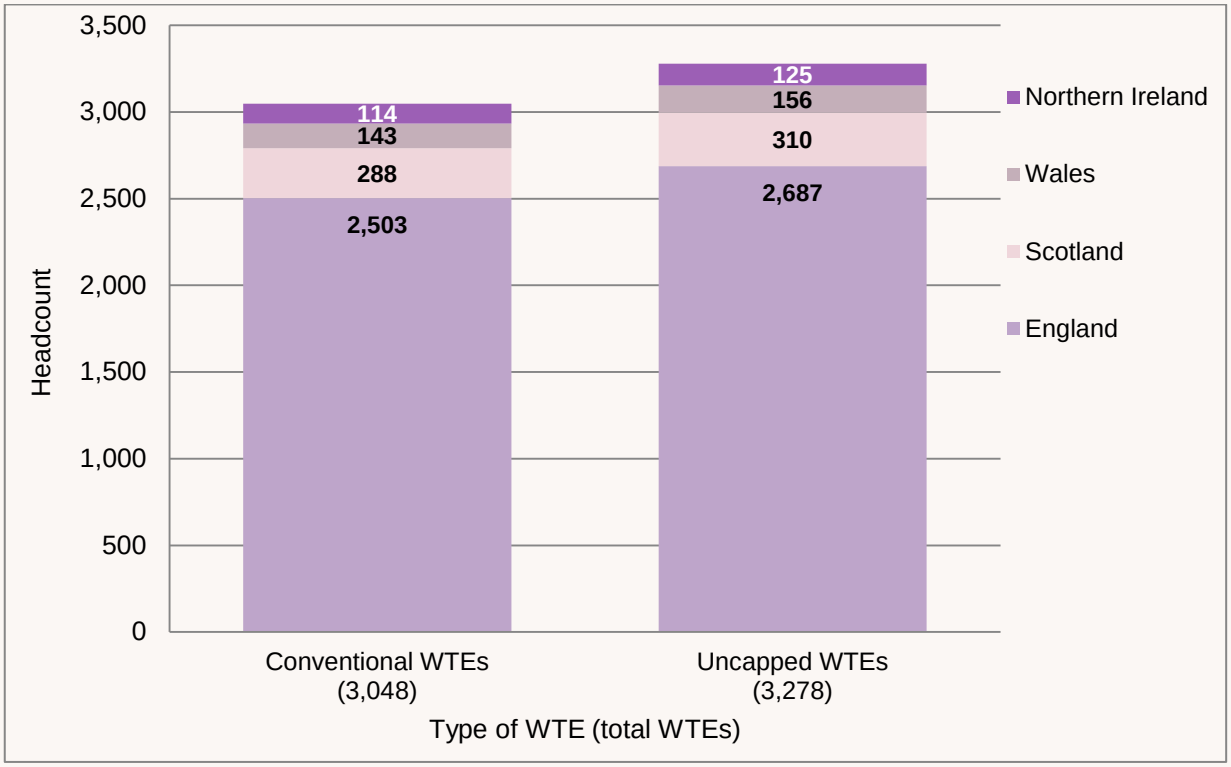


Table 4. Excess WTEs worked by consultant radiologists in UK regions and countries, 2014

Country/region	Conventional WTEs	Uncapped WTEs	Excess WTEs worked
England – East Midlands	163	176	13
England – East of England	225	249	24
England – London	496	514	18
England – North East	130	143	13
England – North West	359	390	31
England – South Central	199	213	14
England – South East	156	166	10
England – South West	263	281	18
England – West Midlands	261	281	20
England – Yorks and Humber	251	274	23
Northern Ireland	114	125	11
Scotland	288	310	22
Wales	143	156	13
UK total	**3,048**	**3,278**	**230**

WTE consultant radiologists per 100,000 people

Population size can be used as an indicator of health service needs. Table 5 provides a list of countries/regions in order of the most WTE consultants per 100,000 people. There is quite a variance, with Northern Ireland having the highest number at 6.2, and the East Midlands and South East the lowest at 3.5. The overall number for the UK was 4.8 per 100,000 people.

Table 5. WTE consultants per 100,000 by UK country/region, 2014 (and 2012 for comparison)[2]

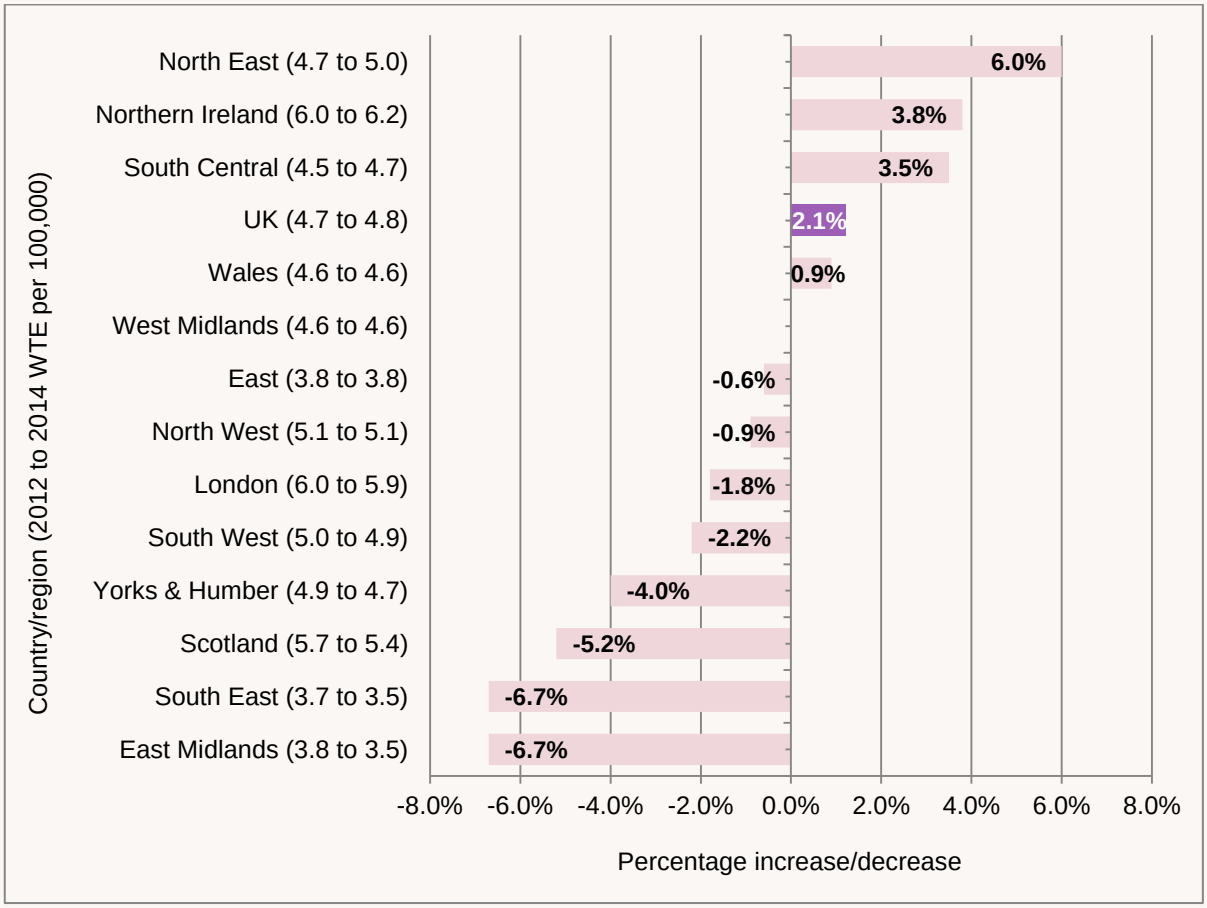
Country/region	WTEs	Population[a]	WTEs per 100,000 (2014)	WTEs per 100,000 (2012)
Northern Ireland	114	1,829,725	6.2	6.0
England – London	496	8,416,535	5.9	6.0
Scotland	288	5,327,700	5.4	5.7
England – North West	359	7,103,260	5.1	5.1
England – North East	130	2,610,481	5.0	4.7
England – South West	263	5,377,595	4.9	5.0
England – Yorks & Humber	251	5,337,710	4.7	4.9
England – South Central[b]	199	4,273,216	4.7	4.5
Wales	143	3,082,412	4.6	4.6
England – West Midlands	261	5,674,712	4.6	4.6
England – East	225	5,954,169	3.8	3.8
England – East Midlands	163	4,598,729	3.5	3.8
England – South East[b]	156	4,519,410	3.5	3.7
UK total	**3,048**	**64,105,654**	**4.8**	**4.7**

a. Calculations based on the Office of National Statistics (ONS) population dataset for 2013.[2]

b. South East (ONS region) covers both South Central and South East in the census report. South East (ONS region) =8,792,626; South Central (census region) =48.6%, South East (census region) =51.4%.

The overall UK figure of 4.8 WTE consultant radiologists per 100,000 people in 2014 is a slight increase (2%) from the 2012 figure of 4.7. However, eight regions/countries experienced a decrease with the East Midlands and South East faring the worst (a near 7% decrease in both). It must be noted that the calculation for 2014 is based on the 2013 Office of National Statistics (ONS) population dataset (2014 ONS data is due to be released in July 2015), and therefore a decrease in WTE consultants per 100,000 people is probable due to a rise in population figures.[2]

Figure 3. Percentage increase/decrease in WTE consultants per 100,000 population 2012–2014

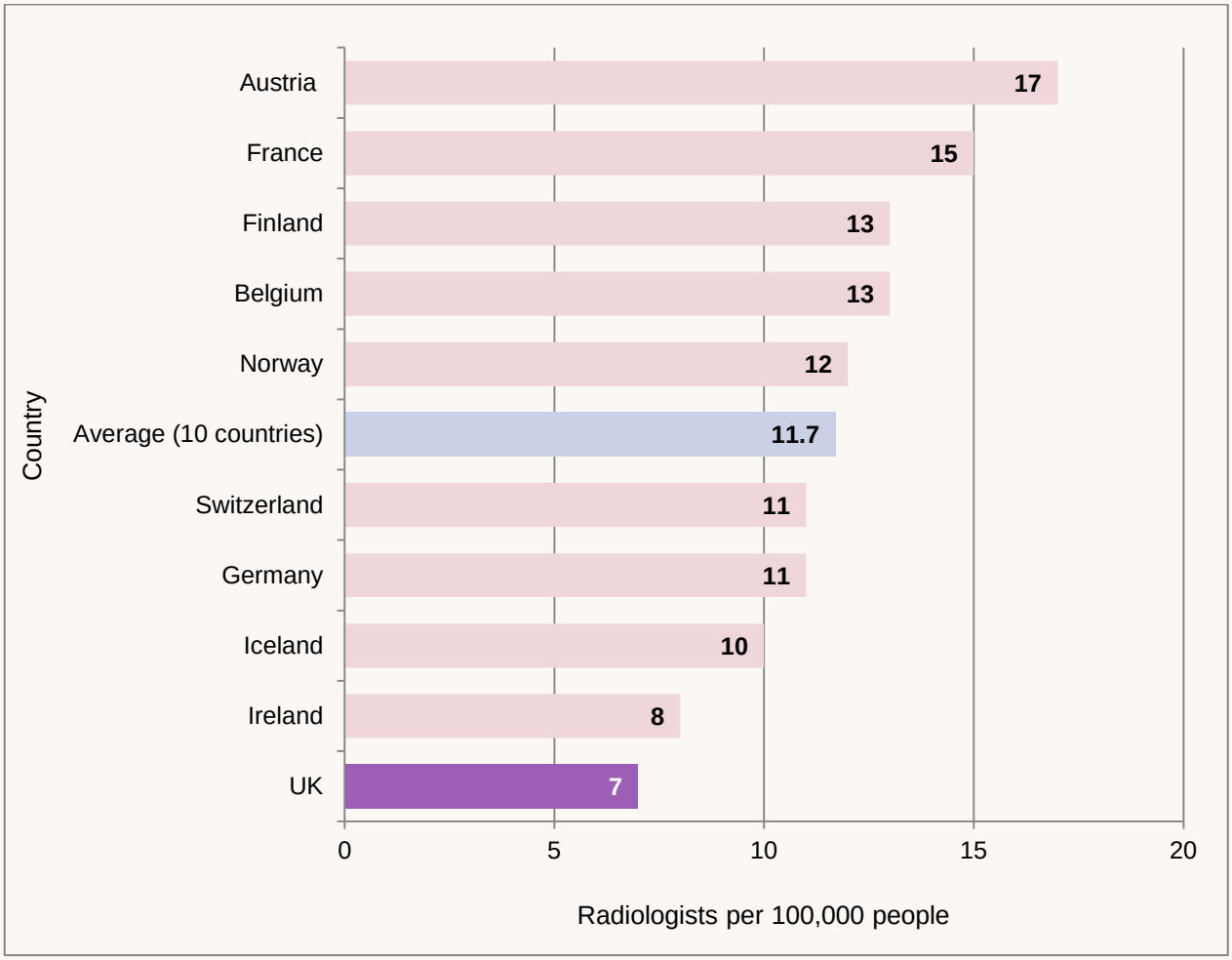


In most regions, the workforce is contracting in terms of the number of WTE consultant radiologists per 100,000 people. England, as a whole, saw a 2.1% decrease from 4.7 per 100,000 in 2012 to 4.6 in 2014. In Scotland, there was a 5.2% decrease from 5.7 to 5.4.

Comparison with European countries

When both trainee and consultant headcounts for 2014 are taken together, there were 4,274 radiologists, or 6.7 per 100,000 people in the UK. This corresponds approximately with the seven per 100,000 figure reported by the European Commission (the latest data available is for 2011–12 which takes into account all grades of radiologists and those working in the private sector).[3] Along with Turkey and Macedonia, the UK has the lowest number of radiologists per 100,000 of its population in Europe, and is some way behind the mean figure of 11.7 for western European countries where the number of radiologists is known at a national level (see Figure 4).

Figure 4. Radiologists per 100,000 people in western European countries (2011-2012)[3]



4. UK radiology workforce – consultant grade

Type of consultants

Consultant radiologists in substantive posts include NHS consultants, those described as holding mixed NHS/academic posts (on NHS contracts) and those holding wholly academic posts (on university contracts). The 2014 headcount and WTE figures for these groups are shown in Table 6.

Table 6. Type of consultant

	NHS consultant	Mixed NHS/academic	Academic	UK total
Headcount	3,161	27	51	3,239
WTE	2,981	24	42	3,048

Demographic profile

Gender

There are 1.84 males to 1.00 females in the UK consultant radiologist workforce, which is a slight decrease from the 1.94:1.00 ratio in 2012. Approximately one-third of consultants are women, a proportion that has not changed significantly since the first census in 2008. However, 40% of trainees and 39% of consultants in the 35–39 age group are women, indicating a gradual process of change in the makeup of the workforce. This is illustrated in Figures 5 and 6.

Figure 5. Female and male split – UK consultant and trainee workforce, 2014 headcount

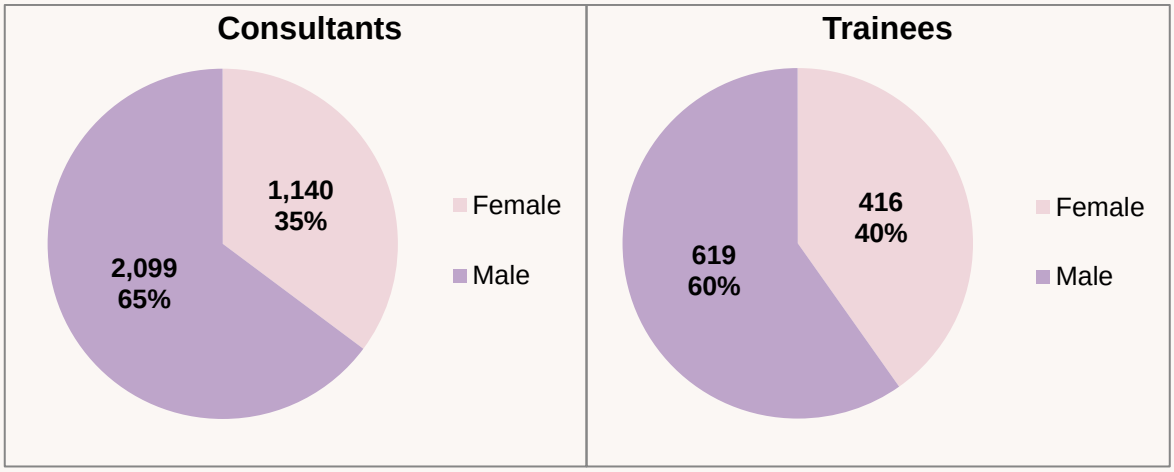
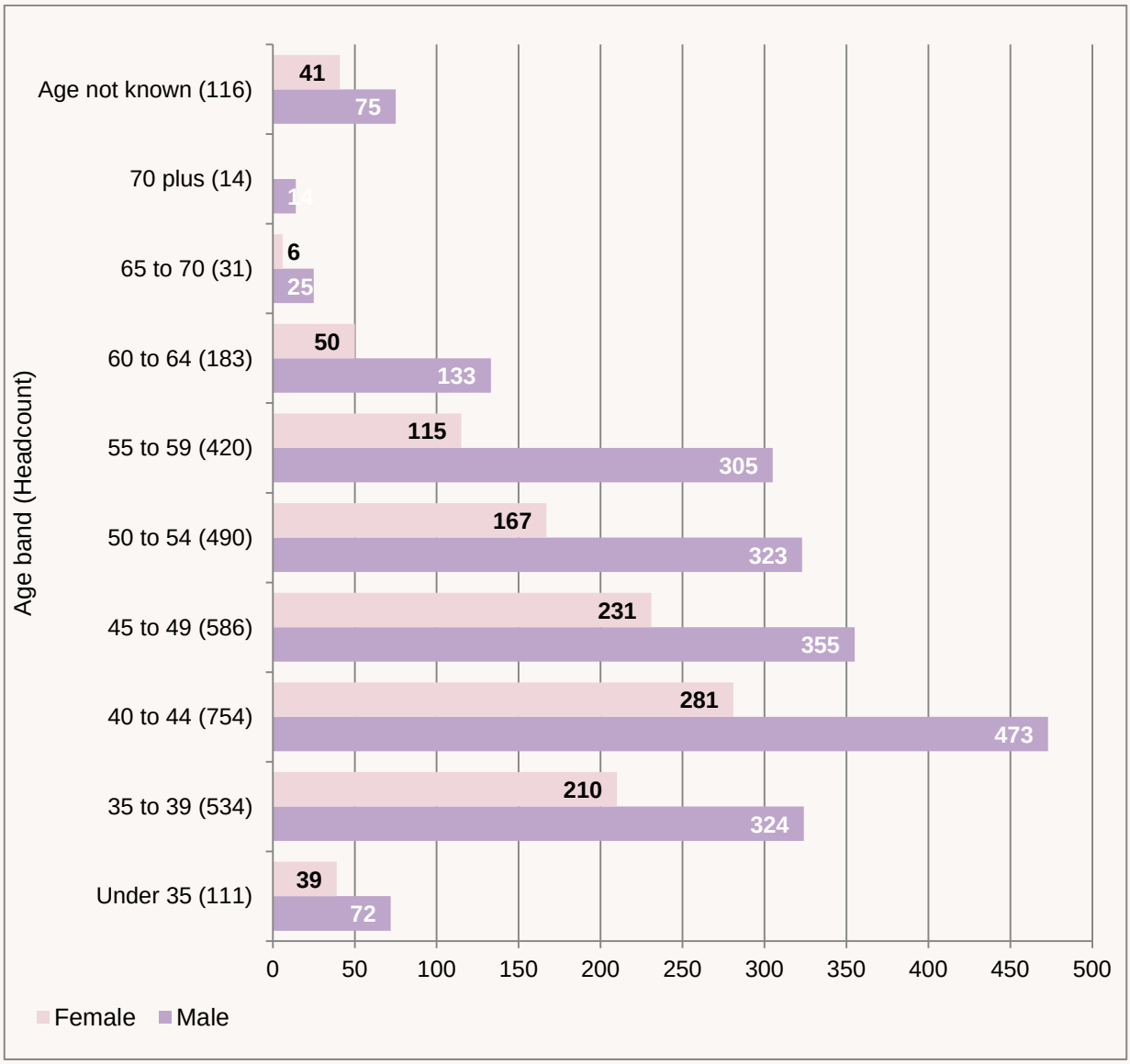


Figure 6. UK consultant workforce headcount by gender and age, 2014



Age

Table 7 shows the age profile of the consultant radiology workforce for 2012 and 2014. More than one-third of the workforce is aged 50 or over, and 7% are aged 60 or over. It is worth noting the fall in the number of consultants in the 35–39 age group, from 624 in 2012 to 534 in 2014, as it may impact on future replenishment of the workforce. Both the mean and median retirement age for consultant radiologists in 2014 was 62. Section 5 looks in more detail at the impact of retirement age on the future workforce.

Table 7. UK consultant workforce by age, 2012 and 2014

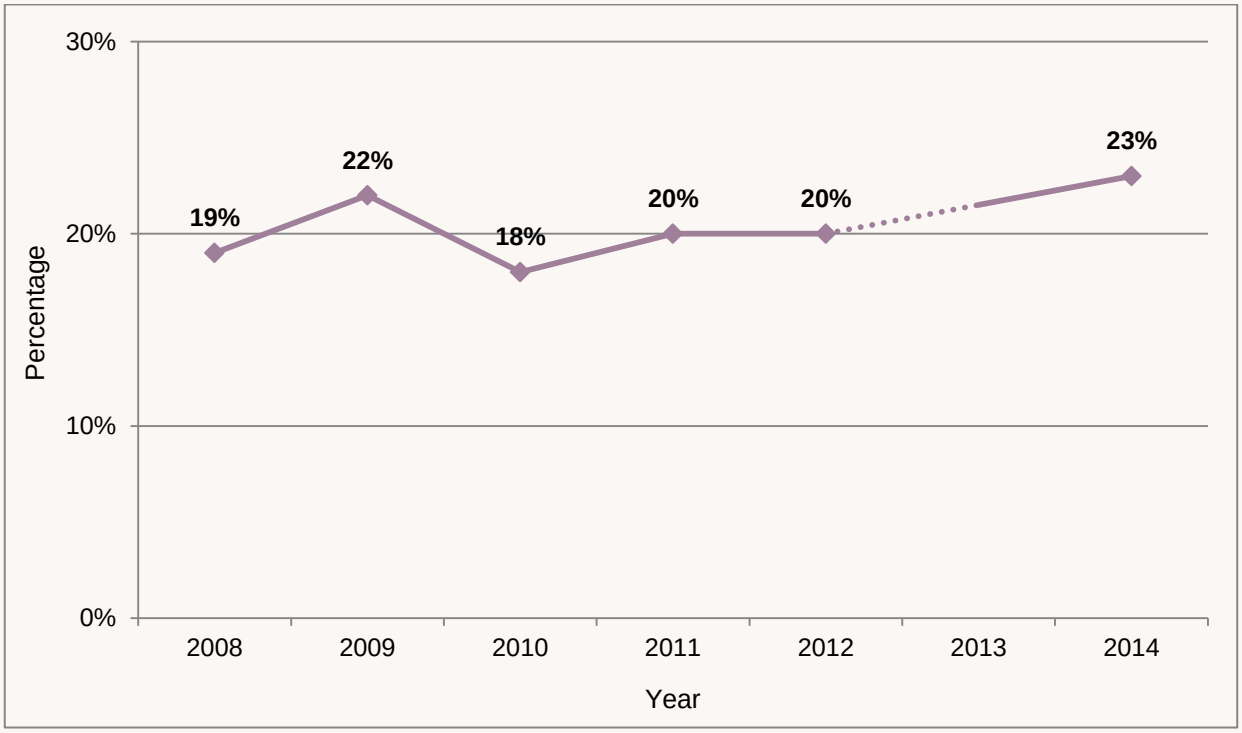
	2012		2014	
Age group	**Headcount**	**% of total**	**Headcount**	**% of total**
Under 35	109	3%	111	3%
35–39	624	20%	534	16%
40–44	678	21%	754	23%
45–49	555	17%	586	18%
50–54	498	16%	490	15%
55–59	413	13%	420	13%
60–64	166	5%	183	6%
65–70	33	1%	31	1%
70 plus	7	<1%	14	<1%
Not known	91	3%	116	4%
Total	**3,174**	**100%**	**3,239**	**100%**

More than one-in-three consultant radiologists currently in post is aged 50 or over. These people are expected to retire within the next 10 to 15 years, and this will impact on workforce numbers in the near future.

Less than full-time working

There were 737 consultant radiologists working LTFT in 2014, representing 23% of the total workforce. This is an increase from the 2012 figures of 635 working LTFT, or 20% of the total workforce.

Figure 7. Percentage of the UK consultant workforce working less than full-time, 2008 to 2014[a]



[a]2013 – It was decided to postpone the end of year census until 31 March 2014 to allow departments to tie-in the data collection process with their data returns to trusts and health boards.

Whether the 2012 to 2014 increase is part of a long-term upward trend is difficult to predict. Data from 2008 onwards shows the LTFT rate fluctuating between 18% and 23% of the workforce. However, when examining those working LTFT, women are much more likely than men to fall into this category, as shown in Figure 8. Of female consultants, 42% (476 out of 1,140) in 2014 worked LTFT compared to only 12% of male consultants (261 out of 2,099). As indicated earlier there is gradual process of change in the male:female makeup of the consultant workforce, .

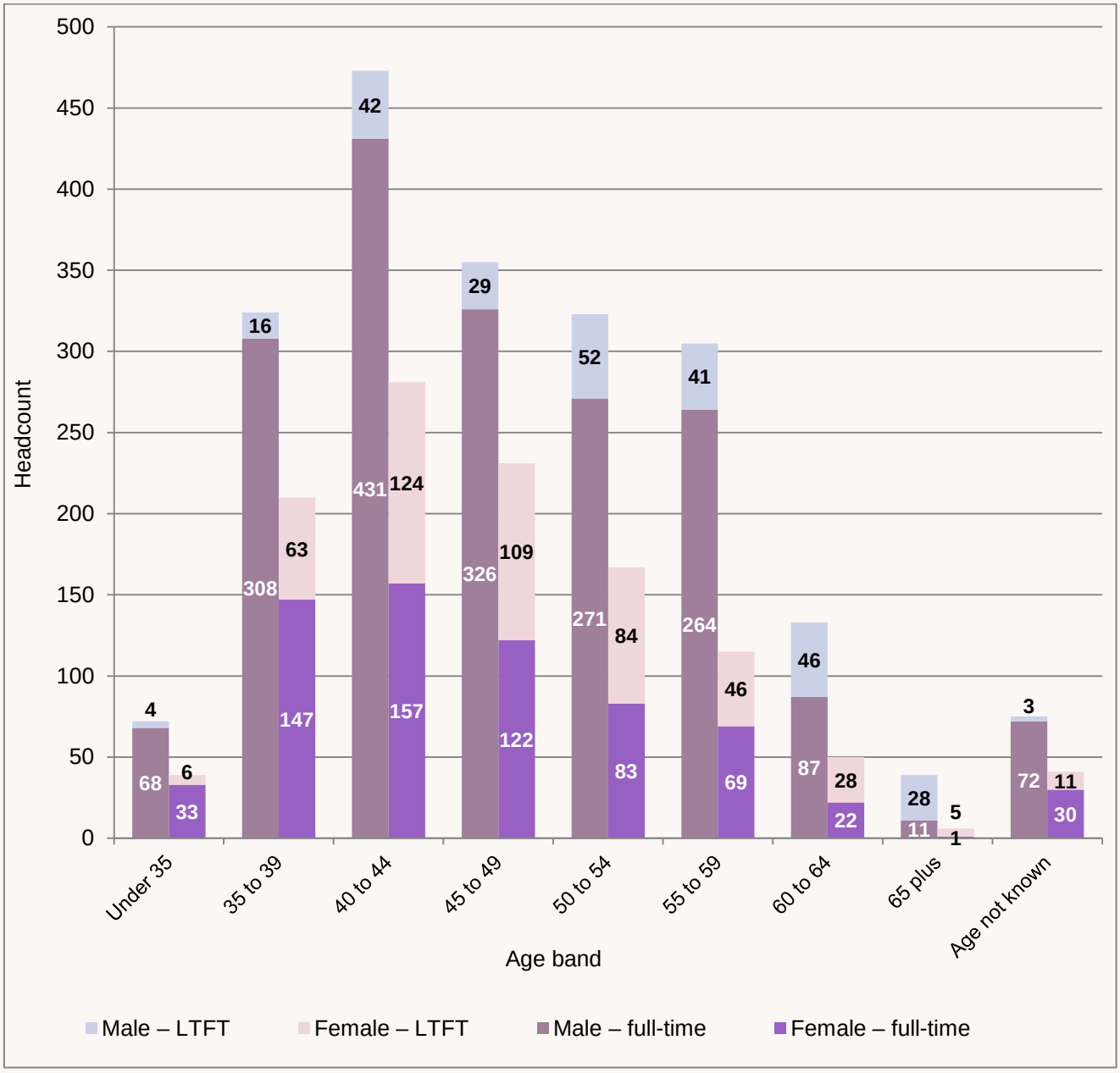
and therefore the extent of LTFT working could grow in the long term.

Table 8 also shows that as consultants get older there is an increased likelihood that they will work LTFT. Of consultants aged 60–64, 40% worked LTFT compared to only 9–15% of consultants in their 30s. The likelihood is even greater if they are female. The data show that 15–30% of female consultants in their 30s work LTFT compared to 56% in the 60–64 age group.

Table 8. Percentage of male and female consultants in each age group working full-time and LTFT, 2014

	Full-time		LTFT		UK overall	
Age group	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Under 35	94%	85%	6%	15%	65%	35%
35–39	28%	17%	72%	83%	87%	13%
40–44	65%	44%	35%	56%	73%	27%
45–49	87%	60%	13%	40%	73%	27%
50–54	84%	50%	16%	50%	66%	34%
55–59	92%	53%	8%	47%	61%	39%
60–64	91%	56%	9%	44%	63%	37%
65 plus	95%	70%	5%	30%	61%	39%
Age not known	96%	73%	4%	27%	65%	35%
UK overall	**88%**	**58%**	**12%**	**42%**	**65%**	**35%**

Figure 8. Headcount of female and male UK consultants in each age group – full-time and LTFT, 2014



With more women entering the consultant ranks the extent of LTFT is likely to grow based on analysis of recent data. This could reduce the overall WTE – although not the headcount – figure for consultant radiologists in the UK.

Programmed activities

The census collected data on the number of programmed activities (PAs) per consultant radiologist, subdivided into direct clinical care (DCC) and supporting professional activity (SPA) PAs. Consultants in all four UK countries have experienced a slight fall in the number of SPA PAs, bringing down the UK average from 2.28 in 2012 to 2.22 in 2014. On average, Welsh consultants, continued to have the most SPA PAs at 2.60.

Table 9. Average contracted SPAs by UK country (full-time NHS consultants only), 2010–2014

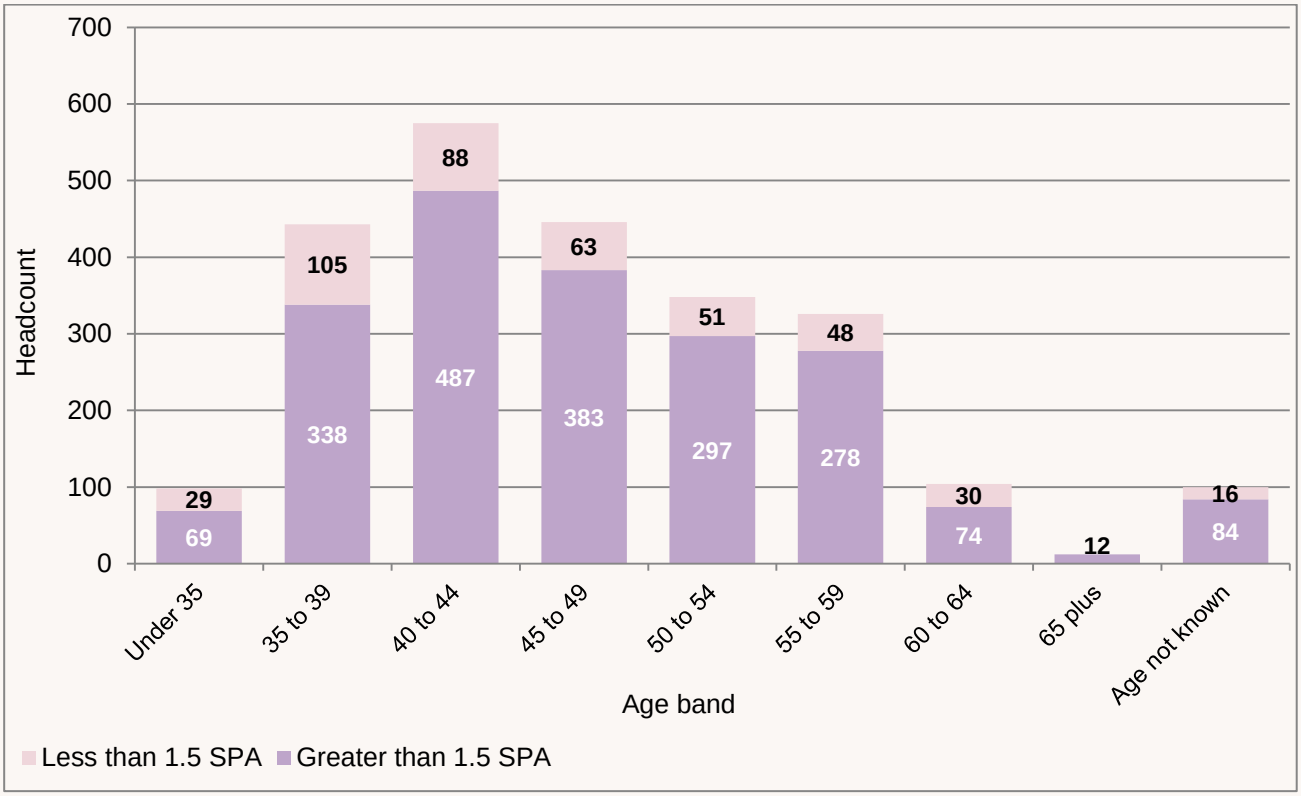
Country	2010	2012	2014
England	2.24	2.27	2.19
Northern Ireland	2.08	2.28	2.21
Scotland	2.31	2.29	2.27
Wales	2.51	2.63	2.60
UK total	**2.25**	**2.28**	**2.22**

Of the 2,452 full-time NHS consultants in radiology, 430 (18%) have 1.5 SPAs or less in their job plans. Thirty percent of consultants under the age of 35 and 24% in the age group 35–39 are reported as having 1.5 SPA or less in their job plans, compared to around 15% of consultants in the age groups 40–59. See Figure 9.

These figures should be considered along with the guidance on job planning from the RCR.[4]

The College considers 1.5 SPA as the minimum to enable a consultant to provide evidence for enhanced appraisal and revalidation. This would not allow time for other SPA work such as teaching, training, research, service development, clinical governance and contribution to management. As such, for professional development of consultant radiologists in the NHS, 2.5 SPAs are important for activities not related to direct patient care.

Figure 9. Number of full-time NHS consultant radiologists in each age group with 1.5 SPA or less, 2014



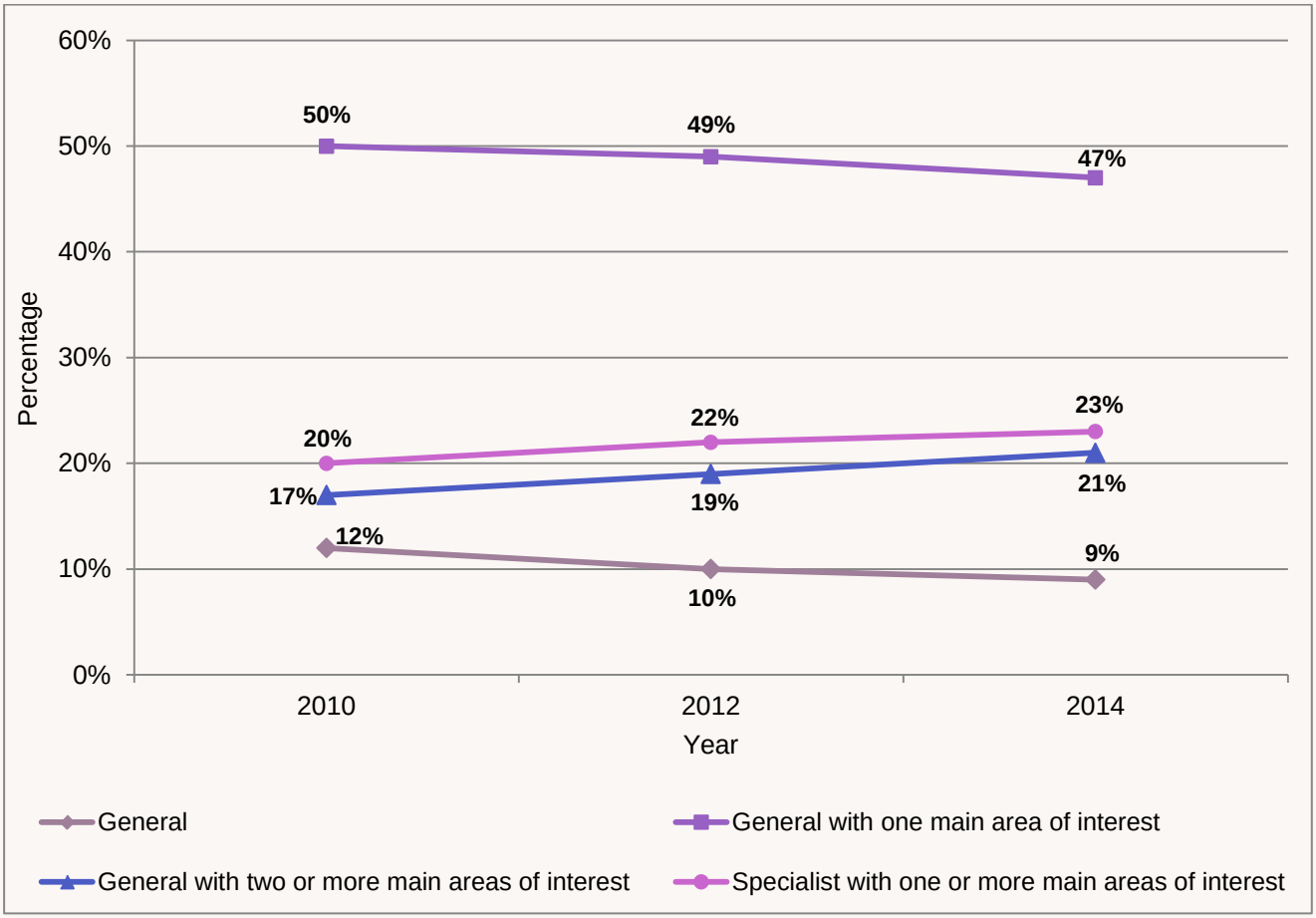
Many consultant radiologists have 1.5 SPAs or less in their job plans. This makes it difficult to contribute to departmental activities such as training, clinical governance and management and development of services.

Type of radiologist – generalists and specialists

Clinical directors and workforce leads were asked to categorise each radiologist they reported through the census according to whether they were generalists or specialists, with or without one or more areas of specialty interest. For 2014, the largest category was 'general with one main area of specialty interest', accounting for 47% of the 3,239 consultants in the UK. However, this is a fall from the 50% and 49% reported in the 2010 and 2012 census. There was also a decrease in the proportion of radiologists categorised as 'general' over the same time period.

Compensating for these decreases was a 2–4% increase, as a proportion of the UK workforce, of consultants categorised as 'general with two or more main areas of specialty interest'. The proportion of 'specialists' (with one or more main areas of interest) has also gone up from 20% in 2010 to 23% in 2014. These trends point to a shift away from general to more specialised forms of practice undertaken by consultant radiologists in the UK.

Figure 10. Type of radiologists (general and specialist*) as a proportion of the UK consultant workforce, 2010 to 2014



*Specialist – for the 2014 census, data was collected across two categories, 'specialist with one main area of interest' and 'specialist with two or more main areas of interest'

Free-text comments collected through the census highlight the problem of recruiting generalists, especially to work in non-teaching hospitals. The problem is likely to continue if the proportion of generalists in the consultant radiology workforce continues to fall.

Type of radiologist – by country

The proportion of generalists and specialists is not evenly distributed across the four UK countries. The 2014 census shows that there was a greater proportion of specialist radiologists in England, and a greater proportion of general radiologists with one area of specialty interest in Scotland and Wales. See Table 10.

Table 10. Type of radiologists (generalist and specialist) by UK country, 2014

Type of radiologist		England	Northern Ireland	Scotland	Wales	UK total
General	Count	214	14	49	8	285
	% of total	8%	12%	16%	5%	9%
General with one area of specialty interest	Count	1,235	44	153	76	1,508
	% of total	46%	37%	50%	50%	47%
General with two or more main areas of specialty interest	Count	545	39	54	51	689
	% of total	20%	33%	18%	34%	21%
Specialist with one main area of interest	Count	628	22	48	15	713
	% of total	24%	18%	16%	10%	22%
Specialist with two or more main area of interests	Count	40	0	3	1	44
	% of total	2%	0%	1%	1%	1%
Total	Count	2,662	119	307	151	3,239

Nearly all consultant radiologists now have at least one main area of specialty interest. This reflects the need for specialist radiology review of imaging and input in team meetings with other hospital specialists when managing patient cases.

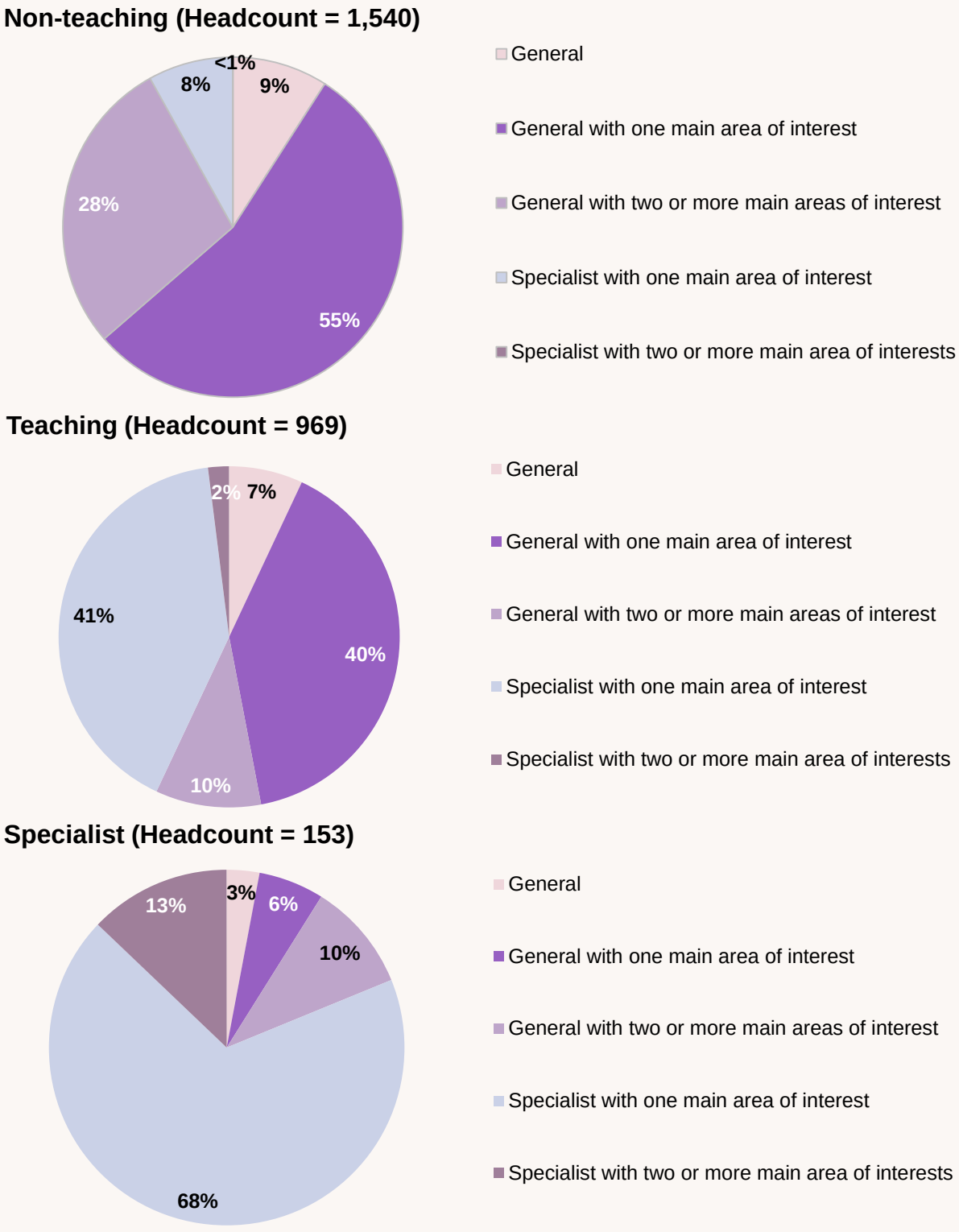
Types of hospitals in which consultant radiologists work (England)

Non-teaching hospitals: The number of generalists (including those with one main area of specialty interest) working in non-teaching hospitals has decreased from 1,030 in 2012 to 981 in 2014. Overall, the total number of consultant radiologists working in these hospitals has fallen by five to 1,540 during this period.

Teaching hospitals: The total number of consultants in these hospitals has increased from 928 in 2012 to 969 in 2014. This can be attributed in the main to an increase in the number of generalists with two or more areas of specialty interest and specialist radiologists working in these hospitals.

Specialist hospitals: Unsurprisingly, specialists are very much more likely to work in teaching and specialist hospitals. Only 8% of specialists (with one or more main areas of interests) work in non-teaching establishments compared to 43% in teaching and 81% in specialist hospitals.

Figure 11. Composition of hospitals by general and specialist radiologists, 2014 (England)



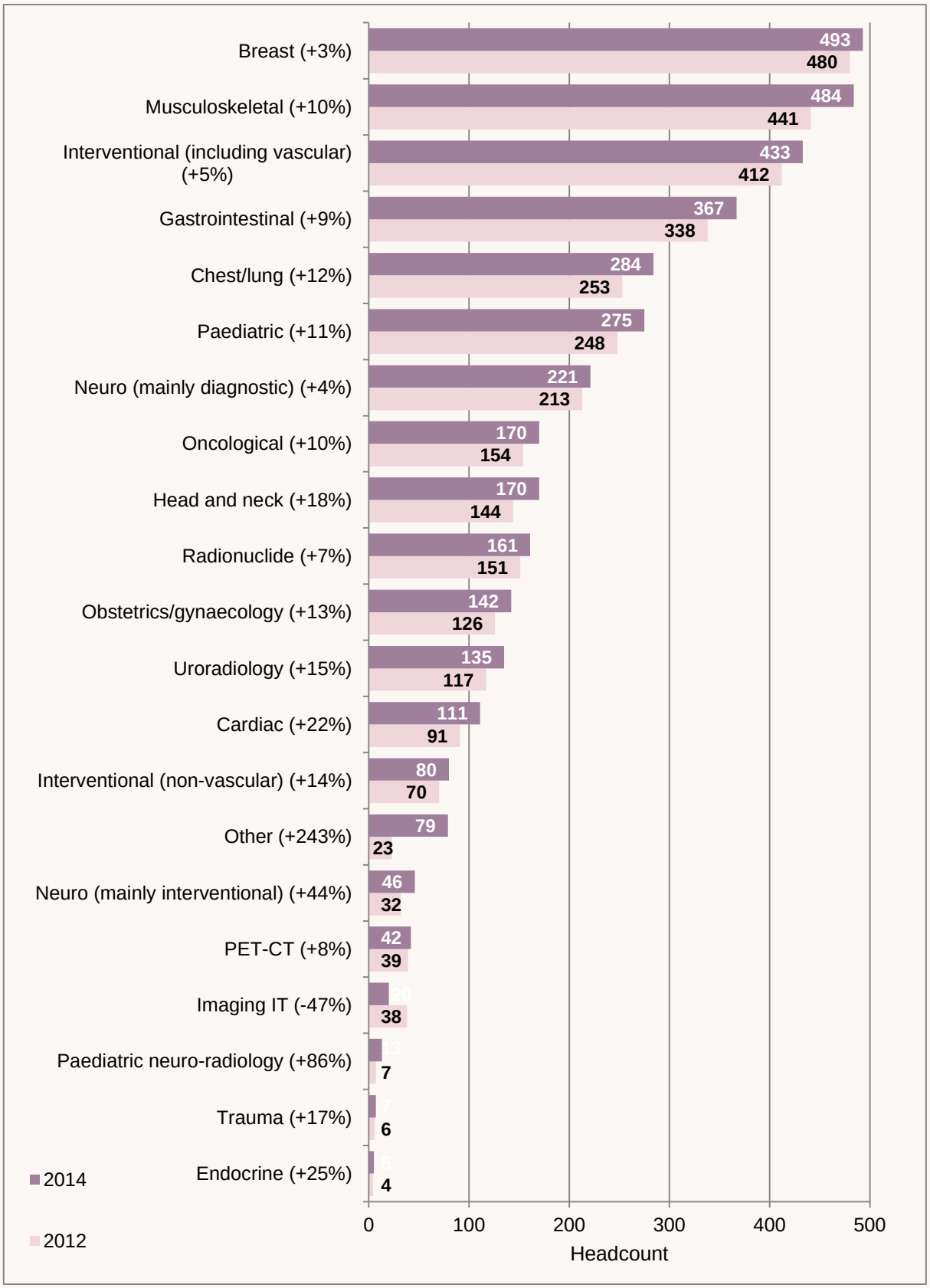
Consultant subspecialties

Information on the specific areas of subspecialty interests is collected through the census. The census allows for more than one subspecialty or interest to be entered against each consultant. The findings are shown in Table 11. The total sum of responses (3,738) reported against these subspecialty interest areas exceeds the total number of consultants in the UK (3,239). This is because consultant job plans may encompass more than one subspecialty interest. Therefore, it should not be interpreted that there are 493 consultants solely specialising in breast radiology, rather there are 493 consultants whose job plan includes breast radiology.

Table 11. Consultant subspecialty interests (multi-response) by UK country, 2014

	England	Northern Ireland	Scotland	Wales	UK overall
Breast	401	16	55	21	493
Cardiac	98	4	5	4	111
Chest/lung	234	7	29	14	284
Endocrine	4	0	1	0	5
Gastrointestinal	297	11	31	28	367
Head and neck	132	5	17	16	170
Imaging IT	17	1	2	0	20
Interventional (including vascular)	357	11	42	23	433
Interventional (non-vascular)	70	4	5	1	80
Musculoskeletal	407	17	30	30	484
Neuro-radiology (mainly diagnostic)	170	17	26	8	221
Neuro-radiology (mainly interventional)	40	1	3	2	46
Obstetrics/gynaecology	120	4	9	9	142
Oncological	147	7	6	10	170
Paediatric neuro-radiology	12	0	0	1	13
Paediatric	228	13	23	11	275
Positron emission tomography–computed tomography (PET-CT)	31	5	4	2	42
Radionuclide	129	11	12	9	161
Trauma	5	1	0	1	7
Uroradiology	113	4	9	9	135
Other	62	7	8	2	79

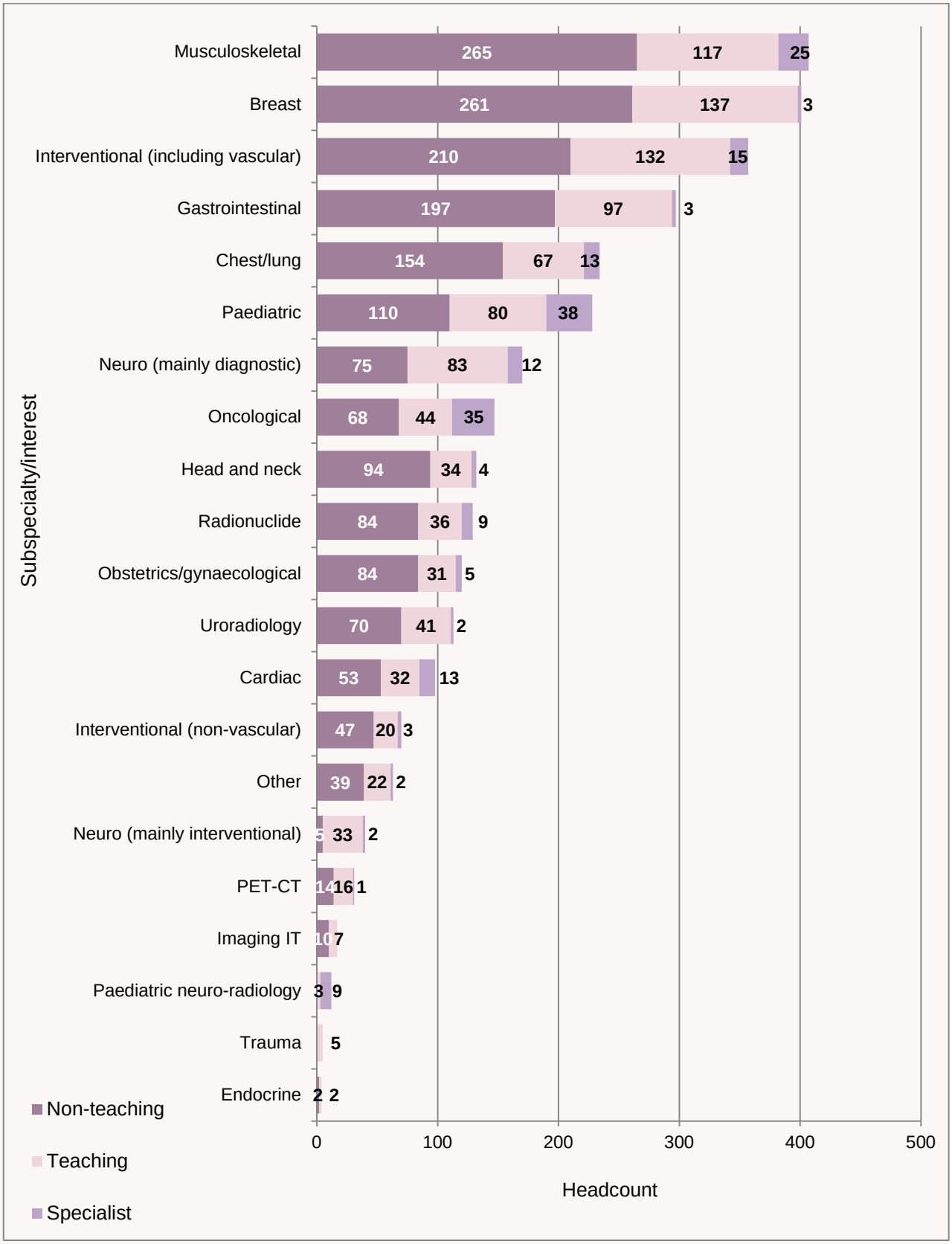
Figure 12. UK Consultant subspecialties/interests, 2012 and 2014



The number of consultants with an interest in breast radiology, musculoskeletal and interventional radiology (IR) (including vascular) has increased, however, these increases tended to be in England only. The number of breast and IR (including vascular) radiologists in Northern Ireland, Scotland and Wales has largely remained static over the past two years.

Figure 13 shows the subspecialty interest areas held by consultant radiologists split across non-teaching, teaching and specialist hospitals in England. In comparison with the 2012 census, there has been a slight decrease in the number of breast and IR (including vascular) radiologists working in small non-teaching hospitals and an increase working in the larger non-teaching and teaching hospitals.

Figure 13. Number of consultant subspecialties/interests in non-teaching, teaching and specialist hospitals, England 2014

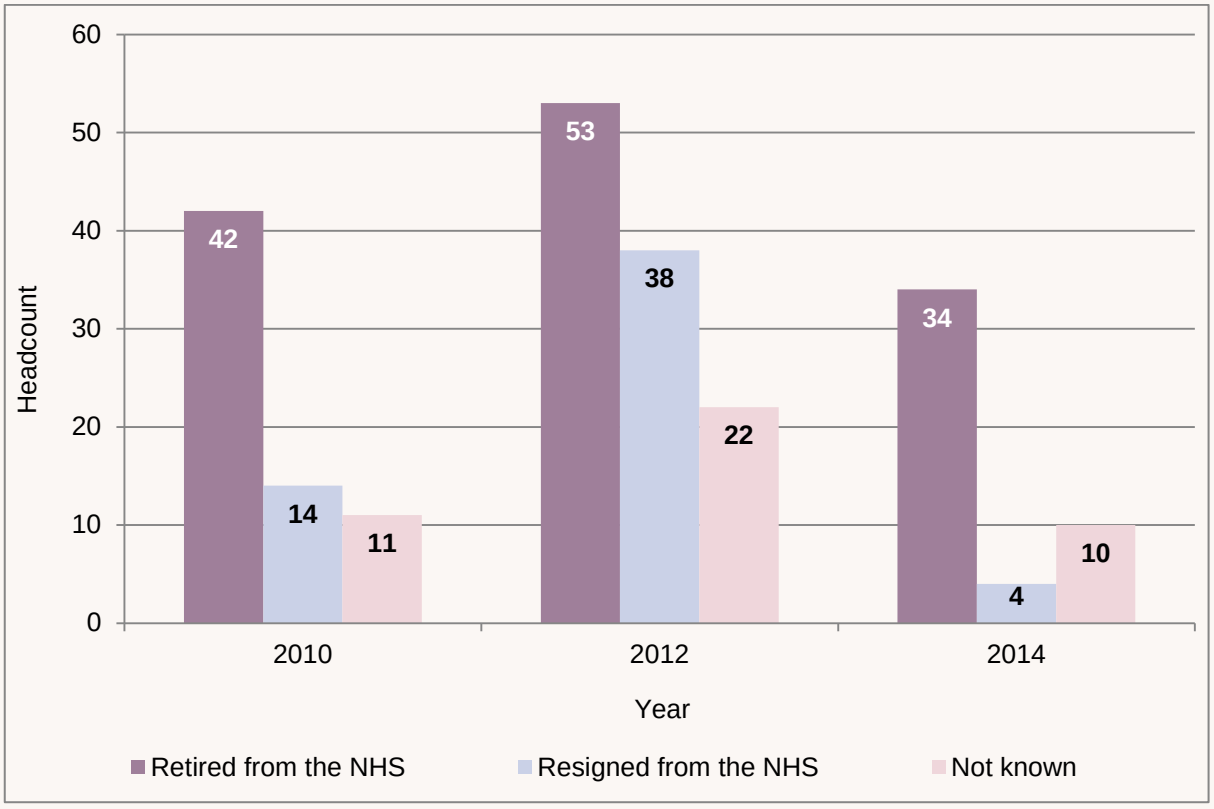


5. UK consultant workforce attrition

Consultants leaving the radiology workforce

The census identified 48 consultants that left the UK radiology workforce during the period 1 April 2013 to 31 March 2014. This is a 58% decrease on the 113 consultants who left during the 2012 census year. The decrease can be attributed, in the main, to substantially fewer consultants resigning and, to a lesser extent, retiring from the NHS

Figure 14. Total number of consultants leaving the UK radiology workforce and reasons given, 2010 to 2014



The 48 individuals who left during 2013–14 made up 1.5% of the UK consultant workforce. However, when examined at the country level, for Northern Ireland, Scotland and Wales those leaving represented in excess of 3% of the total workforce.

Table 12. Consultant workforce attrition by UK country 2014

Country	Consultants leaving – headcount	% of consultant workforce
England	29	1.1%
Northern Ireland	4	3.4%
Scotland	10	3.3%
Wales	5	3.3%
UK total	**48**	**1.5%**

The subspecialty interests of those consultants leaving the workforce are listed in Table 13, with the highest counts being for interventional (including vascular), breast and neuro-radiology.

Table 13. Primary and secondary specialty interest(s) of consultants leaving the NHS

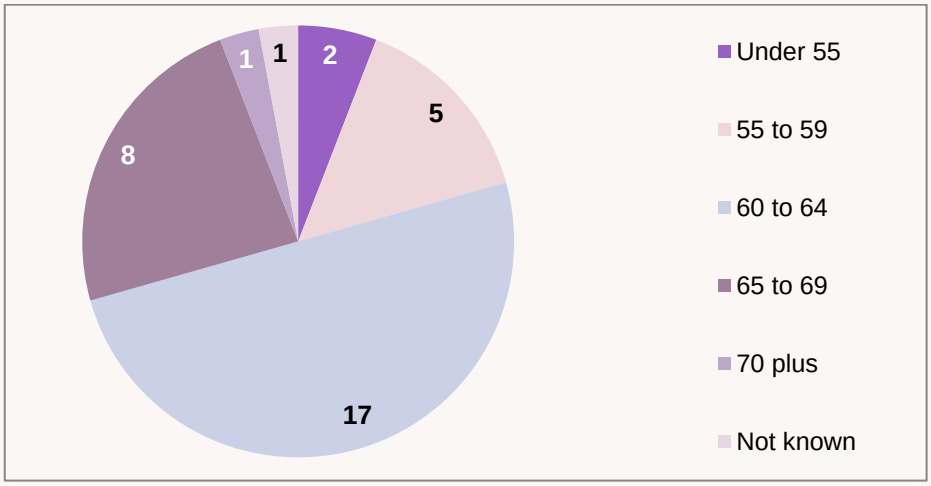
Specialty interest	Count
Interventional (including vascular)	11
Breast	8
Neuroradiology (mainly diagnostic)	8
General	5
Paediatric	3
Gastrointestinal	3
Musculoskeletal	3
Head and neck	2
Obstetrics/gynaecology	2
Chest/lung	2
Radionuclide	2
Cardiac	1
Imaging IT	1
Oncological	1
Uroradiology	1

Retirement

The following presents information on consultant radiologists retiring from the workforce during 2013–14 and estimated retirement rates for the next five, ten and 15 years.

Retirements during 2013–14
The main reason for leaving the workforce is retirement. For seven-in-ten consultants leaving the workforce during 2013–14, the reason was retirement, compared to one-in-two reported in the 2012 census. Most retired in their 60s, although the youngest was 41 and the oldest 73. Both the mean and median ages for retirement were 62.

Figure 15. Age and number of UK consultant radiologists retiring during 2013-14



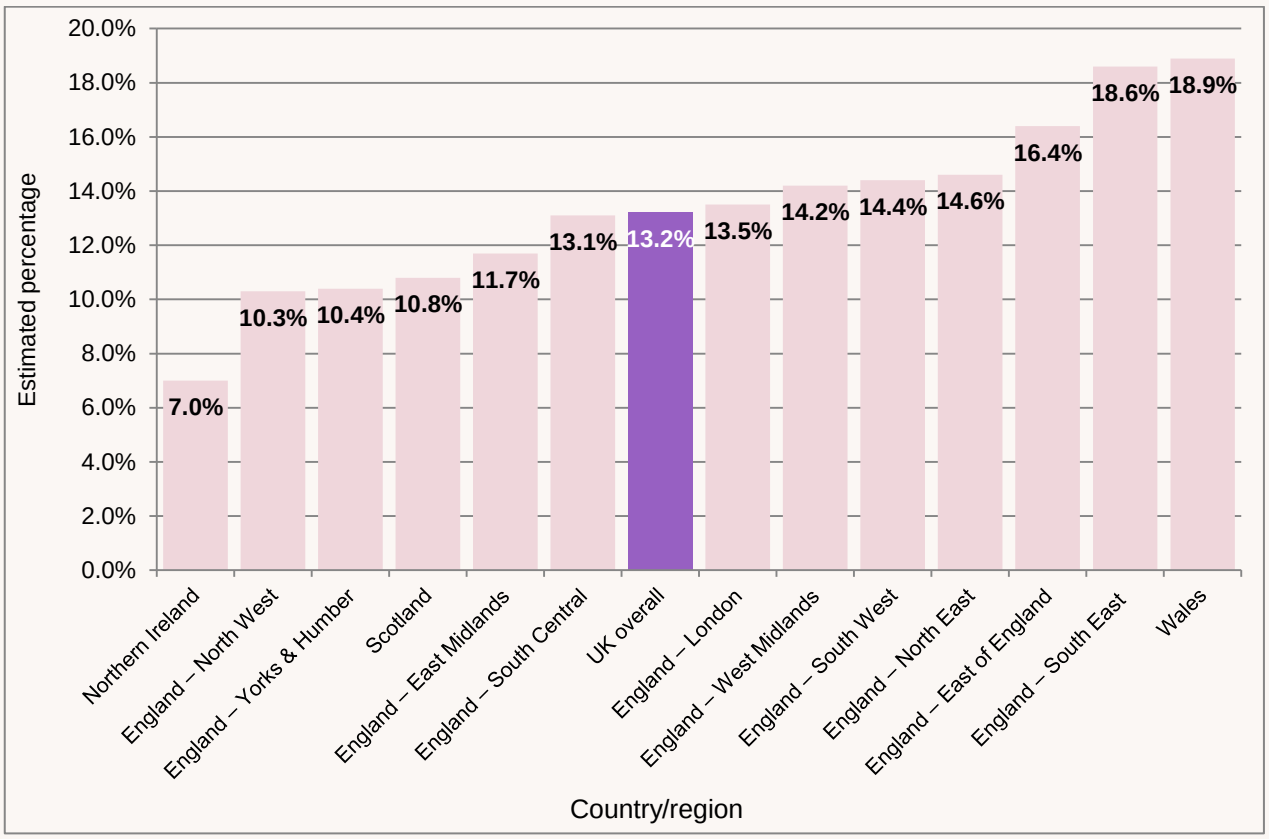
Estimated retirement rates – next five years (up to 2019)
Based on a retirement age of 62, it is estimated that 401 consultants will retire in the next five years.

This figure represents 14% (or 13% WTE) of the current UK consultant workforce.

Table 14. Estimated number of WTE consultants in 2014 retiring in the next five years

Region/country	Current workforce (WTEs)	Retiring within next 5 years (WTEs)
England – East Midlands	163	19
England – East of England	225	37
England – London	496	67
England – North East	130	19
England – North West	359	37
England – South Central	199	26
England – South East	156	29
England – South West	263	38
England – West Midlands	261	37
England – Yorks and Humber	251	26
Northern Ireland	114	8
Scotland	288	31
Wales	143	27
UK total	**3,048**	**401**

Figure 16. Estimated percentage of consultants expected to retire in the next five years



Estimated retirement rates – next ten and 15 years (up to 2024 and 2029)
An estimate for the longer term has projected that 29% of the current UK consultant radiology workforce will retire by 2024. The estimate for 2029 is 46%.

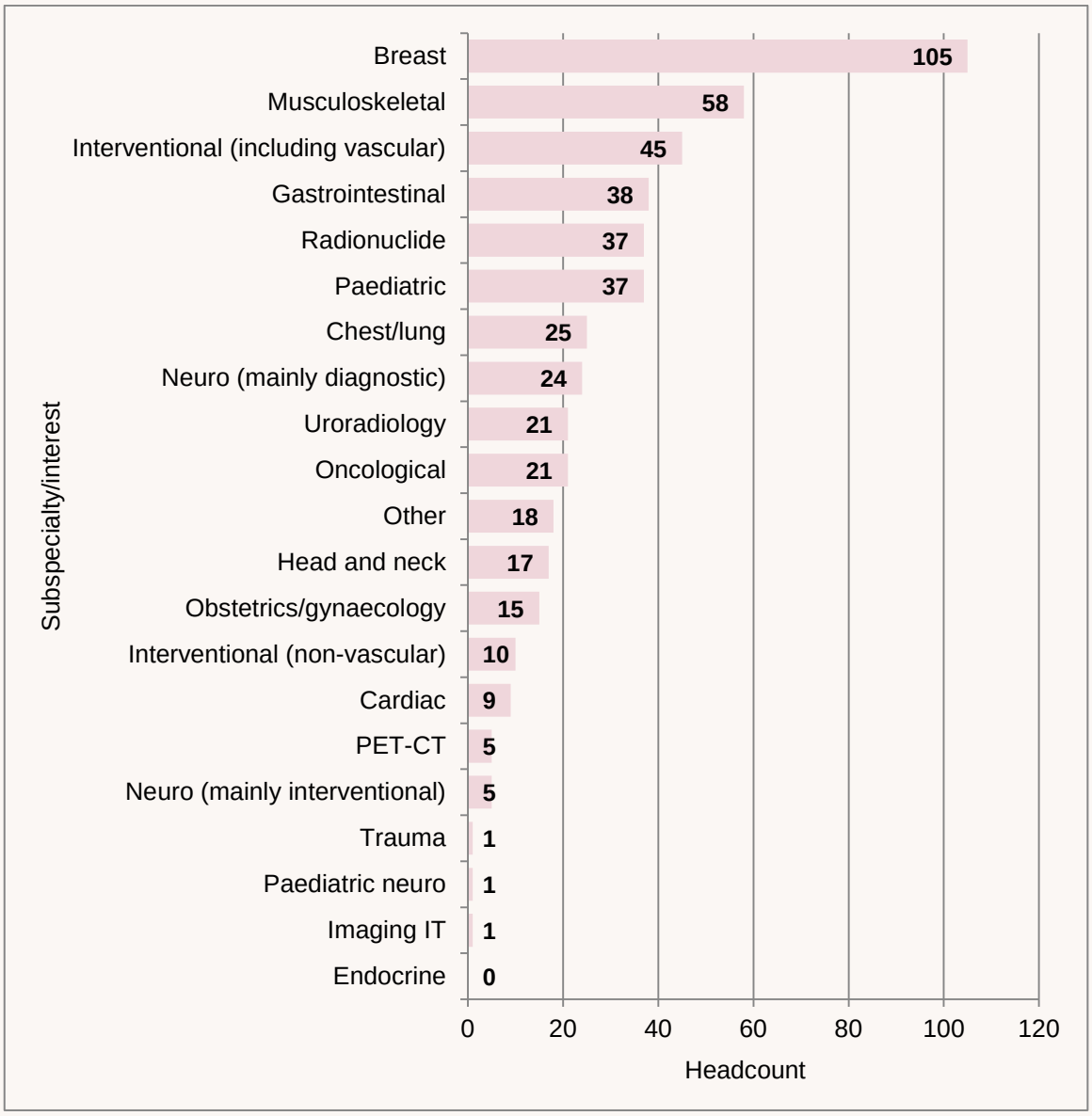
Table 15. Long-term estimates of retirements by UK country/region as a percentage of the current 2014 workforce (headcount)

Region/country	Next 5 years	Next 10 years	Next 15 years
England – East Midlands	12%	38%	52%
England – East of England	18%	31%	44%
England – London	14%	23%	41%
England – North East	16%	31%	48%
England – North West	11%	28%	44%
England – South Central	14%	27%	46%
England – South East	19%	32%	53%
England – South West	15%	32%	49%
England – West Midlands	17%	33%	47%
England – Yorks and Humber	12%	29%	47%
Northern Ireland	7%	20%	36%
Scotland	11%	28%	45%
Wales	20%	35%	48%
UK total	**14%**	**29%**	**46%**

By 2019, around one-in-five current consultant radiologists in Wales and South East England will have retired. By 2024, seven regions/countries will have lost nearly one-third of their current consultant workforce through retirements. Nine regions will have had around half of their current radiology workforce retire by 2029.

Estimated retirements of consultants with subspecialty interest areas
Breast, musculoskeletal, IR (including vascular), radionuclide and paediatric radiology are subspecialties of particular concern given the number radiologists with these specialty interest areas in their job plans expected to retire in the next five years. See Figure 12 for the total numbers of radiologists practising in each subspecialty in the UK workforce.

Figure 17. Estimated count of retirements by subspecialty interest in the next five years



The rate of estimated retirements amongst breast radiologists is particularly concerning. Of the 493 consultants currently with breast radiology in their job plans, 105 are expected to retire within five years, representing 21% of the consultant breast radiology workforce.

6. Unfilled consultant posts

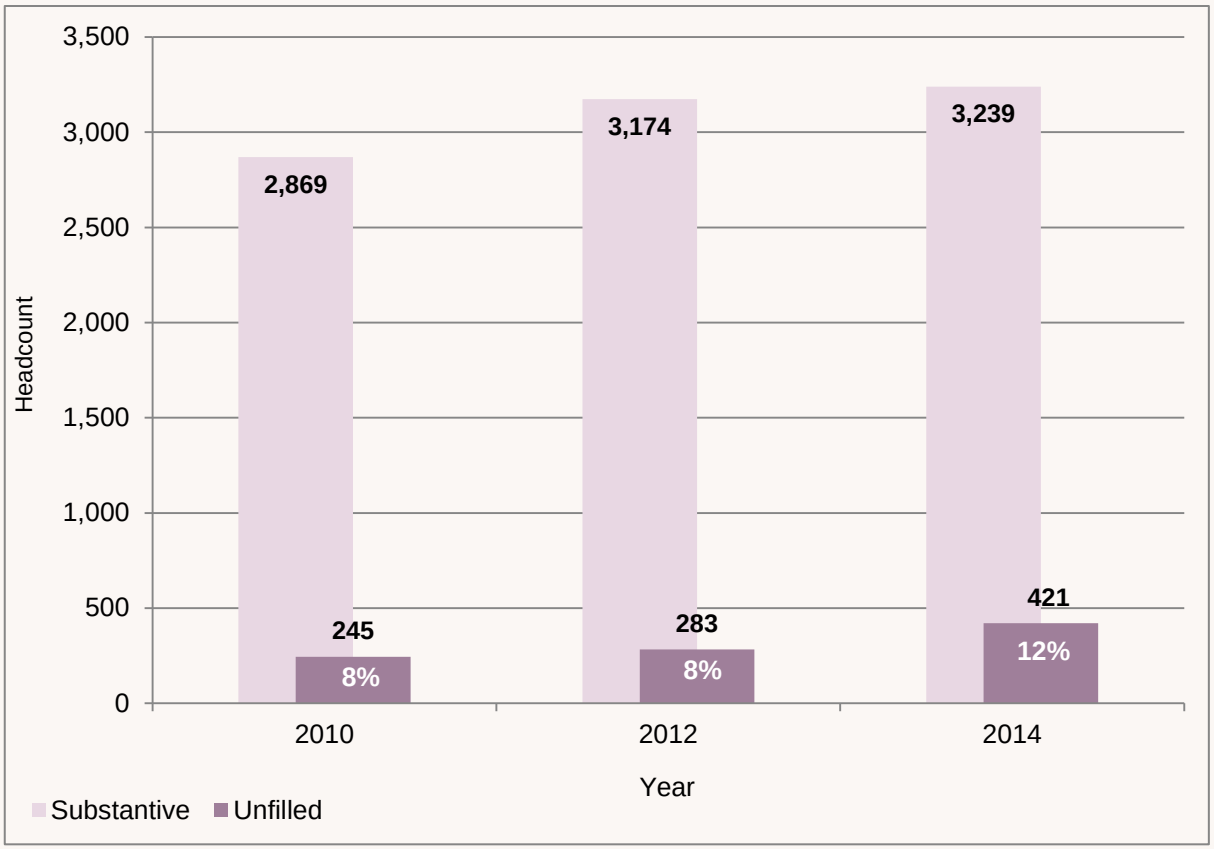
In addition to consultant radiologists in post, the census also captured information on unfilled posts as of 31 March 2014. Radiology departments in the UK face considerable difficulties in recruiting consultants. There is evidence that these recruitment difficulties will persist. Of all substantive posts in the UK 12% are now vacant, rising to 17% in some regions. Of unfilled consultant posts, 41% fall into the category 'advertised but failed to appoint', while for some specialist posts – breast and paediatric radiology – this figure was 45–47%.

Nearly half (49%) of all vacancies have been unfilled for eight months or more, with 40% of these being vacant for more than one year.

Unfilled consultant posts – 2010 to 2014

The number of unfilled consultant radiology posts in the UK has gone up substantially from 283 in 2012 to 421 in 2014, representing an increase from 8% to 12% of substantive posts.

Figure 18. Number of unfilled consultant posts in the UK, 2010 to 2014



Unfilled consultant posts by UK country/region

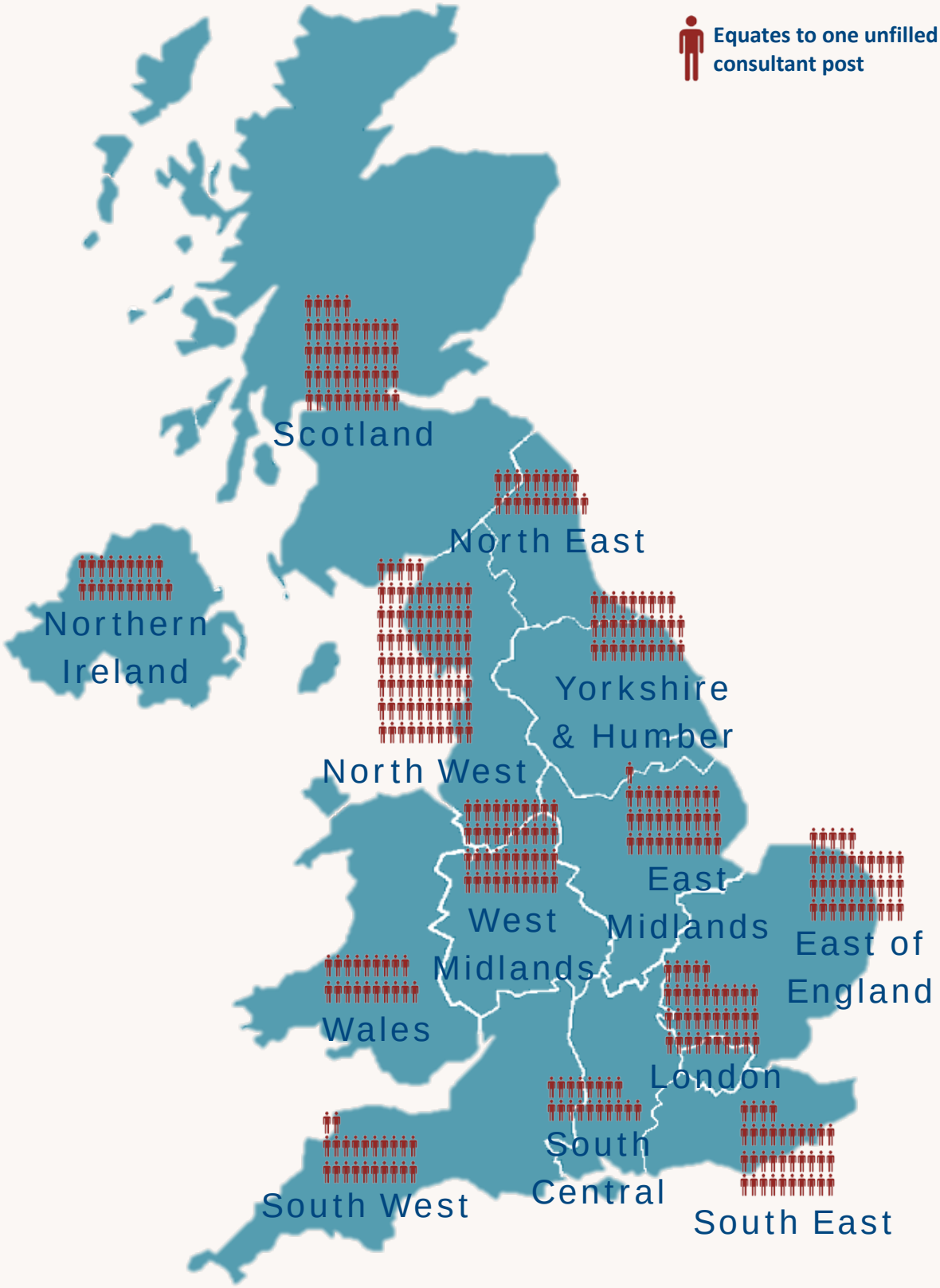
Table 16 and Figure 19 show the unfilled consultant posts by region and country. The problem of unfilled consultant posts in radiology exists in all UK countries and regions, some more so than others. Particular 'hotspots' can be found in the North West (75 unfilled posts) and West Midlands (40 unfilled posts). The 2012 census showed that there were only three regions (East Midlands, North West and South Central) where vacancy rates exceeded more than one-in-ten posts. The number of regions/countries exceeding this threshold in 2014 was 11. The highest rate of unfilled posts was in the South East at 17% of total substantive posts, which is double the 2012 rate of 8%. In Scotland, the rate increased from 7% to 13% during the same period.

Table 16. Unfilled consultant posts by country/region, 2014

Region/country	Total substantive posts [a]	Unfilled posts	Unfilled posts (% of total)
England – East Midlands	201	31	15%
England – East of England	275	35	13%
England – London	574	35	6%
England – North East	157	19	12%
England – North West	449	75	17%
England – South Central	232	18	8%
England – South East	199	34	17%
England – South West	300	22	7%
England – West Midlands	317	40	13%
England – Yorks and Humber	297	29	10%
Northern Ireland	138	19	14%
Scotland	352	45	13%
Wales	169	19	11%
UK total	**3,660**	**421**	**12%**

[a] Total substantive posts includes filled and unfilled posts.

Figure 19. Unfilled consultant posts in the UK, 2014



Status of unfilled consultant posts

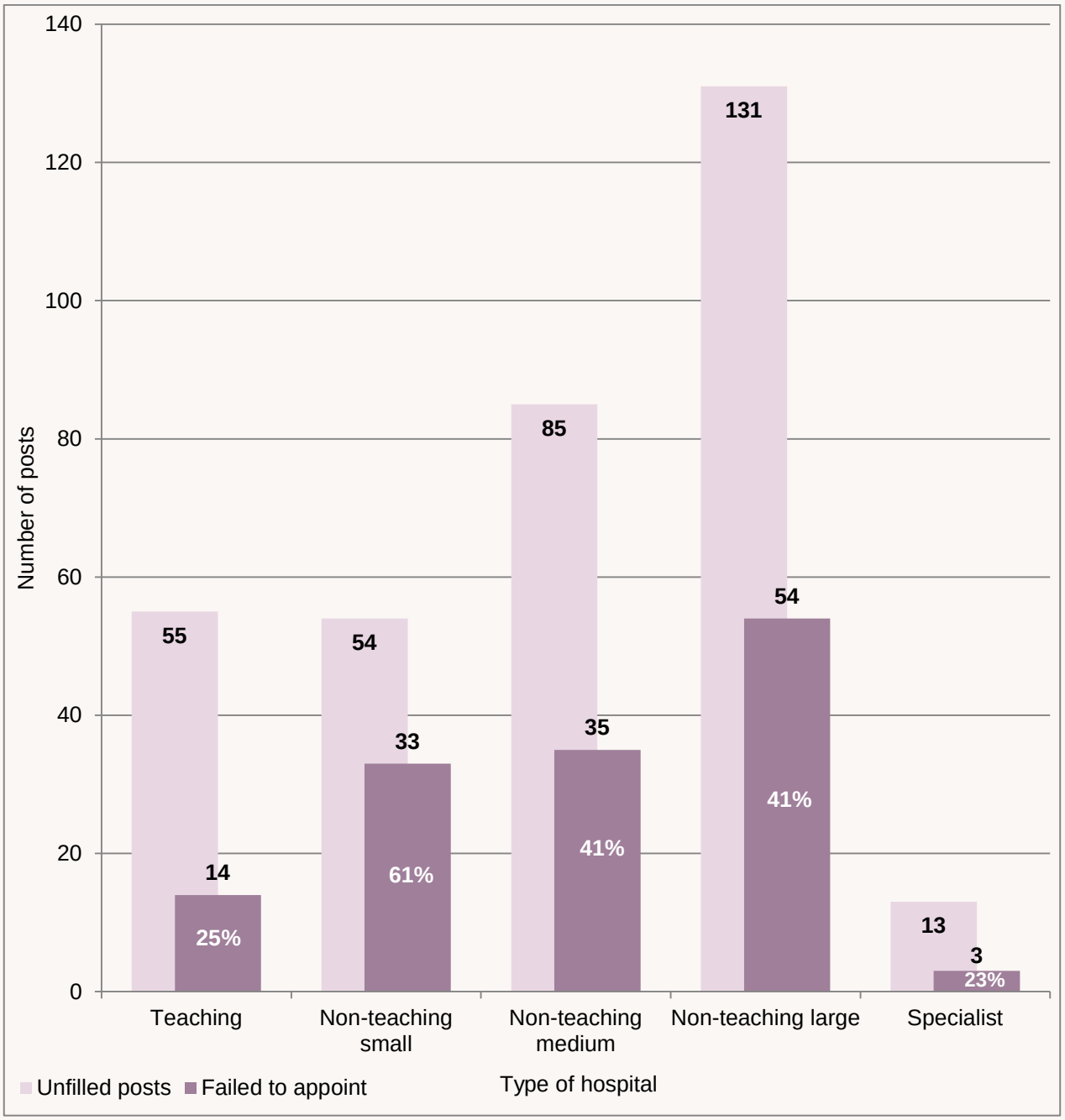
Of the 421 unfilled posts, 41% were advertised but failed to appoint. This is probably due to candidates taking up another post, no suitable candidates being identified for interview or appointment or simply there were no candidates applying for the post. Particular problems exist in recruitment in the East Midlands and North East regions, where more than 60% of unfilled posts that were advertised resulted in failure to appoint a candidate. In the West Midlands and Northern Ireland this proportion was also high, at 50%.

Table 17. Status of unfilled consultant radiology posts in UK countries, 2014

	England	Northern Ireland	Scotland	Wales	UK overall
Advertised but failed to appoint	139	10	16	9	174
% of unfilled post	41%	53%	36%	47%	41%
Advertised but not yet interviewed	24	2	7	3	36
% of unfilled post	7%	11%	16%	16%	9%
Appointed but not yet taken up	68	2	8	6	84
% of unfilled post	20%	11%	18%	32%	20%
Funded but not yet advertised	65	5	11	1	82
% of unfilled post	19%	26%	24%	5%	19%
Funded but not yet appointed	42	0	3	0	45
% of unfilled post	12%	0%	7%	0%	11%
Total – unfilled posts	**338**	**19**	**45**	**19**	**421**

In small, non-teaching hospitals 61% of unfilled posts were advertised but failed to appoint. This should be compared to 25% in teaching and 23% in specialist hospitals.

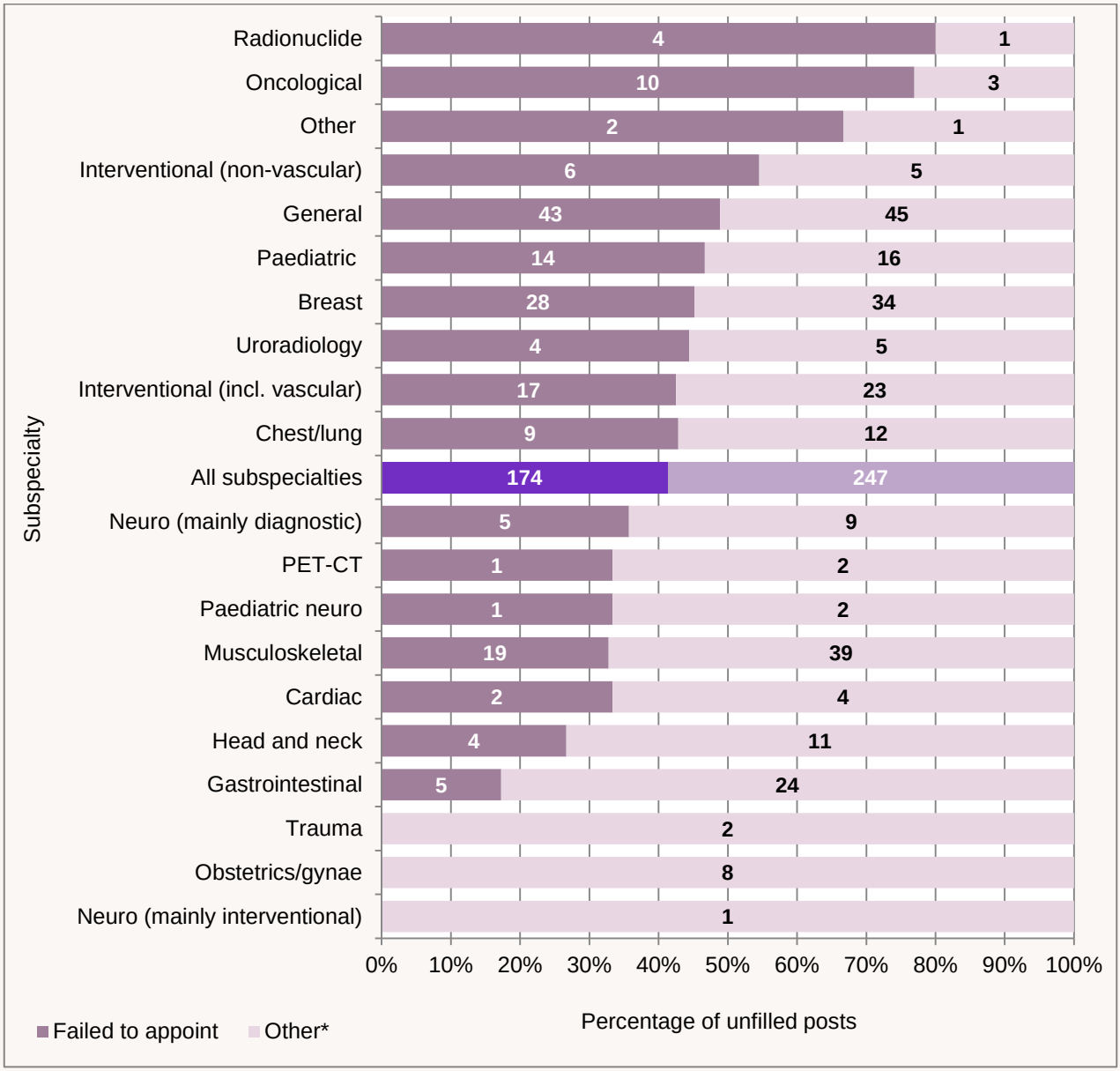
Figure 20. Unfilled posts in teaching, non-teaching and specialist hospitals – England, 2014



Unfilled subspecialty posts and failure to appoint

In terms of substantial numbers of unfilled posts with a primary subspecialty interest, those most likely to fail to appoint had general, paediatric or breast radiology in their job plans. Of the 88 unfilled general radiology posts, 43 (49%) were advertised but failed to appoint. For paediatric radiology it was 14 out of 30 (47%), and 28 out of 62 (28%) for breast radiology. Some of these unfilled posts may have been advertised or funded but not yet interviewed for or taken up.

Figure 21. Status of unfilled posts by primary subspecialty interest, 2014

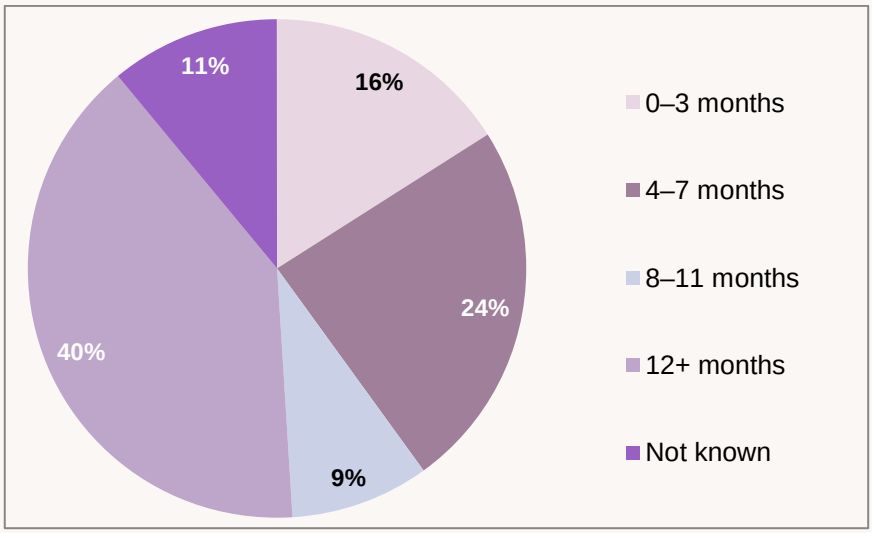


*Other incorporates the remaining unfilled post status options – 'Advertised but not yet interviewed'; 'Appointed but not yet taken up'; 'Funded but not yet advertised'; 'Funded but not yet appointed'.

Long-term unfilled consultant posts

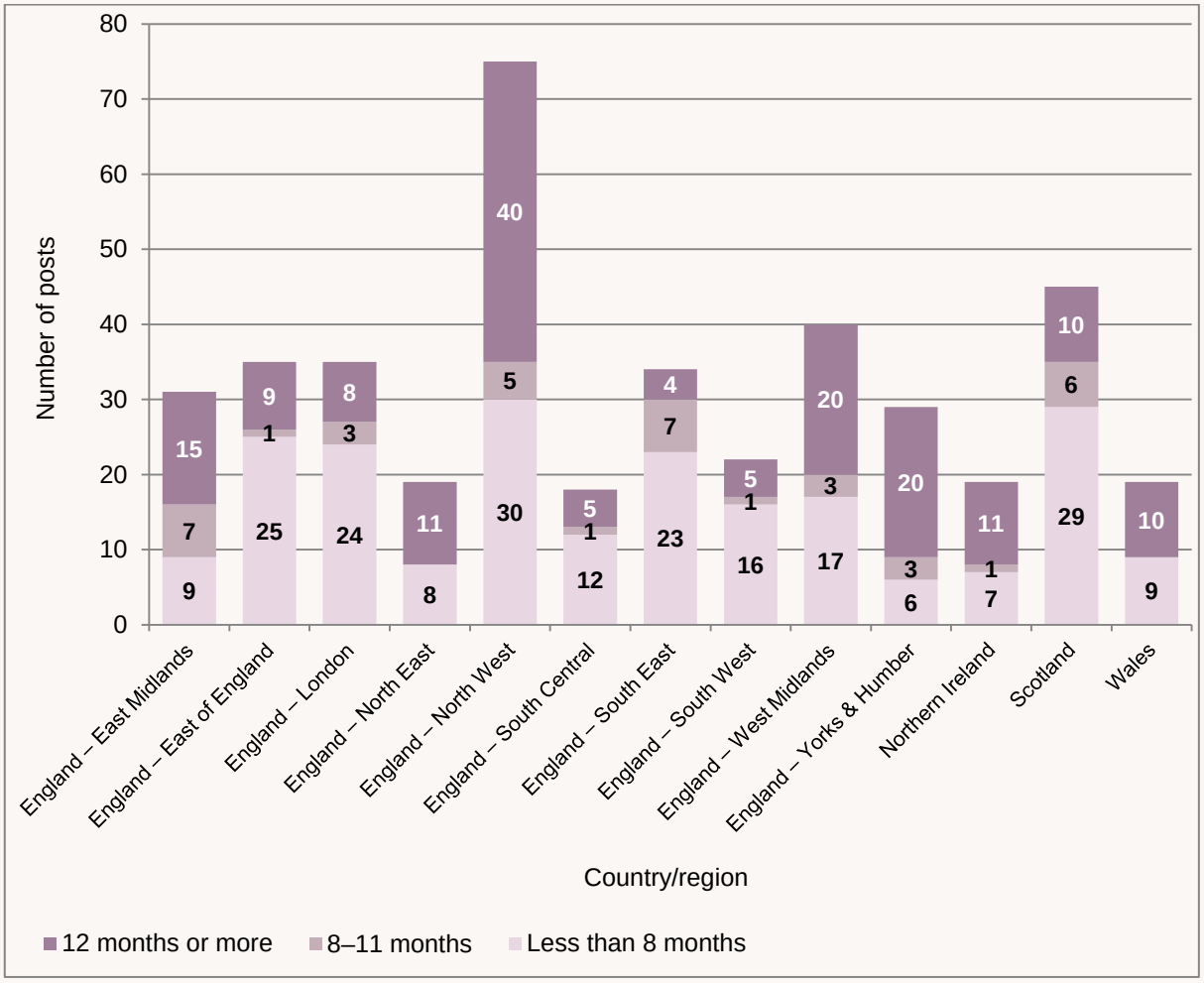
Recruitment issues have meant that most consultant vacancies remain unfilled for considerable periods of time. Figure 22 shows that nearly 50% of the 421 vacancies reported on 31 March 2014 have been unfilled for 8 months or more, and 40% for more than a year.

Figure 22. Percentage of unfilled consultant radiology posts left vacant by time period



In the East Midlands, 71% of the 22 unfilled posts remained vacant for eight months or more. In the Yorkshire and Humber region this number was 79% of its 29 unfilled posts, 69% for more than a year. The North West region had the highest number of unfilled posts (75), of which 45 remained unfilled for eight months or more.

Figure 23. Number of unfilled consultant posts vacant for less than eight months, 8–11 months and 12 months or more (as of 31 March 2014) by UK country and region



For the purposes of the census, unfilled posts are defined as having no permanent consultant radiologist in place. One-third of these posts (n=139) were, however, covered by temporary locums. Two-thirds of unfilled posts (n=282) were not covered at all. There is an indication that for some of these posts, the longer they went unfilled by a permanent radiologist the more likely it was that a locum would be used to cover.

Table 18. Percentage of unfilled posts covered or not covered by locums

	Posts left unfilled	% covered by locum	% not covered by locum
0–3 months	68	26.0%	74.0%
4–7 months	100	30.0%	70.0%
8–11 months	38	39.0%	61.0%
12+ months	168	37.5%	62.5%
Not known	47	28.0%	72.0%
Total	**421**	**33.0%**	**67.0%**

7. Radiology departments – activity and spending

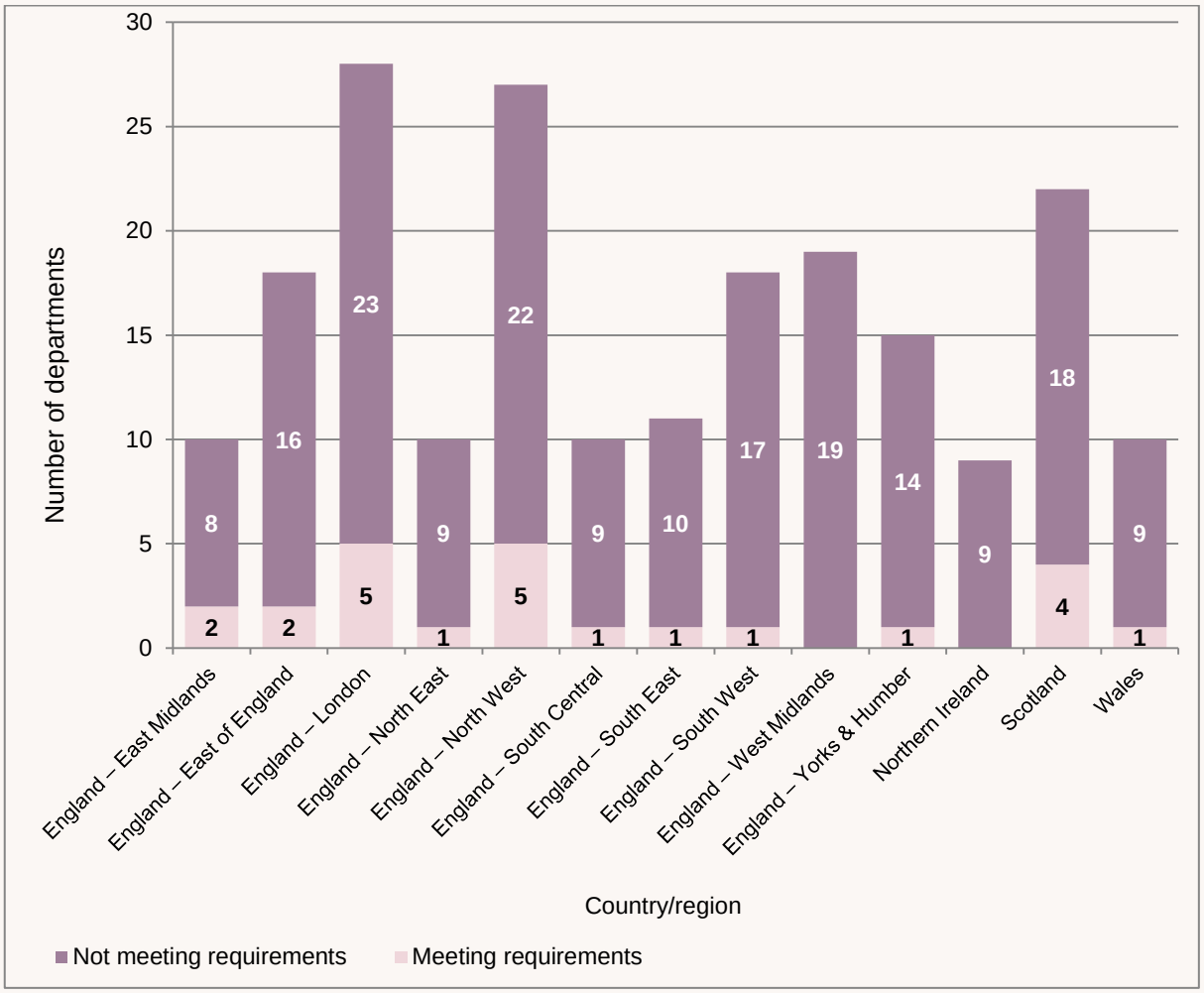
The 208 respondents taking part completed some or all of the questions in the census focusing on departmental activity and spending in managing workload.

Departmental reporting requirements

A significant problem exists in departments meeting their full reporting requirements. This is mainly due to an inadequate number of consultant, staff grade and trainee radiologists working within their contracted hours to report on X-rays and imaging scans of patients. Across the UK, 88% of departments (n=183) were unable to meet their requirements for the period 1 April 2013 to 31 March 2014. This is an increase from 84% in 2012 and 80% in 2010.

Across all regions, more than 80% of departments were unable to meet their reporting requirements. It is projected that nearly all departments will be in this situation within two to three years, as is already the case in Northern Ireland and the West Midlands.

Figure 24. Departments not meeting reporting requirements within contractual hours during 2013–14



Shortfalls in reporting requirements

Departments were asked how they addressed any shortfalls in their reporting requirements. Table 19 lists the methods in order of those most used during 2013–14, as a percentage of total departments who responded to this question. The figures for 2010 and 2012 are also presented to examine trends over time.

In summary:

- A notable observation is the increasing trend amongst radiology departments in making additional payments in addressing their reporting requirement shortfalls. Of the departments that responded, 83% (n=172) now use either, or a combination of, additional paid reporting, *ad hoc* locums and outsourcing to commercial companies. Regional and national expenditures on these outsourcing methods are detailed below.
- There has been a 17–22% increase since 2010 and 2012 in departments paying their own radiologists for additional reporting sessions outside of contracted hours. The vast majority of departments (79%) now make these 'overtime' payments.
- The biggest increase in terms of methods used to meet shortfalls in reporting requirements has been in the number of departments outsourcing their work to commercial companies. Around six-in-ten did so during 2013–14, compared to one-third in 2010 and 2012.
- Figures from the 2009–2012 censuses showed that between 49% and 53% of departments relied at least partly on the goodwill of their radiologists to provide additional, unpaid, reporting of images. The figure for 2014 is 62%.

Table 19. Methods used to meet shortfall in reporting requirements

Methods used to meet shortfall (multi-response)	% of respondents		
	2010	2012	2014
Additional paid reporting by own radiologists outside contracted hours	62%	57%	79%
Reporting by radiographer	61%	62%	67%
Goodwill	49%	50%	62%
Outsourcing of reporting to an independent sector company	33%	34%	58%
Employing *ad hoc* locums	29%	38%	48%
Images left unreported or 'auto-reported'	39%	47%	46%
Delegation of reporting to clinicians through an agreed mechanism	38%	41%	39%
Other	3%	8%	2%

Spending on outsourcing

For the first time the census requested information on total departmental spend on outsourcing (for the period 1 April 2013 to 31 March 2014). Included in this consideration is overnight and daytime outsourcing to teleradiology companies as well as additional payments to radiologists already contracted to the department or trust (called 'insourcing').

Of the 172 departments who outsourced to commercial companies or made additional payments to radiologists or employed *ad hoc* locums, 127 provided information on expenditure. Where a department indicated a range (for example, 'over £10,000' or 'between £10,000 and £20,000') the lower figure (that is, £10,000) was used when determining national figures for this report. Also, some departments provided approximate or estimated figures. Therefore the total regional and national spending figures on

outsourcing for this report should be treated with some caution. Some departments responded by stating a certain number of additional programmed activities (PA), extra paid sessions or consultant whole-time equivalents. In these cases, for the purposes of this report, a monetary figure was allocated based on one additional WTE and PA equating to £84,667 and £8,466 respectively. This reflects the mid-threshold (point 5) of the 2014 pay scale for NHS consultants (2003 contract) in England.[5]

Some departments detailed precisely the nature of their outsourcing spend, including:

- Payments for extra reporting sessions or emergency on-call
- Out-of-hours sessional/intensity/shift payments
- On-call supplementary payments of around 5% of salary.

Regional and national spending

Table 20 shows the national and regional spend on outsourcing for the period 1 April 2013 to 31 March 2014. In summary, the figures show that:

- Known spending for outsourcing in the UK totalled just over £43 million based on information received from 127 departments
- The lowest return from a department was £2,000, the highest was just under £2.0 million. Of those who provided details 27 departments spent more than £0.5 million on outsourcing, of which eight spent more than £1.0 million
- Total spending on outsourcing across the UK has been projected to be £57.6 to £58.3 million. The projection is based on ascertaining two mean figures – one for the UK using expenditure data submitted by 127 departments, and the other by aggregating the regional mean figures – and applying them to the 172 departments who indicated they outsourced
- The projected spending figures for outsourcing are equivalent to the combined annual salaries of 680 to 689 NHS consultants (point 5 of the 2014 pay scale for England).[5]

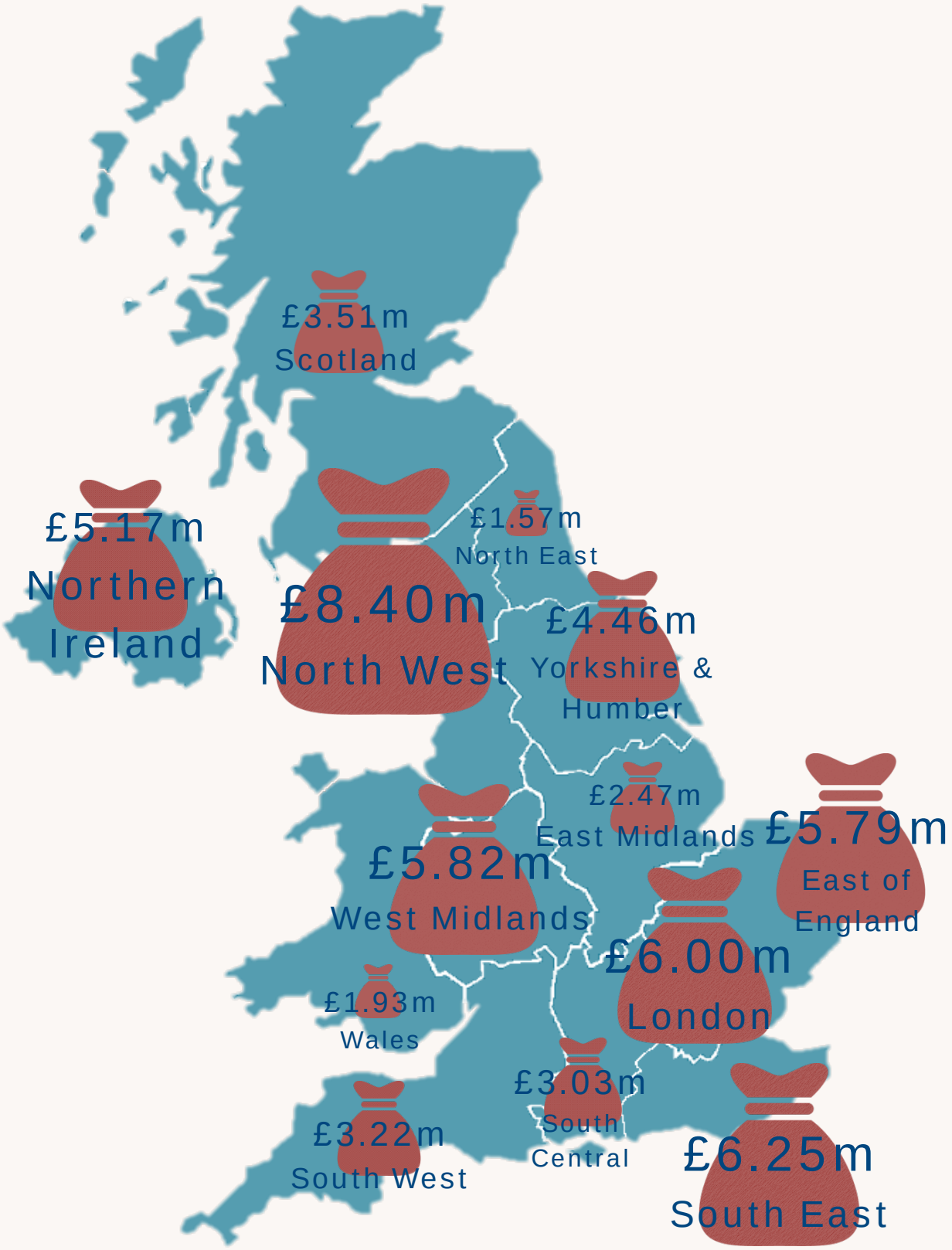
Table 20. National and regional spend on outsourcing – 1 April 2013 to 31 March 2014

	Number of respondents	Total expenditure	Mean expenditure	Number of departments outsourcing	Projected expenditure
UK overall	**127**	**£43,071,236**	**£339,144**	**172**	**£58,332,698**
England – East Midlands	7	£2,160,959	£308,708	8	£2,469,667
England – East of England	9	£3,254,761	£361,640	16	£5,786,242
England – London	11	£3,300,395	£300,036	20	£6,000,718
England – North East	3	£588,000	£196,000	8	£1,568,000
England – North West	19	£7,251,058	£381,635	22	£8,395,962
England – South Central	7	£2,354,050	£336,293	9	£3,026,636
England – South East	10	£6,249,959	£624,996	10	£6,249,959
England – South West	12	£2,579,757	£214,980	15	£3,224,696
England – West Midlands	15	£4,847,525	£323,168	18	£5,817,030
England – Yorks and Humber	12	£3,820,554	£318,380	14	£4,457,313
Northern Ireland	4	£2,584,657	£646,164	8	£5,169,314
Scotland	12	£2,629,777	£219,148	16	£3,506,369
Wales	6	£1,449,784	£241,631	8	£1,933,045
Total	127	£43,071,236	£344,060	172	£57,604,952

Total spending on outsourcing by radiology departments during 2013–14 has been estimated to be approximately £58 million. This is equivalent to the salaries of around 685 NHS consultants.

Figure 25 presents a visual breakdown, by UK regions, of projected spending on outsourcing by NHS radiology departments. There is a correlation between the projected figures and the UK map showing regions with a substantial number of unfilled consultant radiologists' posts (see section 6, figure 18).

Figure 25. Projected expenditure on outsourcing by NHS radiology departments by UK region



Out-of-hours radiology

Night and weekend working
In addition to outsourcing, many departments also relied on their in-house consultant radiologists to provide out-of-hours radiology services through rota arrangements, including at night and the weekends. The 2014 census sought to determine how many consultants regularly provided a general out-of-hours service; 184 departments provided headcount data in response.

The aggregated data show that 2,365 consultants, representing 73% of the workforce, regularly worked nights and/or weekends. In 110 of the 184 departments, more than four-in-five consultants regularly worked these hours. In 56 departments all consultants did so.

Table 21. Percentage of consultant radiologists in departments regularly providing general out-of-hours services

% of consultants in departments	Number of departments
0–19%	13
20–39%	11
40–59%	15
60–79%	35
80–99%	54
100%	56

Compensatory arrangements

Of the 174 departments where consultants provided out-of-hours services, 87 (50%) lost some sessions (direct clinical care or SPA) in an average week to compensate for this arrangement. In many cases the lost sessions were necessary to allow consultants to rest after working nights or weekends. The other 87 departments did not compensate in this way. Instead, respondents indicated that compensation was through reduced workload the next day, additional payments and arrangements made to job plans.

Multidisciplinary team meetings
Previous censuses asked for information on the duration of multidisciplinary team (MDT) meetings. For the 2014 census the question was revised to: 'In an average week, approximately how much radiologist time (measured in sessions) is taken up preparing for and attending MDT meetings?' This question is thought to be more useful in gaining an accurate picture of the time committed by consultant radiologists (including preparation and administration as well as attendance), in contributing their expertise to this important cross-hospital activity.

Not all departments responded to this question, some stated 'unknown' or provided an invalid response. This left 170 valid responses. Table 22 shows the average number of sessions spent per consultant radiologist on MDT meetings.

In the majority of departments the average number of sessions per radiologist spent on MDT meetings was between 0.5 and 1.5 (it is worthwhile noting this range, as the number of sessions could vary from week to week depending on complexity and difficulty of patient cases being discussed). Across all 170 departments the mean figure was approximately 1.0. This represents 10% of a full-time consultant's work.

Table 22. Sessions preparing for and attending MDT meetings

Average number of sessions spent per radiologist*	Number of departments	Headcount of consultants
0.5	79	1,258
1.0	55	991
1.5	22	351
2.0	7	154
2.5	3	43
3.0	4	80
Total	**170**	**2,877**

*Where census respondents provided an overall departmental figure the average for each radiologist was calculated based on headcount and rounded-up to the nearest 0.5.

Workforce and workload difficulties – qualitative evidence

Free-text comments on workforce and workload issues were received from 82 respondents.

Those completing the census are clinical directors or workforce leads and therefore in a position within their departments to provide an informed frontline view of these issues.

Faced with increasing demands, inadequate staffing numbers and problems in recruiting consultants, clinical directors expressed serious concerns about the ability of their radiology departments to deliver quality imaging and diagnostic services.

Difficulties faced by departments

The comments provided expand on the departmental difficulties concluded from the quantitative data of the census. These difficulties relate to the following:

- Meeting reporting requirements
- Reliance on outsourcing and insourcing
- Providing out-of-hours services
- Commitment to MDT meetings.

Table 23. Difficulties faced by radiology departments

Difficulties	Comments – selected examples
Meeting reporting requirements	*Plain film reporting now becoming impossible. Outsourcing company cannot cope either. We have an older locum who does 30,000 per annum. We don't know what will happen when he goes.* *We have a reliance on reporting radiographers/skillmix to deliver a large volume of reporting. Approximately 100,000 plain film examinations (mainly A&E films) and 7,000 CT examinations (CT heads). Without this resource we would be further struggling to meet demands and targets.*
Reliance on outsourcing and insourcing	*Have a long-term locum who works 10 DCCs. He largely performs [the] MR and CT lists along with plain film reporting to backfill leave. This is the only way we come near to achieving level 1 targets* *We have moved to extended day (8.00am–8.00pm) working on weekdays and 9–5 on weekends. Cover outside these hours is by [commercial company]. Two of our radiologists are on reduced hours due to illness [and] a third is on her second (non-maternity) career break since joining the Trust 3 years ago. We have been undertaking backlog reporting of historical plain films, utilising an external out-sourcing company. However further backlogs have built up in CT and MRI particularly, with no capacity either in-house or via out-sourcing to deal with this. Radiologists have been diverted from routine reporting to provide 'hot' radiology for A&E and admission avoidance units and prioritise attendance at MDTs above all other activities.*
Providing out-of-hours services	*Hidden vacancies – most of us are currently doing 13 PAs each, of which only 0.25 PAs is for traditional on call. Remainder has been redeployed into maximising presence seven days a week, 8am–8pm. If we were to be [the] standard 10 PA job plans we calculate we have a need for an additional 5.25 WTE.*
Commitment to MDT meetings	*For sector or specialist MDTs (SMDTs), only the radiological lead can claim the meeting as DCC activity. Time equivalent to half the length of the SMDT can also be claimed by that individual as DCC MDT preparation time unless it can be justified that additional preparation time is required (eg heavy duty MDTs like lymphoma or breast). It was also expected that his/her deputy would cross cover the SMDT in the lead's absence and adjust their other work that week to accommodate SMDT preparation and attendance. All this was to ensure compliance with the peer review process.* *The sessions required for MDT preparation is an issue, lot of us do meetings on the hoof, which is undesirable but a reality in a busy department [there is] little preparation time.* *The large weekly sarcoma MDT means that anything between 100 –120 new sarcoma cases are discussed on a weekly basis. This means that for the first three working days after the meeting, a significant proportion of our workforce is spent reporting the huge amount of external imaging generated.*

Root causes

The comments in Table 23 also provide some indication of the root causes of these workforce and workload difficulties. These root causes are, in the main, an inadequate supply of resources, including availability of radiologists and at the same time a significant increase in demands made on radiology departments. Both the supply and demand root causes can be further broken into subsets, all of which can be considered as issues for policymakers to address. See Tables 24 and 25.

Supply factors

A fundamental problem is a chronic shortage of radiologists. This is compounded by problems of recruitment including attracting suitable candidates to apply for positions, and radiologists leaving posts and not being replaced. District general hospitals are finding recruitment particularly challenging due to radiologists finishing training and wanting to continue specialist practice elsewhere.

Table 24. Root causes of workforce and workload difficulties – supply factors

Policy issues	Comments – selected examples
Recruitment problems	*It is recognised there is a national shortage of radiologists and this trust has experienced similar issues with radiologist recruitment as other North West trusts. Suitable locum cover has also been limited. It is a frequent experience to get no suitable applications to job adverts.* *We advertised four jobs in January 2014. One is filled and has taken up post in Sept 2014. We hope to interview for a post in Oct 2014. No applicants for the other two posts. In addition, most of the consultants are paid extra sessions, which we would make into jobs to advertise if we could secure applicants.*
Trainee to consultant continuum	*Recruitment and retention is still an issue in our DGH Trust. Nobody is applying for substantive post for general work. The College has to look into why this is? Our impression is that trainees are forced into subspecialisation too soon in their career and often do Fellowships then only want to work in teaching hospitals just performing subspecialist work. This is not viable for DGHs!* *We struggle to retain and recruit consultant radiologists like all DGHs. There seems to be an imbalance between trainees finishing schemes and wanting to work in the UK and the number of unfilled consultant posts raising serious questions about current workforce planning.* *The current workload and demand is not sustainable within the current system. Training now ensures new consultants are subspecialised reducing those applying for DGH positions and making retiring consultants irreplaceable. Major investment is needed for workforce planning. More sonographers are urgently required. The current workforce cannot provide the seven-day service that is being demanded.*

Workforce attrition	*In Scotland with the advent of CT in DGH's and breast screening, there was a bulge in recruitment in the late 80's and early 90's, many of these consultants are approaching retirement or taking early retirement due to pension changes, there are insufficient trainee numbers to fill these posts.*
	Dr [name] resigned and left for Dubai due to money and family reasons. We have advertised twice for a general radiologist and a breast radiologist but have had no [appropriate] candidates apply.
	Voluntary Severance Scheme applications from 4 radiologists. Most have moved retirement plans forward from 65 to 60.

Demand factors

Quantitative data from the census confirms that demands placed on radiology departments are in many cases, not being met. Table 25 lists the sources of these demands as perceived by clinical directors and workforce leads. These sources include new initiatives and guidelines being implemented in the NHS and changing radiological referral practices by general practitioners and hospital doctors. This has all led to an intensification of radiological work which can further exacerbate existing workforce and workload difficulties in the specialty.

Advances in and utilisation of imaging technology, particularly CT and MRI scanning, has increased the number and complexity of reporting requirements of radiologists. Figures for NHS England show total numbers have risen on average by 10% to 12% for each of the last 10 years, from just under 2.0 million CT examinations in 2003–04 to 5.2 million in 2013–14, and from 0.8 million MRI examinations to 2.7 million in the same period (see Figure 26 and Table 26).[1]

Table 25. Root causes of workforce and workload difficulties – demand factors

Policy issues	Comments – selected examples
Health service initiatives	*Development of new services (eg CT colonography, etc) which has occurred without additional funding and has fallen on the mantle of existing interested radiologists, who then withdraw their services from other 'routine' services/reporting to accommodate the new service within their job plan.* *Increase in demand out of hours due to implementation of unfunded NICE guidance eg CT Head Stroke and TIA. Failure to recruit, lack of manpower planning and shortage of trainees all have an impact in the ability to maintain service and recruit staff.* *There has been a sharp increase in workload in the current year. This has been in part due to initiatives such as enhanced access for cancer patients, two week-wait referrals, earlier access pathways for intracranial coiling/stroke, reducing patient length of stay via faster report turnaround, etc...Very difficult to keep up with clinicians' expectations of reporting turnaround times.*
Radiological referrals	*Changing practice of referring clinicians – year on year increase in radiological referral and investigations without necessary accompanying increase in number of patients seen. Additional consultant clinician appointments without corresponding pro rata contribution to consultant radiologist workforce to support additional workload generated.* *Referral management system implemented by clinical commissioning groups (CCGs) will have an impact in direct MSK referrals into radiology.* *GP demand increasing at 25% per annum this year to date□.*
Intensification of radiological work	*Pressure to turn reports around ever more quickly is increasing even faster. It would be interesting to have data on how good or bad turnaround times are in centres across the UK.* *Our workload increasing by 10% per year. The figures that I have provided are accurate, but we are hitting very few targets and struggle to comply with many national guidelines. There are many services that we don't provide that we should, eg cardiac, and we cannot man an interventional rota.* *Teaching attending trainees on at least one-two reporting sessions each week adds to the time required to report examinations. Difficulty in catching up with backlog when one of the consultants is away on annual leave particularly for two week block. Good-will required by both members of staff.*
CT and MRI scanning	*Exponentially increasing cross sectional work load. Average total work load figures from all modalities per radiologists (FTE) varies between 7,500–12,000/year depending on the subspeciality interests involved, reporting mix and varied skills of different radiologists.*

	The main pressures are ever increasing workloads, particularly CT (+10% 2013–14) and MR (+14%). We can ramp up additional scanning time easily enough but finding additional reporting capacity is always a problem. And pressure to get MR/CT's reported lead to plain film reporting time getting squeezed, so that unreported plain films become a significant clinical risk. This is particularly a problem at [hospital] where there is a gap of 400–500 unreported exams on average each week. We now employ a retired consultant for 4 sessions a week to try and cover this gap.
Specialisation and complexity in radiology	*Complexity of examinations not captured [in the census]. With every role extension post, the work of the radiology consultant becomes more detailed, specialised, complex and intense. This is appropriate but cannot be captured by numbers of exams. Most radiologist do specialist US and CT lists [and] often 15 or more neck, chest abdomen and pelvises with follow up and comparison. Subspecialty cover is a hidden issue. Few departments have the luxury of radiologists doing only a single subspecialty, which creates major problems with scheduling and cross cover for leave especially in smaller departments.* *All MDTs having significant increase in numbers and complexity of cases. Significant increase in clinicians at MDT but static and declining radiologist support.*

Figure 26. Total number of imaging and radiodiagnostic examinations or tests, by imaging modality, for England – 2003–04 to 2013–14[1]

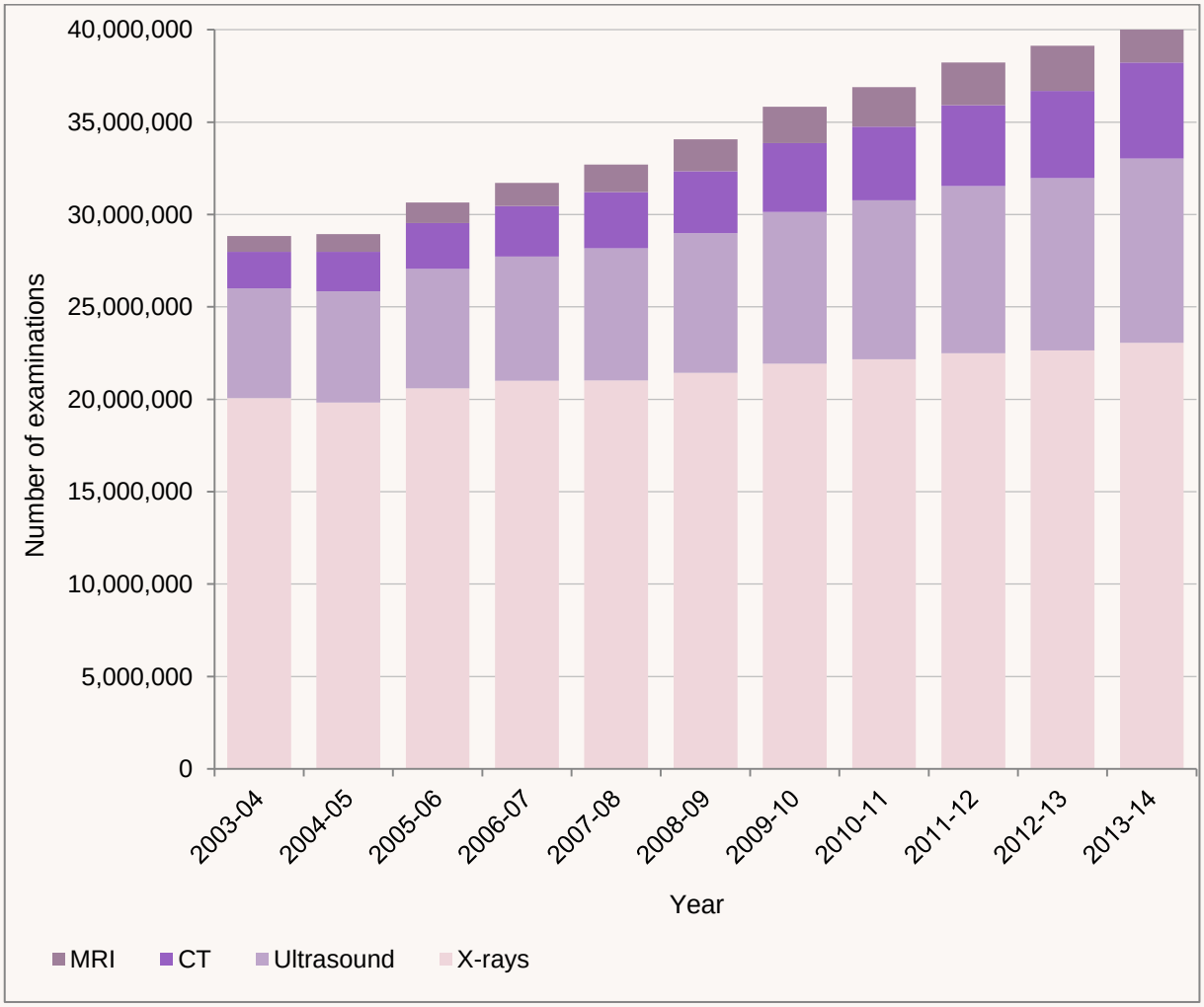


Table 26. Total number of imaging and radiodiagnostic examinations or tests, by imaging modality, for England – 2003-04 to 2013–14

Year	MRI	CT	Ultrasound	X-rays
2003–04	857,550	1,992,826	5,937,383	20,056,669
2004–05	944,935	2,141,652	6,029,104	19,818,330
2005–06	1,118,487	2,481,571	6,469,396	20,585,678
2006–07	1,257,972	2,728,119	6,715,486	21,011,234
2007–08	1,488,059	3,044,516	7,135,551	21,028,109
2008–09	1,725,793	3,355,161	7,552,156	21,437,735
2009–10	1,970,323	3,719,089	8,217,414	21,919,881
2010–11	2,129,973	3,986,831	8,599,380	22,170,523
2011–12	2,298,527	4,381,226	9,054,409	22,485,317
2012–13	2,447,414	4,725,859	9,323,688	22,640,047
2013–14	2,741,489	5,193,233	9,972,418	23,054,170
Growth 2013–14	12.1%	10.0%	7.2%	1.8%
Average annual growth over ten years	12.3%	10.1%	5.3%	1.4%

References

1. NHS England. *Annual imaging and radiodiagnostics data.* Leeds: NHS England, 2014.
2. Office for National Statistics. *Population estimates for UK, England and Wales, Scotland and Northern Ireland, Mid-2013.* Cardiff: Office for National Statistics, 2014.
3. http://ec.europa.eu/eurostat/web/products-datasets/-/hlth_rs_spec (last accessed 29 June 2015).
4. The Royal College of Radiologists. *A guide to job planning in clinical radiology*. London: The Royal College of Radiologists, 2013.
5. http://bma.org.uk/practical-support-at-work/pay-fees-allowances/pay-scales (last accessed 29 June 2015).

Appendix 1. Census questions

Section 1: Workforce

1.1 Your organisation details

- Workforce lead
- Hospital(s)
- Trust
- Contact details

1.2 Permanent staff details

- Name
- Gender
- Grade:
  - NHS consultant (NHS contract)
  - Academic post (University contract)
  - Mixed NHS/Academic - part NHS/research-funded (NHS contract)
  - Staff grade or equivalent
  - Other
- Contracted PAs:
  - DCC
  - SPAs
  - Other PAs (additional responsibilities and extra duties, ie clinical director)
  - Total
- Full- or part-time
- Type of radiologist:
  - General
  - General with one main area of interest
  - General with two main areas of interest
  - Specialist with one main area of interest
- Specialist with two main areas of interest
- Please select area(s) of interest/specialist interests:
  - Breast
  - Cardiac
  - Chest/lung
  - Endocrine
  - Forensic
  - Gastrointestinal
  - Head and neck
  - Imaging IT
  - Interventional (mainly non-vascular)
  - Interventional (mainly vascular)
  - Musculoskeletal
  - Neuroradiology (mainly diagnostic)
  - Neuroradiology (mainly interventional)
  - Obstetric/gynaecological
  - Oncological
  - Paediatric neuroradiology
  - Paediatric radiology
  - PET CT
  - Radionuclide
  - Trauma
  - Uro-radiology
  - Other
- Expected to retire by end of 2014
- Left since December 2012
- Reason for leaving

1.3 Unfilled permanent posts

- Unfilled post status:
  - Funded but not yet advertised
  - Advertised but not yet interviewed
  - Advertised but failed to appoint
  - Appointed but not yet taken up
  - Lost posts
  - Suspended posts
- Grade
  - As per 1.2
- Total contracted PAs of post
- Full- or part-time
- Type of radiologist
  - As per 1.2
- Please select primary area of interest/specialist interest
  - As per 1.2
- Locum filled

1.4 Department size

- Number of consultant clinical radiology posts
- Number of other career grade clinical radiology posts
- Number of trainee radiology clinical radiology posts

1.4i Clinical director contact details

- If different to those provided in 1.1

1.5 Comments

Please use the space provided below to enter any further workforce details you feel are relevant to your census submission but have not already been captured and/or provide general feedback to the College regarding the census.

Section 2: Additional questions (previously part of the workload section)

The College would like to collect the following information to measure the changes in workload. This enables the RCR to influence the development of the future radiology workforce more effectively.

For the period 1 April 2013 to 31 March 2014

2.1 Reporting requirements

- Was the full reporting requirement met by the department's consultant, trainee radiologists and staff grade staff within their contractual hours?
  - Yes
  - No (please tick all that apply below)
    - Goodwill
    - Reporting by radiographers
    - Additional paid reporting by the department's own radiologists outside their contracted hours
    - Employing ad hoc locums
    - Delegation of reporting to clinicians through an agreed mechanism
    - Images left unreported or auto-reported
    - Outsourcing of reporting to an independent sector company
    - Other (please specify)

2.2 Department spend

- What was your department spend on outsourcing for the period 1 April 2013 to 31 March 2014? (please include spend on department's own radiologists outside their contracted hours)
- What was your department spend to provide out-of-hours radiology for the period 1 April 2013 to 31 March 2014?

2.3 Additional consultant services

- Approximately how many of the consultant clinical radiologists included in your census submission regularly provide a general out-of-hours service? (headcount)
- In an average week, approximately how many clinical sessions are lost due to compensatory arrangements following out-of-hours working?
- In an average week, approximately how much radiologist time (measured in clinical sessions) is taken up preparing and attending MDTMs?

2.4 Comments

Please use the space below to enter any further workforce or workload details you feel are relevant to your census submission but have not already been captured and/or provide general feedback to the College regarding the census.

Appendix 2. 2014 census completions

Thank you to all of the people at the departments listed below for completing the 2012 census – your input is greatly appreciated.

England – Cheshire and Merseyside
Aintree University Hospital NHS Foundation Trust
Alder Hey Children's NHS Foundation Trust
Clatterbridge Cancer Centre NHS Foundation Trust
Countess of Chester Hospital NHS Foundation Trust
Liverpool Heart and Chest NHS Foundation Trust
Mid Cheshire Hospitals NHS Foundation Trust
Royal Liverpool and Broadgreen University Hospitals NHS Trust
St Helens and Knowsley Hospitals NHS Trust
The Walton Centre NHS Foundation Trust
Warrington and Halton Hospitals NHS Foundation Trust
Wirral University Teaching Hospital NHS Foundation Trust

England – East Midlands
Chesterfield Royal Hospital NHS Foundation Trust
Derby Hospitals NHS Foundation Trust
Kettering General Hospital NHS Foundation Trust
Northampton General Hospital NHS Trust
Nottingham University Hospitals NHS Trust
Sherwood Forest Hospitals NHS Foundation Trust
United Lincolnshire Hospitals NHS Trust
University Hospitals of Leicester NHS Trust

England – East of England
Basildon and Thurrock University Hospitals NHS Foundation Trust
Bedford Hospital NHS Trust
Cambridge University Hospitals NHS Foundation Trust
Colchester Hospital University NHS Foundation Trust
East and North Herts NHS Trust
Hinchingbrooke Health Care NHS Trust
Ipswich Hospital NHS Trust
James Paget University Hospitals NHS Foundation Trust
Luton and Dunstable Hospital NHS Foundation Trust
Mid-Essex Hospital Services NHS Trust
Norfolk and Norwich University Hospitals NHS Foundation Trust
Papworth Hospital NHS Foundation Trust
Peterborough and Stamford Hospitals NHS Foundation Trust
Princess Alexandra Hospital NHS Trust
Queen Elizabeth Hospital King's Lynn NHS Trust
Southend University Hospital NHS Foundation Trust
West Hertfordshire Hospitals NHS Trust
West Suffolk NHS Foundation Trust

England – Lincs and South Yorkshire
Barnsley Hospital NHS Foundation Trust
Doncaster and Bassetlaw Hospitals NHS Foundation Trust
Hull and East Yorkshire University Teaching Hospitals NHS Foundation Trust

Northern Lincolnshire and Goole Hospitals NHS Foundation Trust
Sheffield Children's NHS Foundation Trust
Sheffield Teaching Hospitals NHS Foundation Trust
The Rotherham NHS Foundation Trust
York Teaching Hospital NHS Foundation Trust

England – London, North Thames
Barking, Havering and Redbridge University Hospitals NHS Trust
Barts Health NHS Trust
Chelsea and Westminster Hospital NHS Foundation Trust
Ealing Hospital NHS Trust
Great Ormond Street Hospital for Children NHS Foundation Trust
Hillingdon Hospitals NHS Foundation Trust
Homerton University Hospital NHS Foundation Trust
Imperial College Healthcare NHS Trust
Moorfields Eye Hospital NHS Foundation Trust
North Middlesex University Hospital NHS Trust
North West London Hospitals NHS Trust
Royal Brompton and Harefield NHS Foundation Trust
Royal Free London NHS Foundation Trust
Royal National Orthopaedic Hospital NHS Trust
University College London Hospitals NHS Foundation Trust
West Middlesex University Hospital NHS Trust
Whittington Hospital NHS Trust

England – London, South Thames
Croydon Health Services NHS Trust
Epsom and St Helier University Hospitals NHS Trust
Guy's & St Thomas' NHS Foundation Trust
King's College Hospital NHS Foundation Trust
Kingston Hospital NHS Foundation Trust
Lewisham and Greenwich NHS Trust
Royal Marsden NHS Foundation Trust
St George's Healthcare NHS Trust

England – North and West Yorkshire
Airedale NHS Foundation Trust
Bradford Teaching Hospitals NHS Foundation Trust
Calderdale and Huddersfield NHS Foundation Trust
Harrogate and District NHS Foundation Trust
Leeds Teaching Hospitals NHS Trust
Mid Yorkshire Hospitals NHS Trust

England – North East
City Hospitals Sunderland NHS Foundation Trust
County Durham and Darlington NHS Foundation Trust
Gateshead Health NHS Foundation Trust
Newcastle upon Tyne Hospitals NHS Foundation Trust
North Cumbria Acute Hospitals NHS Trust
North Tees and Hartlepool NHS Foundation Trust
Northumbria Healthcare NHS Foundation Trust
South Tees Hospitals NHS Foundation Trust
South Tyneside NHS Foundation Trust

England – North West
Blackpool Teaching Hospitals NHS Foundation Trust
Bolton NHS Foundation Trust
Central Manchester University Hospitals NHS Foundation Trust
Christie NHS Foundation Trust
East Cheshire NHS Trust
East Lancashire Hospitals NHS Trust
Lancashire Teaching Hospitals NHS Foundation Trust
Pennine Acute Hospitals NHS Trust
Salford Royal NHS Foundation Trust
Southport and Ormskirk Hospital NHS Trust
Stockport NHS Foundation Trust
Tameside Hospital NHS Foundation Trust
University Hospital of South Manchester NHS Foundation Trust
University Hospitals of Morecambe Bay NHS Foundation Trust
Wrightington, Wigan and Leigh NHS Foundation Trust

England – Oxford
Buckinghamshire Healthcare NHS Trust
Frimley Health NHS Foundation Trust
Milton Keynes Hospital NHS Foundation Trust
Oxford University Hospitals NHS Trust
Royal Berkshire NHS Foundation Trust

England – South East
Ashford and St Peter's Hospitals NHS Foundation Trust
Brighton and Sussex University Hospitals NHS Trust
Dartford and Gravesham NHS Trust
East Kent Hospitals University NHS Foundation Trust
East Sussex Healthcare NHS Trust
Frimley Park Hospital NHS Foundation Trust
Maidstone and Tunbridge Wells NHS Trust
Medway NHS Foundation Trust
Queen Victoria Hospital NHS Foundation Trust
Surrey & Sussex Healthcare NHS Trust
Western Sussex Hospitals NHS Foundation Trust

England – South West
Gloucestershire Hospitals NHS Foundation Trust
Great Western Hospitals NHS Foundation Trust
North Bristol NHS Trust
Northern Devon Healthcare NHS Trust
Plymouth Hospitals NHS Trust
Royal Cornwall Hospitals NHS Trust
Royal Devon and Exeter NHS Foundation Trust
Royal National Hospital for Rheumatic Diseases NHS Foundation Trust
Royal United Hospitals Bath NHS Foundation Trust
South Devon Healthcare NHS Foundation Trust
Taunton and Somerset NHS Foundation Trust
University Hospitals Bristol NHS Foundation Trust
Weston Area Health NHS Trust
Yeovil District Hospital NHS Foundation Trust

England – Wessex
Dorset County Hospital NHS Foundation Trust
Hampshire Hospitals NHS Foundation Trust
Isle of Wight NHS Trust
Poole Hospital NHS Foundation Trust
Portsmouth Hospitals NHS Trust
Royal Bournemouth & Christchurch Hospitals NHS Foundation Trust
Salisbury NHS Foundation Trust
University Hospital Southampton NHS Foundation Trust

England – West Midlands
Birmingham Children's Hospital NHS Foundation Trust
Birmingham Women's NHS Foundation Trust
Burton Hospitals NHS Foundation Trust
Dudley Group NHS Foundation Trust
George Eliot Hospital NHS Trust
Heart of England NHS Foundation Trust
Mid-Staffordshire NHS Foundation Trust
Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust
Royal Orthopaedic Hospital NHS Foundation Trust
Royal Wolverhampton NHS Trust
Sandwell and West Birmingham Hospitals NHS Trust
Shrewsbury and Telford Hospital NHS Trust
South Warwickshire NHS Foundation Trust
University Hospital Birmingham NHS Foundation Trust
University Hospital of North Midlands NHS Trust
University Hospitals Coventry and Warwickshire NHS Trust
Walsall Healthcare NHS Trust
Worcestershire Acute Hospitals NHS Trust
Wye Valley NHS Trust

Northern Ireland
Belfast Health and Social Care Trust
Northern Health and Social Care Trust
South Eastern Health and Social Care Trust
Southern Health and Social Care Trust
Western Health and Social Care Trust

Scotland
NHS Ayrshire & Arran
NHS Borders
NHS Dumfries and Galloway
NHS Fife
NHS Forth Valley
NHS Grampian
NHS Greater Glasgow and Clyde
NHS Highland
NHS Lanarkshire
NHS Lothian
NHS Tayside
NHS Western Isles

Wales
Abertawe Bro Morgannwg University LHB
Aneurin Bevan LHB
Betsi Cadwaladr University LHB
Cardiff and Vale University LHB
Cwm Taf LHB
Hywel Dda LHB
Velindre NHS Trust

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The Royal College of Radiologists
63 Lincoln's Inn Fields, London WC2A 3JW
Tel: +44 (0)20 7405 1282
Email: enquiries@rcr.ac.uk **www.rcr.ac.uk**

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