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Clinical Oncology
The Royal College of Radiologists

Clinical oncology
UK workforce census report 2020

July 2021

Foreword

Clinical oncologists throughout the UK have worked tremendously hard to keep radiotherapy and systemic anticancer treatment services running during the pandemic. With more patients than ever now being referred for treatment, the continued workforce shortages that the 2020 census exposes are a serious risk to the ability of departments to keep providing the cancer care that we all want to offer. Huge thanks to service directors who all complete the census data each year and make this such a valuable resource and to Jo Lourenco and the RCR team for compiling the data and census reports.

We now have 12 years of census data and predictions to show that we have a major workforce gap that will worsen in the next five years if no action is taken. The RCR welcomes the large expansion of training posts in England in 2021 but these need to be replicated in all four nations and for many more years if the gap is to be narrowed. We will continue to work with others to look at ways to work more effectively within multiprofessional teams, enabling the current oncologist workforce to deliver, lead and develop services. We also need to find innovative ways to reverse the trend of earlier retirement, reduce the number of doctors working unsustainably hard and support less than full-time (LTFT) working.

It is only with central and local funding of many new training and consultant posts that we will be able to find a long-term solution to the workforce crisis and be able to provide the service that people with cancer deserve.

Dr Tom Roques
Medical Director, Professional Practice, Clinical Oncology

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There is a backlog of new patients waiting, longer waiting time for appointments and increases in suboptimal care and complaints.

1. Executive summary

Cancer continues to be one of the leading causes of mortality in the UK. Around 1,000 new cancer cases are diagnosed each day in the UK and one-in-two people born after 1960 will likely develop cancer in their lifetime.[1,2] Although data indicate that UK cancer survival rates are slowly improving, the UK still lags behind other comparable countries. The NHS *Long Term Plan* has committed to improving cancer survival by increasing early diagnosis from half to three-quarters and enabling 55,000 more people to survive cancer for five years or more by 2028.[3]

The UK cancer workforce plays a vital role in fulfilling these ambitions. Yet, without meaningful and sustained investment to grow the oncology workforce, these ambitions will remain simply that. On top of this, the fallout from COVID-19 has made these targets even harder to achieve, with clinicians seeing significant delays in cancer referrals, diagnosis and treatment.

The findings from our latest annual workforce census of clinical oncologists in the UK highlight the widening gap between the future demand for cancer services and the specialist oncologist workforce who provide the service, shortages which threaten to put the *Long Term Plan* and cancer recovery in jeopardy. Urgent and decisive action is needed now to ensure the appropriate clinical oncology (CO) workforce is in place so that improvements to cancer survival can be realised.

Clinical oncology consultant UK workforce capacity – in brief

CO consultants play a central role in cancer teams with approximately half of all cancer patients having some form of radiotherapy and two-fifths (40%) receiving chemotherapy as part of their treatment plans.

- The CO consultant workforce has a shortfall of 17% (189 whole-time equivalents [WTE]) which is set to rise to 28% (401 WTE) by 2025.
- Despite overall growth in the CO consultant workforce there were parts of the UK where a quarter of cancer centres reported no gain or a decline in 2020.
- Over half (52%) of cancer service leaders reported that workforce shortages have negatively impacted the quality of patient care.
- In 2020, 55% of CO consultant vacancies remained unfilled after a year compared with 29% in 2015.
- In the 55+ age group, less than full-time (LTFT) working has increased from three in five CO consultants in 2015 to four in five in 2020.
- The UK CO consultant workforce has grown by 3% per year (on average over the last five years). This falls below the 4% average annual workforce growth across all specialties in England.[4]
- Workforce growth is forecast to slow down from 3% per year seen over the past five years to 2% per year over the next five years.
- The number of doctors starting specialty training would need to double for the next five years to close the forecast workforce gap.

Background

Clinical oncologists lead and participate in teams with nurses, radiographers, physicists, pharmacists and other allied health professionals. These multidisciplinary teams assess and treat cancer using various therapies and interventions, including systemic anticancer therapies (chemotherapy, immunotherapy etc) and radiotherapy; only clinical oncologists are qualified to deliver both forms of treatment. Clinical oncologists also train and mentor specialty trainees and other professionals, lead service improvements and participate in research.

2020 underlined the undisputed value and resilience of the healthcare workforce in responding to the major healthcare challenge brought about by COVID-19; cancer services responded with adaptability and innovation. However, backlog fears add to existing pressure on cancer services. Clinical oncologists and their teams pulled together to ensure that radiotherapy treatment for cancer patients continued to be available for all patients during the pandemic.[5]

New ways of working, altered radiotherapy treatment schedules, better use of technology, improved remote access to hospital systems and the ability to plan radiotherapy remotely were all seen as beneficial changes.

Nevertheless, the pandemic has presented many challenges for cancer services that will continue to reverberate for some time. As cancer referrals return to pre-pandemic levels, there is concern regarding the backlog of cancer patients who may require more complex treatment on top of a growing demand for cancer services. Studies show that approximately 40,000 fewer patients in the UK started treatment for cancer than normal last year.[6]

Over recent years cancer prevalence has increased by 3% per year in the UK, with the need for increased cancer services provided by clinical oncologists rising alongside.[7] Approximately half of all cancer patients have some form of radiotherapy included in their treatment and two-fifths (40%) receive chemotherapy (alone or combined with other treatments).[8] Other factors contributing to increased service demand include:

- A growing and aging population with more complex care needs
- The increase in screening, which has driven up cancer diagnoses at an earlier stage
- Patients' needs and expectations in being fully informed and involved in decision-making about an increasing number of treatment options
- Technological advancements increasing the number and complexity of treatment options available
- The need for clinicians to keep abreast of the latest research, clinical guidelines and technological developments as well as time to lead service developments and teach/supervise trainees and others in the team.

The oncology workforce has not been able to keep up with the increasing demand and with workforce growth predicted to slow down in the next five years the future for cancer services looks ever more fragile without significant investment.

Key findings

1. Cancer workforce 'winners and losers' across the UK

Tackling health inequalities and ensuring access to services remains a top priority for government, NHS leaders and health professionals. Although the CO consultant workforce grew by 3% per year (on average over the last five years), the picture across the UK varies significantly. For instance, North Wales saw no growth in the CO consultant workforce over the past five years. Also, growth was minimal (average 1% per year) in the East of England, the North West of England and South East Scotland. Workforce growth was even more variable between UK cancer centres. While a quarter of cancer centres reported average annual workforce growth of 6% or more per year, another quarter reported no gain or a decline in their CO consultant workforce.

There is also significant variability across the UK in the distribution of CO consultants relative to population size. Wales and England have five consultant oncologists per 100,000 'older' population (aged 50 or over). By contrast, Northern Ireland has approximately seven. The distribution of consultant (clinical and medical) oncologists across cancer centres ranges from 12 to 43 WTEs per million population.

Regional variation in workforce has a direct impact on the care that patients receive. In areas that have acute staff shortages access to services is likely to be in higher demand. A global study found that a delay of treatment for cancer of four weeks is associated with a 6–13% increase in the risk of death, so any delays are likely to have a major impact on patients' chances of survival.[9] To improve cancer outcomes for all, the CO workforce must be levelled up across the UK to address regional variations.

2. Trend to work more flexibly and less than full-time rises amid ongoing recruitment challenges

LTFT working across the UK has steadily become more common over the past five years, with the most significant shift towards LTFT working seen in those approaching retirement age (the 55+ age group).

LTFT and flexible working options play an increasingly important part in workforce retention. Not only do they support improved staff wellbeing but they also enable older CO consultants to keep working for longer compared with their full-time colleagues who retire, on average, three years earlier. As well as ensuring flexible models are optimised to support retention of the current workforce, future workforce planning should account for this growing preference when projecting specialty training place requirements.

Despite census data in 2020 showing an increase in the number of consultants recruited to the UK workforce, the data also showed that UK cancer centres could not recruit all the CO consultants needed to fill existing vacancies. Over half of all CO consultant vacancies remained unfilled for more than a year. Ongoing problems of insufficient numbers of trainees, a lack of suitable UK candidates and significant barriers to global recruitment were all contributory factors.

3. The most common cancers are facing the greatest workforce shortages while 24/7 acute oncology service (AOS)provision is not growing fast enough

Breast, lung, prostate and bowel together account for over half of all cancers diagnosed in the UK.[1] High levels of vacancies for specialists in these tumour sites are particularly

alarming, with specialists in breast and lung revealing minimal growth in the past five years, which is insufficient to meet the growing demand for these specialists.

Acute oncology teams provide multidisciplinary clinical expertise to support the care of acutely unwell cancer patients, avoiding hospital admissions where possible. In England, one in five cancers are diagnosed following an emergency presentation, the number of older people living with cancer has grown by 23% over a five-year period and 9.2 million bed days are utilised for advanced cancer and end-of-life care.[10] It is recommended that all hospitals with an emergency department have an AOS in place.[11]

However, while two-thirds of cancer centres provide a dedicated unit for assessment and admission of acutely ill cancer patients during standard working hours, only a quarter can provide a 24/7 service despite this number reflecting a modest increase.

RCR recommendations

In response to the findings in this report we recommend that:

- The 2021 increase clinical oncology training numbers in England and Wales should be repeated in subsequent years and should be replicated across the individual UK nations
- NHS leaders should improve staff retention through consulting on, implementing and evaluating appropriate retention strategies. They should also ensure that flexibility in working patterns and opportunities to work LTFT are available to all NHS staff
- Local and national health leaders must account for increased demand for LTFT working in all workforce planning and projections
- NHS trusts and health boards should ensure increased capacity in job plans for service improvement and research for the benefit of patients
- Governments should create incentives to prioritise additional training places in areas worst affected by workforce growth
- Governments must provide funding for better admin and information technology (IT) support to improve the efficiency and productivity of cancer services
- Local and national health leaders should continue to facilitate skillmix, with sustained investment in training to support this
- Governments across the UK must invest in ways to share best practice and implement new treatments and techniques in every cancer centre, including operational delivery networks (ODNs)
- NHS employing organisations should monitor the risks associated with doctors working excessive hours and take prompt mitigating action where risks are identified.

2. Workforce supply

UK cancer centres could not recruit all the CO consultants they needed in 2020. Alongside the significant difficulties and constraints caused by the COVID-19 pandemic, there were ongoing problems including insufficient numbers of trainees, a lack of suitable UK candidates and significant barriers to global recruitment.

Workforce overview

CO consultants lead and participate in teams with nurses, radiographers, physicists, pharmacists and other allied health professionals. These multidisciplinary teams assess and treat cancer using various therapies and interventions, including radiotherapy, systemic anticancer therapy (SACT) and immunotherapy.

Table 1 shows that the 62 UK cancer centres employed 1,559 consultant-grade oncologists in 2020.

Table 1. Clinical and medical oncology workforce (headcount) – UK, 2020

	England	Northern Ireland	Scotland	Wales	UK total
CO consultants	815	32	89	55	991
Medical oncology (MO) consultants	473	17	58	20	568
Consultant total	1,288	49	147	75	1,559
CO specialty trainees	382	18	43	22	465
SAS grade	76	4	2	3	85
CO total (all grades)	1,273	54	134	80	1,541

Consultant includes NHS, academic and mixed NHS/academic posts.
SAS grade comprises associate specialists, specialty doctors and trust-grade staff.

The CO consultant workforce grew by 5% (53 consultants) during the past year, exceeding the 3% average annual growth seen over the past five years.

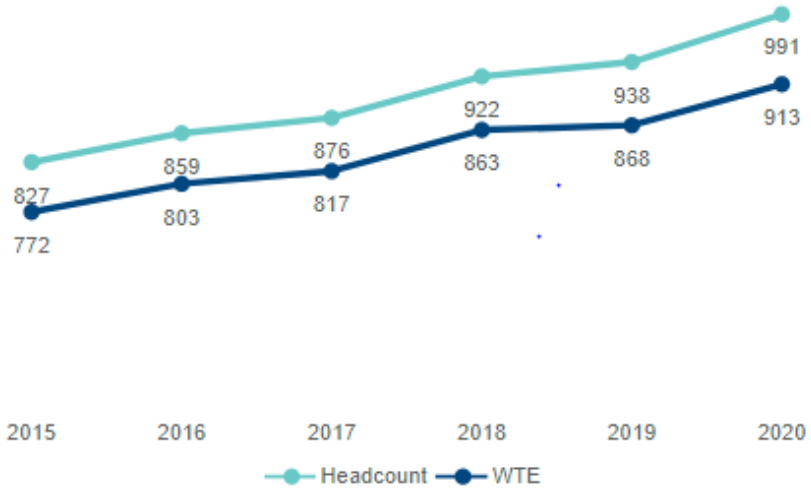
By contrast, there was no increase in the number of CO specialty trainees and the number of SAS-grade doctors decreased by 11% (11 doctors) over the past year. There is increasing recognition of the value of SAS-grade doctors within clinical teams, for example the recent contractual reform in England.[12] However, clinical oncology has a low proportion of SAS-grade doctors compared with other medical specialties.[13] Within the UK, Scotland has the fewest SAS-grade oncologists. Cancer centres should consider SAS-grade expansion as part of plans to grow the oncology workforce.

The census does not capture staff absence levels, for example due to parental leave, sickness, shielding or secondment. In 2020, just over half (52%) of UK cancer centres reported reduced workforce capacity due to the COVID-19 pandemic.

Consultant workforce: five-year trend

The total of 991 UK consultant clinical oncologists equates to 913 whole-time equivalents (WTEs).* Figure 1 illustrates the steady CO consultant workforce growth over the past five years, averaging 3% per year. This falls below the 4% average annual workforce growth across all medical specialties in England.[4]

Figure 1. Clinical oncology consultant workforce – UK, five-year trend (2015–2020)



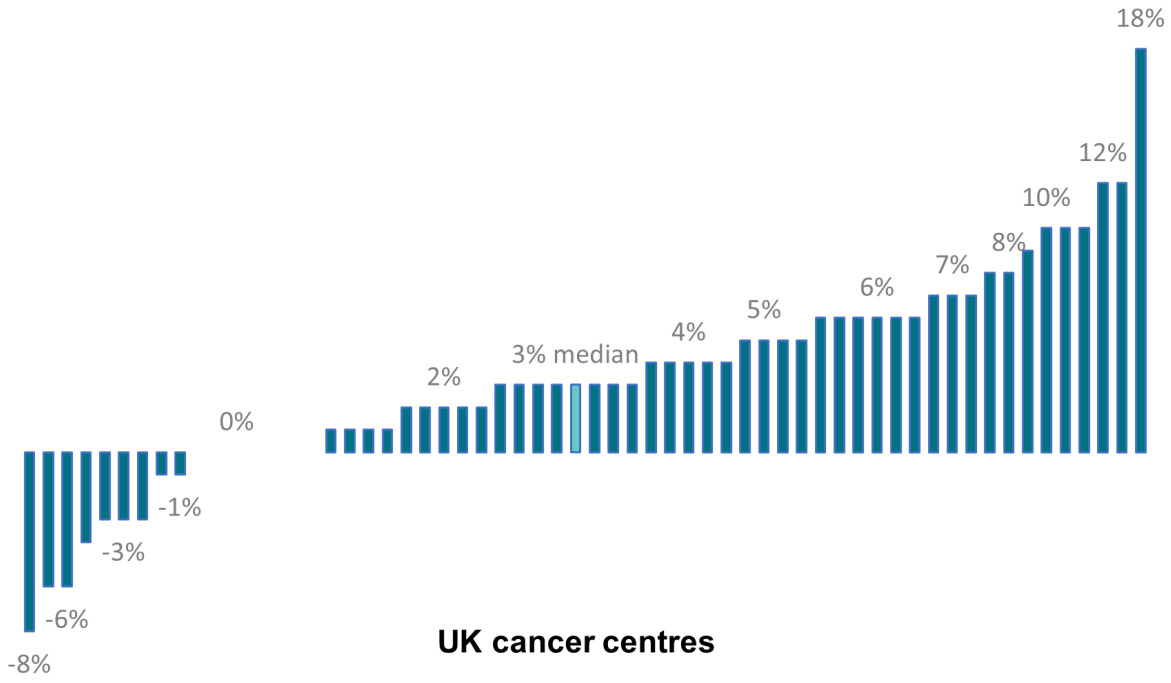
Workforce growth varies significantly across UK nations and regions. For example, the CO consultant workforce in England and Wales has grown by 3% per year (on average) over the past five years compared with the average growth of 5% and 6% per year seen in Northern Ireland and Scotland respectively.

At regional level, the north of Wales has seen no growth in the CO consultant workforce over the past five years. In addition, there has been minimal growth (averaging 1% per year) in the East of England, the North West of England and South East Scotland.

**A WTE is a whole-time (or full-time) doctor contracted for ten programmed activities (PAs) per week, equivalent to a 40-hour week in England, Northern Ireland and Scotland, and 37.5 hours in Wales.*

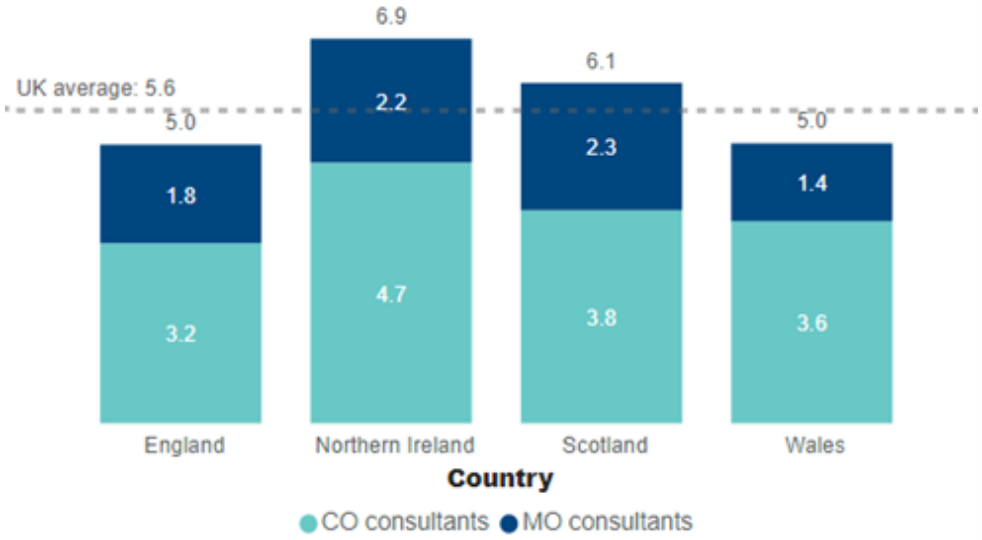
Workforce growth has been most variable at a cancer centre level. For example, while approximately one-quarter of cancer centres (n=18) recorded average annual workforce growth of 6% or more per year over the past five years, another quarter (n=16) reported no gain or a decline in their CO consultant workforce. The significant variability in workforce growth across the UK is illustrated in Figure 2. Workforce data by cancer centre can be found in Appendix 3.

Figure 2. Average annual clinical oncology consultant workforce growth – UK cancer centres, past five years (2015–2020)



There is significant variability across the UK in the distribution of consultant (clinical and medical) oncologists relative to population size. Figure 3 shows Wales and England (where workforce growth has been relatively slow) have five consultant oncologists per 100,000 'older' population (aged 50 or over).[14] By contrast, Northern Ireland has approximately seven.

Figure 3. Consultant oncologists per 100,000 older population (50+ years) – UK nations, 2020



Cancer incidence rises with age. Nine-in-ten cancers occur in the 'older' population aged 50+.[15]

The distribution of consultant (clinical and medical) oncologists across cancer centres relative to population varies significantly. Figures are detailed in Appendix 3.

While these figures give a broad indication of the relative supply of oncology consultants per size of the population, they are simplistic and should be considered alongside other national and local indicators of demand for cancer services. For example, deprivation levels tend to increase the need for cancer and health services in a region. Local service delivery models, such as use of skillmix, also determine the requirement for CO consultants and other workforce groups.

Impact of COVID-19 on cancer centres

Approximately half of UK cancer centres (52%) reported that COVID-19 had reduced their consultant workforce capacity over the past year, though only four (7%) reported a significant impact. Many cancer centres reported the following as factors contributing to reduced capacity: staff shielding or self-isolating, staff sickness and the redeployment of specialty trainees. These pressures increased the workload for the remaining oncology team, with some heads of service commenting on increased stress and anxiety levels.

The pandemic has underlined the undisputed value and resilience of the healthcare workforce and highlighted its adaptability and innovation. For example, all cancer centres bar one changed oncology teams' working patterns due to COVID-19, with two in five cancer centres (39%) reporting significant changes.

Other reported changes in response to COVID-19

- Most commonly, heads of service reported homeworking, remote consultations and meetings and fewer visitors to comply with social distancing and shielding measures.
- Many reported clinical changes included introducing COVID-19 testing, protocols and procedures and altered radiotherapy treatment schedules (for example, hypofractionation*). A few cancer centres outlined moving to treatment in the community and greater use of imaging due to the difficulties of examining and assessing patients remotely.
- Several heads of service commented on the positives. The COVID-19 pandemic was a catalyst for new ways of working and better use of technology. Improved remote access to hospital systems and the ability to carry out radiotherapy contouring and planning remotely were seen as welcome changes.

A few heads of service noted that their oncology team/s pulled together and worked very effectively in challenging circumstances.

Programmed activities

The RCR census collects data on CO consultants' contracted PAs to monitor trends and variance from guidelines. It does not collect data on unpaid work in addition to contracted PAs.

The census monitors the following types of PAs:[16]

- Direct clinical care (DCC): work directly relating to the prevention, diagnosis or treatment of illness. DCC PAs also include the associated planning, administration, travel and meeting time. Additionally, DCC time covers the recruitment of patients to clinical trials and monitoring of those patients, as well as the supervision of specialty trainees.
- Supporting professional activities (SPAs): activities undertaken to comply with clinical governance and revalidation requirements including mandatory training, audit and quality improvement, continuing professional development and appraisal. SPAs also include activities such as teaching and training.
- Additional programmed activities (additional PAs): additional responsibilities not undertaken by the generality of consultants, such as those associated with the roles of a clinical or medical director, audit lead or training programme director.
- Research programmed activities (research PAs): responsibilities such as those of a principal investigator, the lead applicant on a research grant, or supervision of MD (Res) or PhD students.

In 2020, full-time CO consultants were contracted for an average of 11.5 PAs per week, equivalent to a 46-hour working week; LTFT consultants were contracted for an average of 8.1 PAs per week, equivalent to a 32-hour working week.

**Hypofractionated radiotherapy is the delivery of fewer, larger doses of radiotherapy, reducing the number of appointments patients are required to attend.*

The RCR recommends that the DCC element of a job plan for a full-time CO consultant should not normally exceed 7.5 PAs and should be balanced by 2.5 SPAs.[16] The 2020 census data show:

- **DCCs:** Full-time NHS CO consultants across the UK were contracted for 9.2 DCCs (on average) per week in 2020. This is equivalent to seven hours more than the RCR recommended maximum. High levels of DCCs in job plans risk leaving insufficient time for SPAs and can contribute to excessive working hours. In Northern Ireland, full-time CO consultants were contracted for 10.4 DCCs per week (on average), exceeding the recommended level by approximately 12 hours per week.
- **SPAs:** Full-time NHS CO consultants were contracted for 1.8 SPAs (on average) per week in 2020, equivalent to approximately three hours less than the RCR recommended threshold. Wales was the only UK nation where many CO consultants' contracts met the RCR SPA recommendation of 2.5. Insufficient SPA time compromises doctors' ability to keep their knowledge up to date, revalidate and undertake audit and quality-improvement activities. Such activities are vital to improving cancer services and facilitating better outcomes for patients. Furthermore, sufficient SPA time is important for staff mental health and to make vacant posts attractive to potential candidates.

The RCR and Academy of Medical Royal Colleges recommend a minimum of 1.5 SPAs per week.[16,17] It is concerning that, in 2020, nearly half of LTFT CO consultants' contracts (47%) and 13% of full-time contracts fell below this recommended minimum. More than three-quarters (82%) of LTFT CO consultants in the 60+ age group reported having inadequate SPA time, with job plans including one SPA or fewer. In addition to the difficulty of undertaking SPA activities within compressed time frames, CO consultants with insufficient SPA time may be inclined to retire early, thereby exacerbating workforce shortages and the loss of expertise.

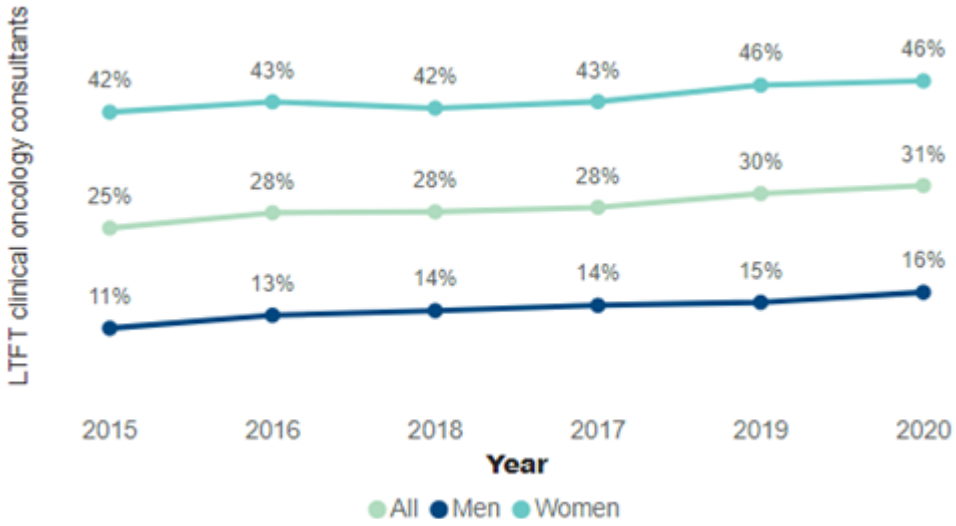
In 2020, two-in-five (40%) full-time CO consultants had job plans including 12 or more PAs, equivalent to a working week of at least 48 hours, before any overtime. The Royal College of Physicians (RCP) estimated that consultants work on average 10% more than their contracted hours.[18] Therefore, many CO consultants are likely to work in excess of 50 hours per week on a regular basis. NHS employing organisations should monitor the risks associated with doctors working excessive hours.

Less than full-time working

LTFT is defined as working fewer than ten contracted PAs per week, equivalent to a 40-hour working week (or 37.5 hours in Wales). LTFT working among CO consultants has become increasingly common over the past five years. The most significant shift towards LTFT working has been seen in those approaching retirement age (the 55+ age group). In this age group, LTFT working increased from three in ten (30%) CO consultants in 2015 to four-in-ten (40%) in 2020. LTFT and flexible working can play an essential part in workforce retention; census data show that full-time CO consultants retire on average three years earlier than their LTFT counterparts.

LTFT working is more prevalent among women than men. Figure 4 shows that almost half (46%) of female CO consultants worked LTFT in 2020. LTFT working has also increased among male doctors; 15% of male CO consultants worked LTFT in 2020.

Figure 4. Frequency of LTFT working, clinical oncology consultants – UK, five-year trend (2015–2020)



Census data show that, while numbers remain small, it is increasingly common for CO consultants to hold more than one employment contract. In 2020, 17 CO consultants (2%) had two NHS CO contracts, compared with seven CO consultants (1%) in 2015.

The NHS should ensure the availability of, and support for, flexible career options to maximise staff wellbeing and staff retention. In addition, workforce planning should factor in the increasing demand for LTFT working.

Vacancies

Cancer centres reported 90 vacancies in 2020, comprising 87 consultant-grade vacancies and three SAS-grade vacancies. Vacancy data provide insight into the extent of workforce shortfalls. However, they do not reflect the entire shortfall as vacancies are constrained by other factors including budgets and a lack of suitable candidates.

The UK CO consultant vacancy rate is 8%. The consultant vacancy rate is highest in Northern Ireland at 12% and lowest in Scotland at 6%. This is shown in Table 2.

Table 2. Vacancies and vacancy rates, CO consultants – UK, 2020

	England	Northern Ireland	Scotland	Wales	UK total
Vacancies	71	5	6	5	87
Vacancy rate	8%	12%	6%	8%	8%

Cancer centres highlighted several factors which restricted or delayed recruitment in 2020

COVID-19

- 'Delays with applications due to COVID-19 travel restrictions.'

Lack of suitable candidates

- 'No applicants.'
- 'No success recruiting from locum agencies or overseas.'
- 'Will advertise, but [there is a] limited pool of candidates.'

Takes time to build the business case

- '[The] workforce is insufficient to manage [the] workload. The business case for additional consultants is being written.'

Waiting for trainees to complete training

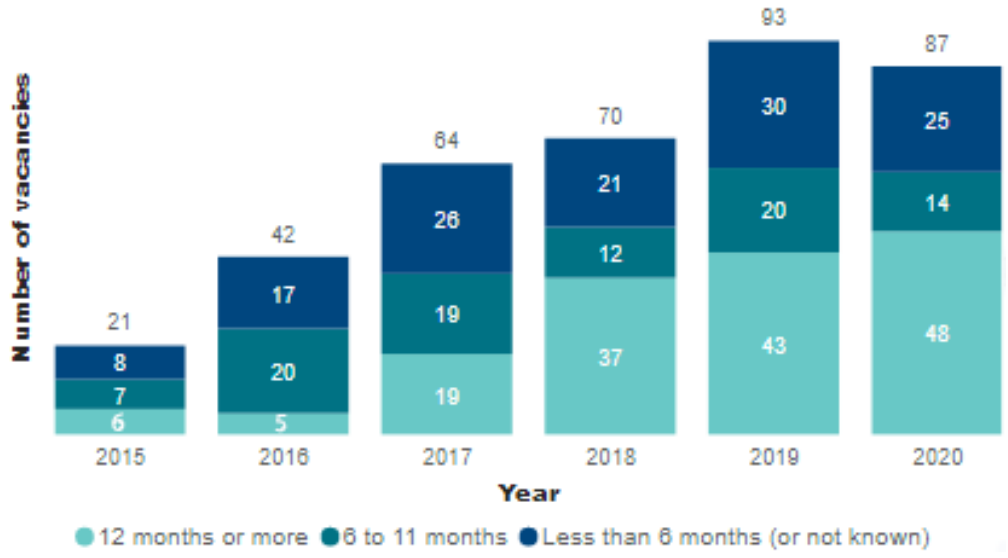
- 'We have a strong pipeline of trainees to fill vacancies, but sometimes this means there is a delay in advertising posts.'

Lack of funding

- 'Getting further locums has proved to be too costly to consider.'

CO consultant vacancies are increasingly challenging to fill. This is highlighted by the growing proportion of vacancies that remain unfilled for over a year, despite numerous recruitment attempts. In 2020, over half (55%, n=48) of CO consultant vacancies remained unfilled after a year compared with just over a quarter (29%, n=6) in 2015. Figure 5 shows the five-year trend in the number and length of vacancies.

Figure 5. Number and length of clinical oncology consultant vacancies – UK, five-year trend (2015–2020)

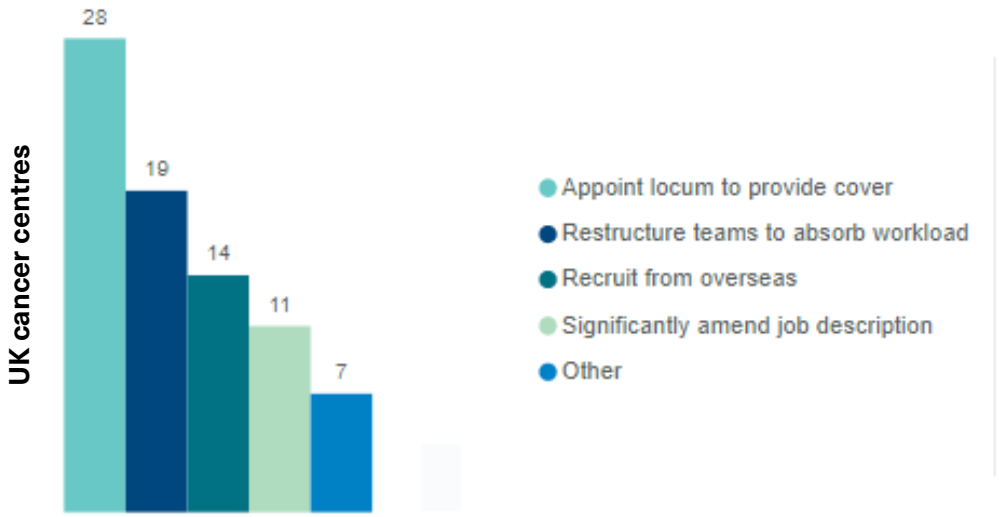


Please see Section 5 for information on vacancies and vacancy rates by site specialty.

Cancer centres outlined their approach to dealing with vacancies they had advertised but not managed to fill. Figure 6 summarises the findings. The most common method was to seek a locum to provide temporary cover. As a result, the number of locums has increased from 17 (2% of the workforce) in 2015 to 43 (4% of the workforce) in 2020. While locums can be invaluable in covering vacant positions and long-term absence, the General Medical Council (GMC) highlights the challenges of effective locum induction and team integration due to the intended short-term nature of these appointments.[19]

Restructuring the multidisciplinary oncology team to use skills optimally and minimise workforce gaps was also a common approach to dealing with unfilled vacancies and workforce shortages. However, significant change takes time and expertise to plan and implement and can be challenging when there are vacancies across several roles within a team.

Figure 6. Plans for vacant posts where recruitment attempts have failed



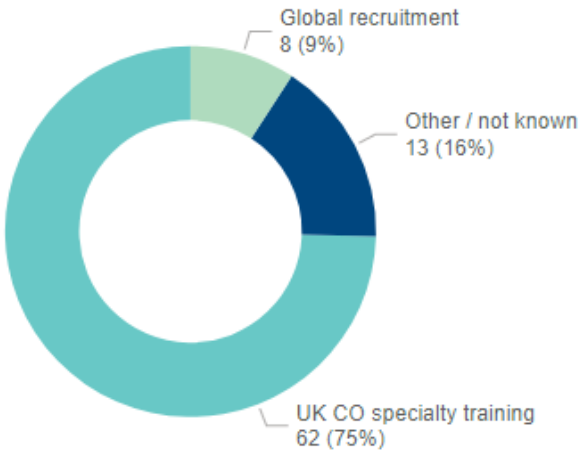
Recruitment

Census data show that 82 CO consultants (WTE) were recruited to the UK workforce over the year to October 2020. This is above the five-year average of 67 CO consultants (WTE), indicating some success with recruitment activities over the past year despite very challenging circumstances. Of the newly appointed consultants:

- Three-quarters came from UK clinical oncology specialty training
  [Approximately 10% of this cohort joined the GMC specialist register more than five years ago, likely indicating that these are re-joiners to the workforce rather than new CO consultants.]
- Approximately one-in-ten are assumed global recruitment
  [These doctors undertook their primary medical qualification outside the UK and have not undertaken UK specialty training.]
- The origin of the remaining 16% (n=13) is not known.
  [This group includes older CO consultants returning to practice after taking time out and those whose GMC number is not known.]

This is shown in Figure 7.

Figure 7. Source of newly appointed clinical oncology consultants – UK, 2020



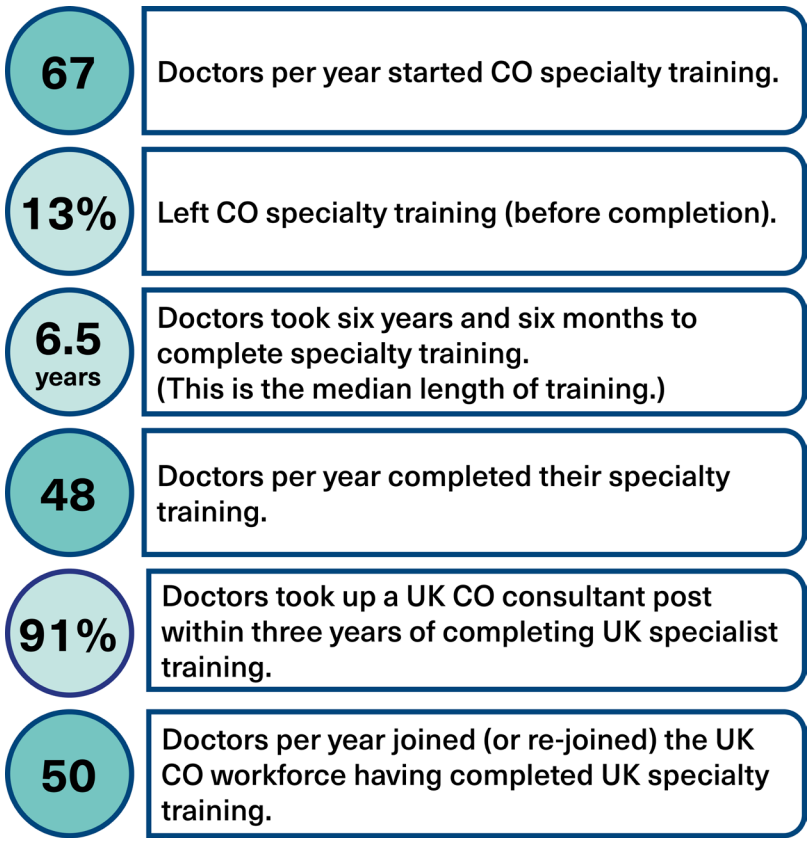
There is national and regional variation in recruitment patterns. The level of (assumed) global recruitment over the past five years is highest in Northern Ireland (23%), primarily due to recruitment from south of the Irish border, and lowest in Wales (0%).

UK specialty training

Opportunities for global recruitment of CO consultants are very restricted, so an adequate supply of UK trainees is vital. The UK clinical oncology workforce needs to grow to meet patients' needs for cancer services. An inadequate supply will mean that people with cancer may receive suboptimal care.

Figure 8 illustrates the flow of clinical oncology specialty trainees into UK CO consultant posts over the past five years.

Figure 8. Supply of UK clinical oncology specialty trainees into the consultant workforce – UK, past five years (2016–2020)



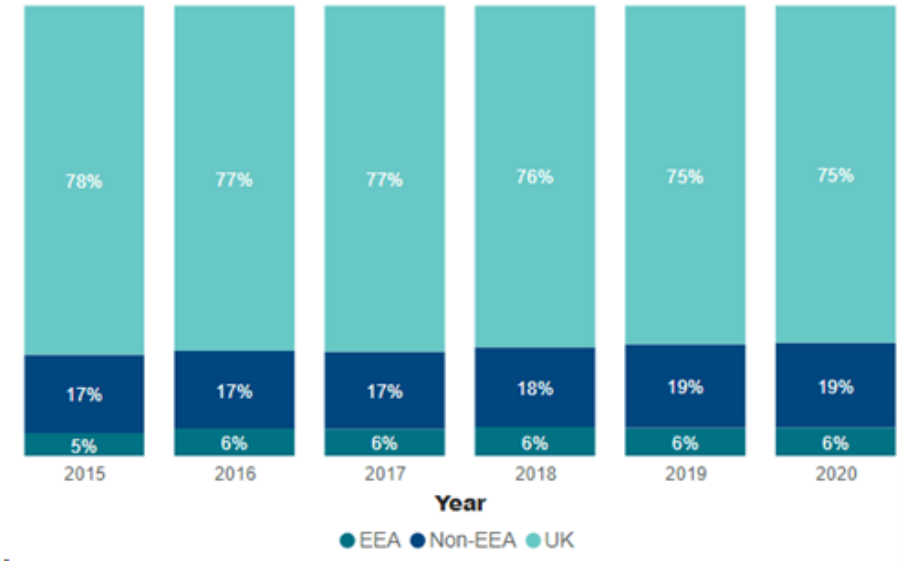
Please note, this is not one cohort. Therefore, direct comparisons between elements of the flowchart are not possible. Figures given are the average values over the past five years.

Global recruitment

Over the past five years, cancer centres have turned to global recruitment to fill CO consultant vacancies due to insufficient supply within the UK. However, overseas training in oncology tends to be split into radiation oncology and systemic therapy, unlike UK clinical oncology specialty training, which covers both aspects of non-surgical oncology. This difference makes it challenging to fill UK clinical oncology consultant posts with candidates trained overseas.

Nonetheless, fuelled by recruitment from non-European Economic Area (EEA) countries, notably India and Pakistan, the clinical oncology workforce has gradually become more global. The non-EEA proportion of the UK CO consultant workforce has grown steadily from 17% to 19% over the past five years. EEA recruitment has not increased at the same pace. Figure 9 illustrates these trends.

Figure 9. Clinical oncology consultants' region of primary medical qualification (a proxy for nationality) – UK, 2020



Global recruitment in this report refers to doctors recruited directly from outside the UK and global doctors who have undertaken UK clinical oncology specialty training and chosen to remain in the UK.

Global recruitment challenges include visa processes, political uncertainty and English language requirements. Global recruitment became even more challenging in 2020 due to the COVID-19 pandemic and associated sickness levels, self-isolation, lockdowns and travel restrictions.

Retirements and other leavers

Over the past year, 38 CO consultants left the workforce, equal to 4% attrition. This is on a par with the 4% average UK attrition seen over the past five years. Given the significant workforce pressures, it is a positive finding that attrition rates did not rise in 2020. Nonetheless, the pandemic has resulted in burnout among CO consultants with many planning to reduce their hours or leave the NHS altogether in the next year. This would have a devastating impact on vital cancer services.[20]

Over the past five years, attrition levels have been broadly similar across UK nations with the exception of Wales, where CO consultant attrition levels have been low, averaging 1% per year.

Full-time CO consultants tend to retire approximately three years earlier than their LTFT counterparts. Over the past five years, the average retirement age for full-time CO consultants is 59 years compared with 62 years for LTFT consultants.

3. Demand for cancer services

The COVID-19 pandemic has presented many challenges for cancer services. Fewer people sought appointments with their general practitioners (GP) during the pandemic, including those with possible cancer symptoms.[21] In addition, people with cancer have waited longer for diagnoses and some treatments needed to be delivered in different ways; other treatment was paused on the grounds of clinical safety; and there has been significant disruption to follow-up care.[22] As cancer referrals return to pre-pandemic levels, estimates indicate that there are around 40,000 undiagnosed 'missing' people with cancer in the UK. Without an increase in the workforce, patients will face longer waiting times for life-saving treatment.

Cancer continues to be one of the leading causes of mortality in the UK.[23] Around 1,000 new cancer cases are diagnosed each day in the UK and cancer causes more than one in four of all UK deaths.[1,24] Although data indicate that UK cancer survival rates are improving, the UK still lags behind other comparable countries.[25] The UK cancer workforce is not large enough to provide people with cancer with earlier diagnoses, faster treatments and improved care to increase survival rates.

Factors that drive the increasing demand for cancer services

The need for cancer services and the demand for CO and MO consultants have risen over recent years as a result of:

- **Increased numbers of people with cancer.** Cancer prevalence means the number of people who have had a diagnosis of cancer. Over recent years cancer prevalence has increased by 3% per year in the UK.[26]
- **A growing and aging population with more complex care needs.** Older patients are much more likely to develop cancer. They are also increasingly likely to have co-morbidities (other health problems which affect care needs).[27] As a result, their care needs tend to be complex.
- **Increased screening** to support early diagnosis of cancer.
- **Patients' needs and expectations.** Patients expect higher standards of personalised care, more information about treatment, more involvement in decision-making and access to the latest treatments. This places more demand on consultant oncologists' time. In addition, many people with cancer benefit from multiple lines of treatment, with care plans adjusted (sometimes repeatedly) depending upon their response to treatment.
- **Technological advances.** Advances in systemic therapy and radiotherapy have contributed to people with cancer receiving more effective treatment, with increased survival rates and fewer side-effects. However, technological advances usually increase the number and complexity of treatment options.

As well as delivering more complex care needs to increasing numbers of patients, consultant oncologists need adequate time in their job plans to keep abreast of the latest research, clinical guidelines and technological developments. They also need time to lead and support service developments such as process and quality improvements and embedding new technologies into practice, all of which improve the quality of care.

Routine cancer treatment

Radiotherapy, SACT and surgery are the most common treatment types for people with cancer.

Demand for radiotherapy

Approximately half of all people with cancer have some form of radiotherapy as part of their treatment.[8] The demand for radiotherapy has risen steadily over the past ten years and is expected to continue to rise over the next decade. For example, the proportion of people with cancer requiring radiotherapy as part of their treatment is forecast to increase from 50% to 60% by 2025.[28] However, radiotherapy treatment has been impacted by the pandemic and radiotherapy episodes decreased by 11% in the six months from March to September 2020 compared with the previous year.[29]

Demand for systemic anticancer therapy (SACT)

Approximately two-fifths (40%) of patients diagnosed with cancer are treated with SACT either alone or combined with other treatments.[29] Before the COVID-19 pandemic, courses of SACT were rising by 8% per year.

These figures exclude patients where there is no record of them being treated with radiotherapy, SACT or surgery.

Access to routine radiotherapy and SACT

The census collects data on cancer centre opening hours and access to routine radiotherapy and SACT services. These are shown in Table 3. Almost all cancer centres are open for at least eight hours per day from Monday to Friday but few open routinely at the weekends.

Table 3. Opening hours for routine radiotherapy and SACT – UK cancer centres, 2020

Treatment	Days	11+ hours	8–10 hours	1–7 hours	Open ad hoc	Closed
Radiotherapy	Mon–Fri	11	49	1	0	0
	Sat	0	0	9	31	21
	Sun	0	0	6	24	31
SACT	Mon–Fri	20	41	0	0	0
	Sat	1	3	13	12	32
	Sun	0	0	3	8	50

One cancer centre was unable to supply opening times data for 2020.

The COVID-19 pandemic reversed the gradual trend towards extended opening hours to meet the increasing demand for radiotherapy. 2020 saw a shift towards more flexible opening times dependent on demand. The number of cancer centres routinely open for radiotherapy on:

- Saturdays dropped from 17 to nine
- Sundays dropped from 12 to six
- Weekdays for 11 or more hours dropped from 20 to 11.

Half of cancer centres opened on an ad hoc basis at the weekend for radiotherapy.

Of those who reduced opening hours, one head of service explained it 'reflected reduced referrals' and 'reduced demand.'

The impact of the COVID-19 pandemic on routine SACT opening hours was less marked. The number of cancer centres open for routine SACT on:

- Saturdays increased from 15 to 17
- Sundays dropped from four to three
- Weekdays for eight or more hours remained stable at 60.

One-in-five cancer centres (20%, n=12) opened on an ad hoc basis at the weekend for SACT.

One head of service explained that, 'Due to social distancing, [there has been] slower delivery of SACT and thus longer opening hours required to fit patients in.' Another added, 'Extended day due to reduced chair capacity as a result of the two-metre social distancing [requirement].' However, others reduced routine SACT opening hours 'due to staff capacity'.

Acute oncology services (AOS)

Acute oncology teams provide multidisciplinary clinical expertise to support patient-centred, high-quality care of acutely unwell people with cancer. These may be people with symptoms from their cancer or who have side-effects of treatment. This care is usually delivered in outpatient assessment units where patients can be reviewed and receive care but still return home, avoiding admissions to hospital unless this is essential. AOS should be different to a standard on-call rota where doctors take turns to look after people already admitted to hospital wards.

People using AOS may be suffering from cancer symptoms or complications of cancer treatment or may present as an emergency and have a suspected new cancer diagnosis. As the number and complexity of cancer cases continue to increase and pressures on urgent care mount, AOS teams are vital to provide consistent, timely, high-quality care for people with cancer. In England:

- One-in-five cancers are diagnosed following an emergency presentation
- The number of older people living with cancer has grown by 23% over a five-year period
- 9.2 million bed days are used for advanced cancer and end-of-life care.[11]

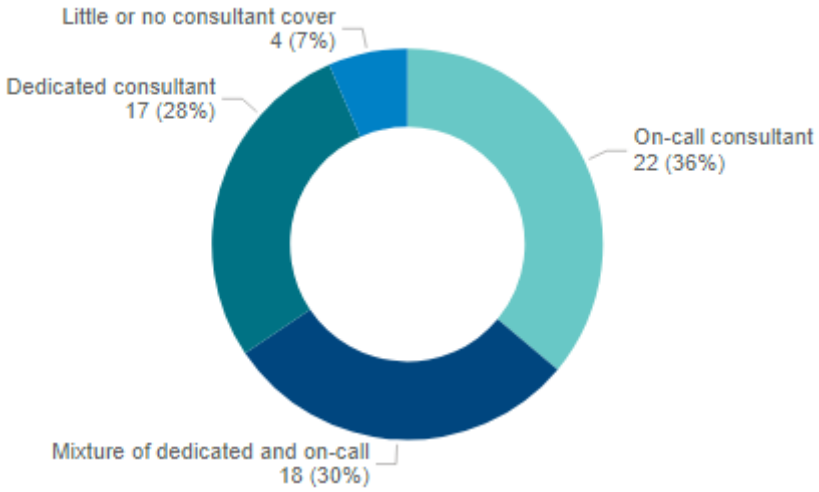
AOS play an important role in optimising clinician time and expertise to ensure the best use of NHS services. NHS trusts can reduce costs through the appropriate use of investigations, early discharge and admission avoidance.[30] It is recommended that all hospitals with an emergency department have an AOS team in place.[30]

AOS during standard working hours

Dedicated units for assessment and admission of people with cancer ensure prompt expert assessments by an AOS team and rapid decisions about the most appropriate, safe and effective intervention/s. In 2020, two-thirds of cancer centres (66%, n=40) provided a dedicated unit for assessment and admission of acutely ill people with cancer during standard working hours (Monday to Friday 9 am–5 pm), an increase of three centres over the past year.

AOS provision varies across the UK. Only a quarter of cancer centres (28%, n=17) have dedicated consultant cover to oversee and support their AOS provision on weekdays (Monday to Friday, 9 am–5 pm). The majority of cancer centres (66%, n=40) operate using on-call consultants or a mixture of dedicated and on-call consultant support. Of concern, four cancer centres (7% of the total) have little or no consultant cover in place for AOS. Figure 10 illustrates these findings.

Figure 10. Consultant cover for AOS, 9 am–5 pm, Monday to Friday – UK, 2020



Out-of-hours AOS (overnight and weekends)

Acute oncology telephone advice lines provide information, expert guidance and signposting for people with cancer. In 2020, all cancer centres provided their patients (and those caring for patients) with 24/7 AOS telephone access.

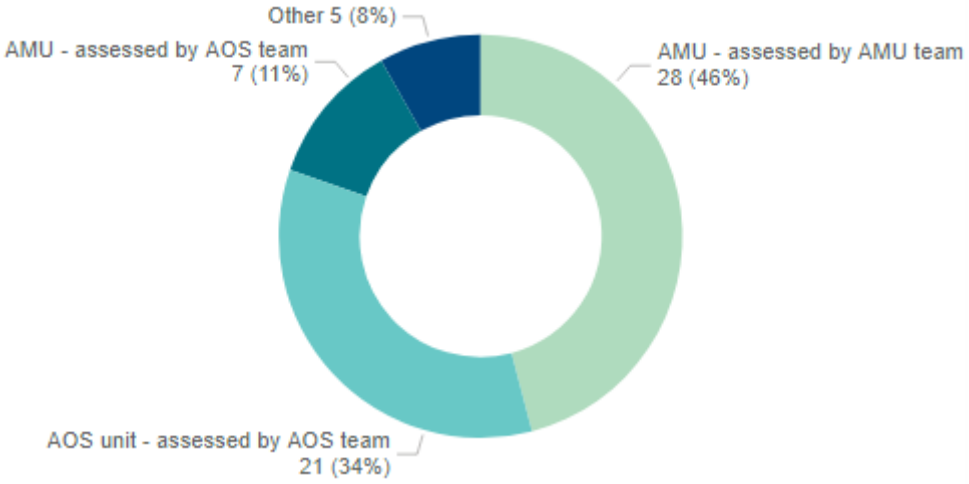
However, in 2020, only a quarter of cancer centres (26%, n=16) provided a 24-hour (and seven days a week) dedicated unit for assessment and admission of acutely ill people with cancer. While this is an increase of four cancer centres offering this service over the past year, universal access to 24/7 AOS services would help to ensure acutely unwell people with cancer receive optimum care regardless of where they live.

Emergencies

Acute oncology teams work collaboratively with emergency medical unit teams to ensure that people with cancer with emergency complications such as neutropenic sepsis or metastatic spinal cord compression (MSCC) receive a timely risk assessment by a competent healthcare professional.[10]

The 2020 census sought information on which team assesses patients with suspected neutropenic sepsis outside of standard working hours. Almost half of UK cancer centres (46%, n=28) reported that the AOS team assess these patients in the AOS unit or cancer ward or, less commonly, in the acute medical unit (AMU) or emergency department. An equal number of cancer centres reported that AMU staff assess patients in the AMU or emergency department. These results are shown in Figure 11.

Figure 11. Out-of-hours assessment of patients suspected to have neutropenic sepsis – UK, 2020



'Other' includes mixed arrangements, such as AOS team until 8 pm, then AMU team overnight.

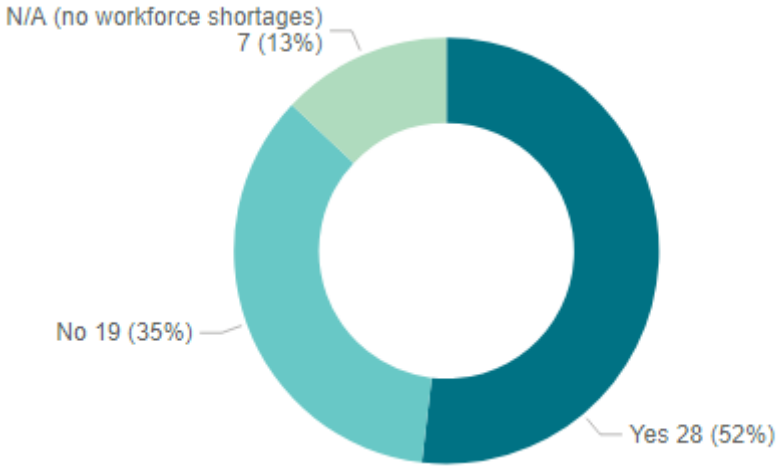
A few heads of cancer services stated that workforce shortages impact AOS provision. For example, 'Our AOS/triage bay was closed more than open this year due to staffing limitations.'

Heads of service views on workforce capacity

In 2020, just over half of UK cancer centres' heads of service (52%) reported that workforce shortages negatively impacted the quality of care provided to patients. Figure 12 illustrates these findings. Views were similar across UK nations, apart from Northern Ireland, where all heads of service felt that patient care was negatively impacted.

Figure 12. Cancer centre heads of service's views of staffing levels – UK, 2020

If there are workforce shortages at your cancer centre, are they affecting the quality of care you provide to patients?



Heads of cancer centres expressed a range of concerns regarding workforce shortages, including:

Delayed diagnosis and treatment

- 'Backlog of new patients waiting.'
- 'Longer waiting time for appointments.'
- 'Patients have to wait longer for results of scans.'
- 'Delays in radiotherapy.'
- 'Longer waiting times are causing anxiety in patients.'

Lack of resilience in the system

- 'Not able to meet SLA (service level agreement) requirements.'
- 'Overbooked clinics.'
- 'Patients with disease progression may have to wait until a colleague returns from leave before a decision can be made about next treatment options.'
- 'When somebody goes on long-term sick leave, it can put excessive pressure on services with potential of adversely affecting patient care.'
- '[The current situation is] not sustainable.'

Decreased quality of patient care

- 'Increase in suboptimal care and complaints.'
- 'Suddenly discovered referrals [were] not being seen.'
- 'Time cannot be allocated for peer review in the job plans.'
- 'Lack of continuity of care.' 'Patients [sometimes] have to be seen by colleagues in a different hospital, for example by video.'

Increased staff stress

- 'They are not able to provide the service they would wish due to time pressures and stress.'
- 'Additional pressure on trainees to help cover clinics, sometimes at short notice.'
- 'Extra weekend clinics.'

Clinical trials, the embedding of technological advances and service developments are slow

- 'Reduced staff time to implement modern radiotherapy techniques.'
- 'Poor trial engagement by overworked consultants.'
- 'Some consultants awarded academic funding delayed taking this up as we are unable to backfill [their roles].'

4. Gap between supply and demand, 2020

Census data indicate that the CO consultant workforce is currently understaffed by a minimum of 189 WTE consultants, equal to a 17% shortfall. This estimate is based on the:

- 84 vacancies (WTE) reported in 2020
- 105 additional consultants (WTE) required to cover the excess workload in 2020. Excess workload is defined here as that which exceeds ten PAs per week (equal to 40 hours or 37.5 hours in Wales).

The 2020 shortfall of CO consultants is illustrated in Figure 13, along with the 2025 forecast shortfall.

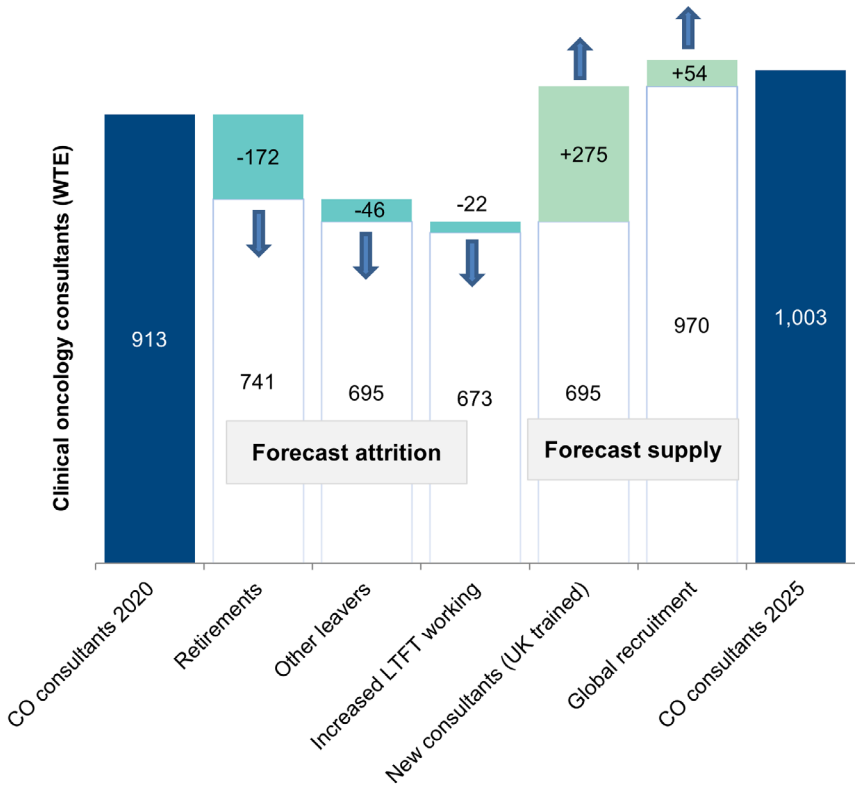
Five-year forecast supply and demand

The primary inflows and outflows impacting the CO consultant workforce are new entrants from UK specialty training and global recruitment, set against attrition from retirements and other leavers. Workforce capacity is also impacted, though often to a lesser extent, by LTFT working and staff absence.

Forecast supply of CO consultants – next five years (2020–2025)

Comprehensive data on CO consultant joiners, leavers and working patterns have been captured through RCR censuses and training data over the past ten years. Figure 13 illustrates the forecast CO consultant workforce (WTE) in five years' time (2025) based on trends observed over the past five years. An estimated 1,003 CO consultants (WTE) will be in post in 2025.

Figure 13. Forecast supply of clinical oncology consultants (WTE) – UK, next five years (2020–2025)



Based on trends observed over the past five years, workforce growth is forecast to slow down from the 3% per year growth seen over the past five years to 2% per year over the next five years. Wales is of particular concern as the workforce is forecast to shrink over the next five years with the expected retirements outnumbering training completions. No growth is forecast for the West Midlands, East of England or South-West of England. This is shown in Table 4.

Table 4. Forecast annual growth of clinical oncology consultant workforce – UK regions, next five years (2020–2025)

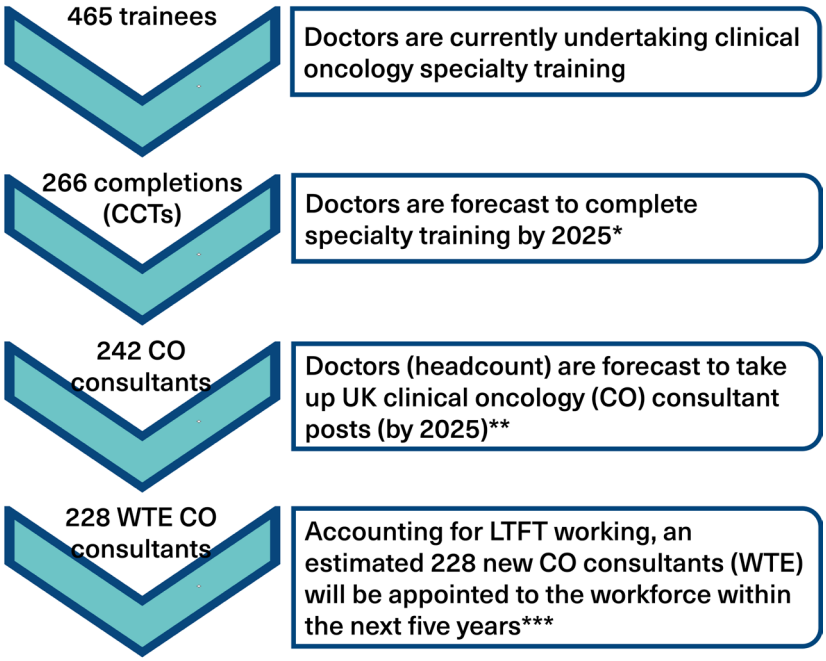
Region	Forecast annual growth (WTE) next five years
East Midlands	6%
London and the South East	5%
Yorkshire and Humber	4%
South West Scotland	4%
Northern Ireland	3%
North of Scotland	3%
South-East Scotland	1%
South Central	1%
North East	1%
North West	0%
West Midlands	0%
East of England	–1%
South West	–2%
South Wales	–3%
North and West Wales	–10%

The following paragraphs explain the data and assumptions behind the forecasts.

Forecast supply from UK specialty training

An estimated 275 CO consultants (WTE) will join the workforce over the next five years. This is based on the number of CO specialty trainees in training in October 2020, numbers who have recently completed training and the trends observed over the past five years. The 'in-training' component of this forecast is outlined in Figure 14.

Figure 14. Forecast supply of UK clinical oncology trainees to the UK consultant workforce – next five years (2020–2025)



Based on mean values observed in the census over the past five years:
**13% attrition and training taking seven years and one month to complete*
***91% of doctors taking up UK NHS CO consultant posts by 2025*
****6% capacity loss due to LTFT working (the observed level over the past five years for this age group).*

In addition to the forecast 228 CO consultants outlined in Figure 14 (based on current specialty trainees), an estimated 47 CO consultants (WTE) will join the workforce within the next five years from the 'recently completed training' cohort. It is not uncommon for doctors to take up consultant posts one or two years after completing their specialty training.

Over the next five years, the total inflow to the CO consultant workforce from UK specialty training is forecast to be 275 CO consultants (WTE). Approximately 55 CO consultants (WTE) are forecast to join the workforce in 2021. These doctors will only fill two-thirds (65%) of the 84 CO consultant vacancies (WTE) reported in 2020. The forecast intake is woefully inadequate to cover the estimated 34 upcoming retirements in 2021 and vacancies (current and forthcoming).

Forecast supply from global recruitment

Over the past five years, 54 CO consultants have been recruited from outside the UK. These doctors undertook their primary medical qualification (PMQ), medical degree or equivalent outside the UK and have not subsequently undertaken UK clinical oncology specialty training. The forecast over the next five years (illustrated in Figure 14) assumes no change to the pace of global recruitment.

Forecast retirements and other leavers

Using a median retirement age of 60, an estimated 172 CO consultants (WTE), equivalent to 19% of the current workforce, will retire over the next five years. However, in Northern Ireland and Wales, a higher proportion of CO consultants are approaching retirement age, resulting in retirement forecasts of more than a quarter of the current workforce (28% and 29%, respectively). This highlights the importance of succession planning in these nations.

Assuming the annual workforce attrition rate of 1% for other leavers (that is, all leavers excluding retirements) observed over the past five years remains unchanged, attrition in the next five years is an estimated 46 CO consultants (WTE) leaving prior to retirement.

Increase in less than full-time (LTFT working)

Flexible career options for doctors can be highly beneficial to maximise staff wellbeing and staff retention. However, workforce capacity loss due to LTFT working needs to be accounted for when workforce planning.

In 2020, the total UK workforce capacity reduction due to LTFT working equated to 78 CO consultants (WTE) or 8% of the workforce (that is to say, there would be an additional 78 CO consultants (WTE) in post if all LTFT CO consultants were to work full time). Levels of LTFT working vary significantly between UK nations. As shown in Table 5, LTFT working is most common in Wales and least common in Northern Ireland.

Table 5. Workforce capacity reduction due to LTFT working, CO consultants – UK nations, five-year comparison (2015 and 2020)

	England	Northern Ireland	Scotland	Wales	UK total
2015	– 7%	– 3%	– 4%	– 11%	– 7%
	– 47 WTE	– 1 WTE	– 3 WTE	– 5 WTE	– 55 WTE
2020	– 8%	– 1%	– 6%	– 15%	– 8%
	– 63 WTE	– 0.4 WTE	– 6 WTE	– 8 WTE	– 78 WTE

Over the past five years, the reduction in the UK CO consultant workforce capacity due to LTFT working has increased by the equivalent of 23 CO consultants (WTE). If the trend towards increased LTFT working continues linearly, the expectation would be that an equal workforce capacity loss of 23 CO consultants (WTE) would be seen over the next five years.

Gap between supply and demand – five-year forecast

Census data show that the gap between supply and demand has widened over the past five years. In 2015, understaffing was estimated to be 87 CO consultants (WTE), equal to a 10% shortfall; in 2020 this has risen to understaffing of at least 189 CO consultants (WTE), equal to 17% of the workforce. This is illustrated in Figure 15.

Forecast demand

Scenario A outlines the minimum expected workforce demand in 2025, and scenario B outlines the workforce levels needed to accelerate improvements in patient care by 2025.

Scenario A: deliver a minimum standard of patient care. Estimated 3% rise in demand per year, based upon the increase in cancer prevalence.[31]

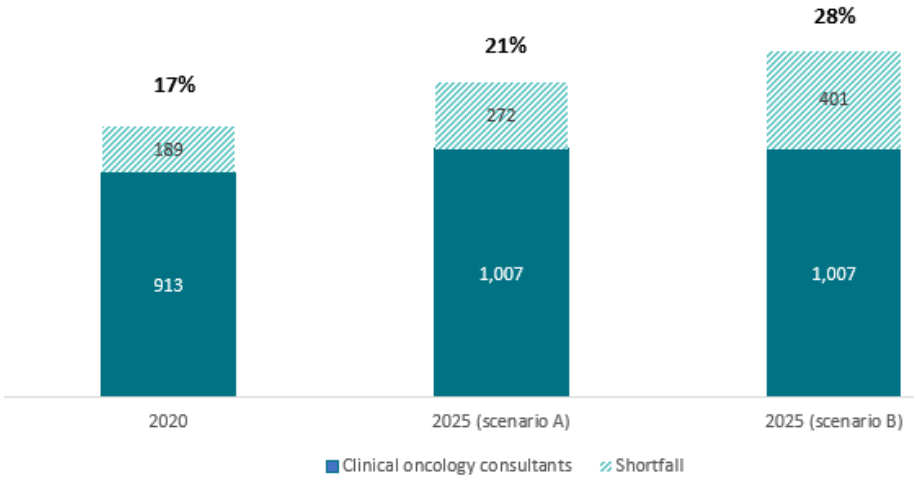
- 2025 forecast demand: 1,279 WTE consultant clinical oncologists.
- 2025 forecast shortfall: 272 WTE consultant clinical oncologists (equivalent to a 21% workforce shortage).

Scenario B: accelerated improvement in patient care. Estimated 5% increase in demand per year to support oncology research, quality improvement and service transformation.

- 2025 forecast demand: 1,408 consultant clinical oncologists.
- 2025 forecast shortfall: 401 WTE consultant clinical oncologists (equivalent to a 29% workforce shortage).

These two scenarios are illustrated in Figure 15, which provides a simplified illustration of the widening gap between the estimated supply of consultant clinical oncologists and the demand for cancer services.

Figure 15. Estimated supply and demand WTE consultant oncologists – UK, next five years (2020–2025)



To close the scenario A gap through training alone, the number of doctors starting specialty training each year would need to double (from an average of 67 to 134) for the next five years. Even with such an increase, closing the gap would take up to 13 years because

clinical oncology training takes approximately seven years to complete; during this time demand for cancer services will have increased still further.

To closes the scenario B gap would involve relevant stakeholders implementing all of the recommendations outlined on page 8.

5. Specialty areas of practice and predominant workload

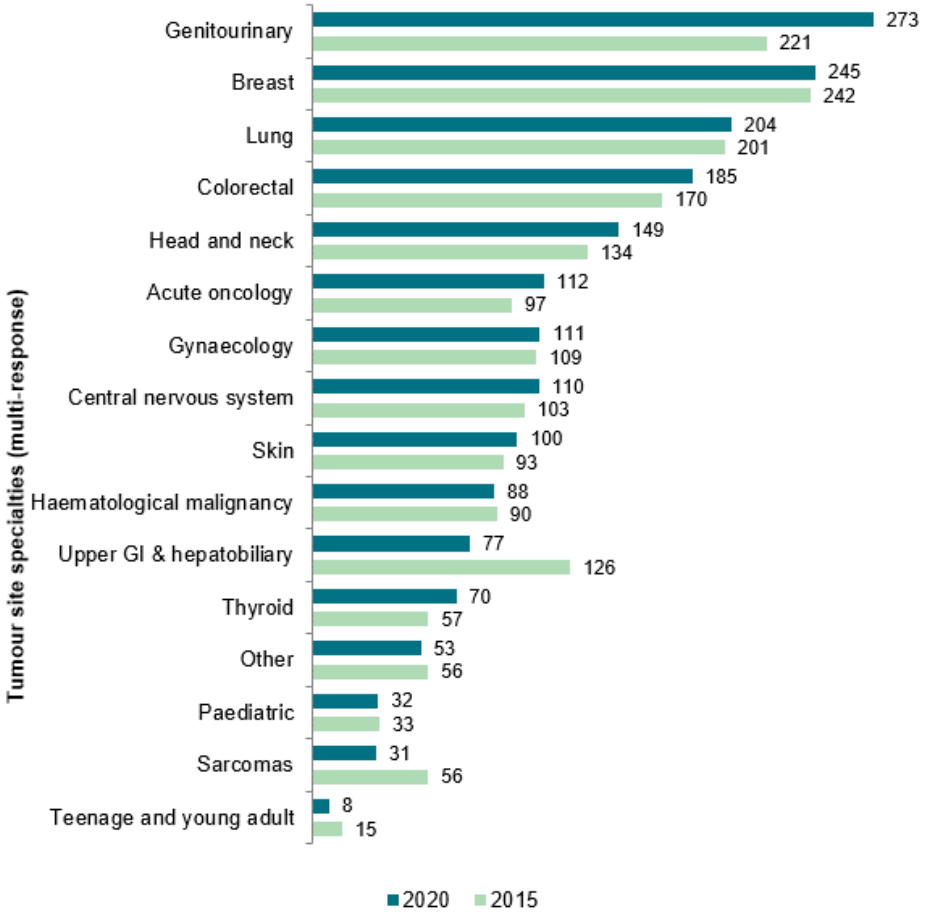
Tumour site specialties

The census collects data on consultant clinical oncologists' tumour site specialties. The distribution of the oncology workforce across tumour site specialties largely mirrors the most prevalent cancer types.[1]

The RCR recommends that a CO consultant should normally undertake no more than two areas of site-specialist practice, as it is difficult for a clinician to remain up to date in too broad a scope of practice.[16] Census data show a positive trend, with the average number of site specialties per CO consultant decreasing from 2.3 in 2015 to 2.0 in 2020. However, 12% of CO consultants (n=252) reported four or more tumour site specialties in 2020. Cancer centres should review these job plans to ensure the feasibility of CO consultants keeping up to date and fulfilling clinical commitments with a broad area of practice.

There has been minimal CO consultant (WTE) growth across many cancer sites over the past five years. The number of sarcoma and upper gastrointestinal and hepatobiliary specialist CO consultants (WTE) has declined, as shown in Figure 16.

Figure 16. Tumour site specialties of clinical oncology consultants (WTE)* – UK, five-year comparison (2015 and 2020)



The sum of tumour site specialties exceeds the sum of consultant clinical oncologists (WTE) as most consultants have two (or more) site specialties.

Table 6 shows the site specialties sought for the vacant consultant posts in 2020. Most frequently, two site specialties were sought for each post. Breast and genitourinary consultant clinical oncologists were most in demand, indicating a continued shortage of specialists in these common cancer sites.

Table 6. Site specialties sought for vacant UK consultant clinical oncologist posts – UK, 2020

Site specialty	Vacancies	Vacancy rate
Breast	30	11%
Genitourinary	22	7%
Colorectal	20	10%
Lung	17	8%
Gynaecology	12	10%
Acute oncology	11	9%
Skin	10	9%
Central nervous system	9	8%
Upper gastrointestinal including hepatobiliary	8	9%
Head and neck	8	5%
Other	7	12%
Haematological malignancy	4	4%
Sarcomas	2	6%
Thyroid	2	3%

Academic posts

Academic capacity is essential to support teaching and research within clinical oncology. A small number of CO consultants (8%, n=74 WTE) work in academic or mixed NHS/academic jobs. The proportion of academic (and mixed NHS/academic) posts is similar across UK nations, apart from Northern Ireland, where a higher proportion (13%) of CO consultants hold academic or mixed posts. The vast majority of CO consultants (92%, n=840 WTE) are employed in NHS posts. While the primary focus is clinical work, many do contribute to research by recruiting patients to national clinical trials.

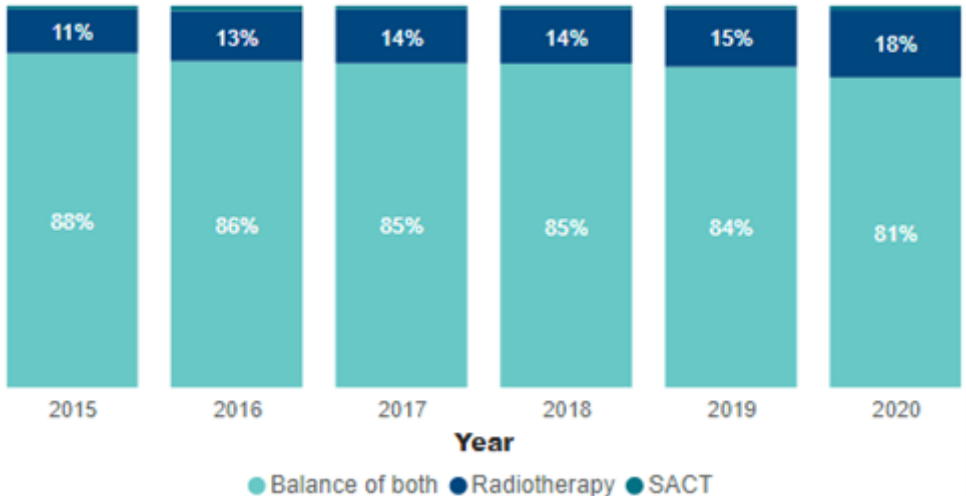
Predominant workload

As well as capturing whether consultants held NHS or academic contracts, the census captures data on their predominant workload.

The 2020 census data show that most CO consultants' (81%, n=682 WTE) workloads involve prescribing SACT and radiotherapy to treat and manage people with cancer. Approximately one-in-six CO consultants (18%, n=148 WTE) have a predominant workload of radiotherapy. Very few CO consultants (1%, n=9 WTE) have a primarily SACT workload.

Over the past five years, the proportion of CO consultants (WTE) with a predominant radiotherapy workload has increased from 11% to 18%; this shift has been supported by the increased numbers of MO consultants to prescribe SACT. The predominant workload data are shown in Figure 17.

Figure 17. Predominant workload of consultant clinical oncologists (WTE) – UK, five-year trend (2015–2020)



The proportion of CO consultants with a predominant workload of SACT has remained steady at 1% over the past five years.

6. Recent developments impacting clinical oncology

The NHS *Long Term Plan* commitment to detect 75% of cancers at an early stage by 2028 demonstrates the UK Government's recognition of the importance of cancer care.[3]

As demand for cancer services grows, there is a chronic shortage in the supply of CO consultants to provide this service. There is a current shortfall of 189 consultant clinical oncologists (17% of the minimum numbers of consultants required to meet demand). If trends continue, this basic shortfall is predicted to increase to 272 (21%) by 2025. Unless sustained investment in additional training places and global recruitment is released, national cancer ambitions are unachievable and shortages pose a real threat to the effective delivery of radiotherapy and systemic anticancer treatments.

These capacity challenges have been accelerated by the COVID-19 pandemic, which has impacted many services including cancer care. The impact has been recognised in both the *Cancer Services Recovery Plan for England* and the Scottish Government's *Recovery and redesign: an action plan for cancer services*.[22,32]

Going forward, the RCR welcomes the opportunity to engage with the Department of Health and Social Care, the Devolved Administrations and the NHS across the UK to ensure that cancer services can be delivered safely and effectively and designed around patients' needs. To help alleviate the issues highlighted in this report, the RCR will campaign to achieve the following:

- Recent, very welcome promises of increased clinical oncology training numbers across the individual UK nations are made permanent
- Better use of the workforce's skills and experience through facilitation of skillmix and a supportive, inclusive working environment
- The release of capacity in job plans for service improvement and research for the benefit of patients and more efficient service delivery
- Optimal admin and IT support for doctors to improve efficiency and productivity
- Capital investment in a UK-wide rolling radiotherapy equipment replacement programme. The programme would include linear accelerators (LINACs), brachytherapy machines and computed tomography (CT) and magnetic resonance imaging (MRI) planning machines, which would cost approximately £87.3 million per annum with co-ordinated deployment to meet population need.[33] This would offer improved access to state-of-the-art treatment, such as stereotactic ablative radiotherapy (SABR)
- An initial investment of £300 million to replace all LINACs over ten years old augmented with supplementary funding to cover equipment installation, maintenance and routine upgrades
- Modern, robust and interoperable IT hardware and software throughout the NHS to allow flexible, efficient and remote working and virtual multidisciplinary team meetings.

To address these challenges, the RCR has engaged with the UK Government, NHS organisations and partners to promote our priorities for supporting oncology services and the workforce. We have also:

- Submitted evidence to the All-Party Parliamentary Groups for Radiotherapy, Cancer and Health consultations on solutions to the COVID induced cancer backlog
- Submitted evidence to the Health and Social Care Committee Inquiry into ongoing proposals for a new Health and Care Bill
- Met with members of parliament to build our network in Parliament and to highlight workforce challenges.

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Appendix 1. Census objectives and methodology

Objectives

The objectives of The Royal College of Radiologists' (RCR) 2020 clinical oncology workforce census are to:

1. Provide comprehensive, accurate and timely information on the number, distribution and working patterns of consultant and SAS-grade clinical oncologists employed in UK NHS cancer centres
2. Forecast future workforce numbers and working patterns by analysing census data and trends together with RCR specialty training data
3. Estimate the extent to which the workforce supply and demand for non-surgical cancer treatments across the UK are aligned
4. Gain insight into the methods used to manage any shortfalls in the oncology workforce.

The data and trends identified in this report should inform local and national oncology workforce training, planning and policy.

Survey method

Since 2008, the RCR has gathered clinical oncology workforce data annually through an online census completed by the head of cancer services (or their delegate) at every NHS cancer centre providing radiotherapy in the UK.

Standardised questions (see Appendix 4) have been used year on year to compare information and identify trends over time. To facilitate data collection and data accuracy, 2019 staff data were provided to each cancer centre and heads of cancer service were asked to update the details for substantive and locum posts as of 1 October 2020. Data were collected through a secure web survey.

Data accuracy

Due to consistent questions, established processes and data quality checks, data accuracy is understood to be high. Where discrepancies and outliers were identified in the data, clarification was sought from census respondents.

Response rate

The 2020 census achieved a 100% response rate from heads of cancer service, with all 62 cancer centres in the UK submitting information.

Presentation of results

The workforce figures in this report are given as headcount unless otherwise stated. Where a member of staff works part-time across two regions, they will count as a headcount of one in each of the regions, and as one in the UK total; therefore, the sum of the regional headcounts will be slightly higher than the UK headcount. Where WTE figures are used, the calculation conforms to the current NHS convention of excluding PAs that exceed ten.

Calculations

Attrition

Attrition refers to those leaving the workforce. The attrition rate is calculated as WTE leavers/mean WTE consultant workforce.

Vacancy rate

The vacancy rate is the percentage of WTE staff in post against planned workforce levels. Vacancy rate = WTE vacancies / (WTE vacancies + WTE staff in post).

Whole-time equivalents (WTEs)

A WTE is a whole-time (or full-time) doctor contracted for ten programmed activities (PAs) per week, equivalent to a 40-hour week in England, Northern Ireland and Scotland and 37.5 hours in Wales.

The calculation of WTEs throughout this report conforms to the NHS convention of calculating one WTE as ten PAs (excluding PAs that exceed ten). WTEs include direct clinical care (DCC) and supporting professional activities (SPA) but exclude research and additional responsibility PAs.

Time periods

For simplicity, the phrase 'in 2020' is used in this report to refer to the 2020 census period, October 2019 to September 2020.

Data processing

Census data is analysed together with the GMC medical register and clinical oncology specialty training data held by the RCR. The RCR processes data in accordance with UK data protection legislation.

Data collection period

Data collection opened on 1 October 2020 and closed on 16 December 2020.

Data limitations

The census does not capture work undertaken outside of contracted hours nor sickness or absence rates.

Queries

Please send queries regarding the census to census@rcr.ac.uk

Appendix 2.
Summary data by UK nation 2020

Consultant clinical oncologists, 2020	England	Northern Ireland	Scotland	Wales	UK total
Number of cancer centres (included in census)	52	2	5	3	62
Cancer services overview					
Heads of service reporting that workforce shortages are affecting the quality of care provided to patients	51%	*	50%	*	52%
Workforce headcount					
Consultant clinical oncologists	815	32	89	55	991
CO specialty trainees	382	18	43	22	465
Consultant medical oncologists	473	17	58	20	568
Total COs (consultants + trainees)	1,197	50	132	77	1,456
Total consultants (CO + MO)	1,288	49	147	75	1,559
Whole-time equivalent (WTE)					
Consultant clinical oncologists	752	32	83	47	913
Consultant medical oncologists	426	15	50	18	509
Total consultant oncologists (CO+ MO)	1,178	47	133	65	1,422
CO consultants as % of consultant workforce	64%	68%	62%	72%	64%
CO trainees as % of CO workforce	*32%*	*36%*	*33%*	*29%*	*32%*
Workforce trends (CO consultants)					
Percentage of WTE workforce forecast to retire within five years	18%	28%	18%	29%	19%
Annual workforce growth (average – past five years)	3%	5%	6%	3%	3%
Vacancy rate	8%	12%	6%	8%	8%

Consultant clinical oncologists, 2020	England	Northern Ireland	Scotland	Wales	UK total
Vacancies unfilled for a year or more %	53%	80%	37%	78%	55%
Workforce per population					
Population	56,286,961	1,893,667	5,463,300	3,152,879	66,796,807
Older population (50+)	21,043,663	677,166	2,183,051	1,293,189	25,197,069
CO consultants (WTE) per 100,000 older population (50+)	3.6	4.7	3.8	3.6	3.6
CO + MO consultants (WTE) per 100,000 older population (50+ yrs)	5.6	6.9	6.1	5.0	5.6
Workforce shortfall estimates – CO consultants					
Estimate A					
Vacancies (WTE)	69	5	5	5	84
Excess contracted PAs (>10 per week)	82	7	9	7	105
CO consultant WTE shortfall (sum of above)	152	12	14	11	189
CO consultant (WTE) shortfall %	17%	27%	15%	20%	17%
Estimate B					
Additional CO consultants (WTE) required for 4.4 per 100,000 older (50+ yrs) population*	168	-2	12	10	189
CO consultant (WTE) shortfall %	18%	-8%	13%	17%	17%

**Where respondent numbers fall below five, data is witheld for data protection purposes.*
Due to rounding, numbers in this table may not add up precisely to the totals provided.

Appendix 3. Cancer centres – oncologists (WTE) per million population

Cancer centres in this table are grouped by Radiotherapy operational delivery networks (ODNs) or devolved nation.

Cancer Centre/hospital	Population estimate 2019	CO consultants (WTE) 2020	MO consultants (WTE) 2020	Total consultants (WTE)	CO consultants per million population	CO consultant (CO+MO) per million population	CO consultant workforce growth – average past 5 years
East Midlands							
Nottingham University Hospital	1,134,645	18	7	25	16.2	22.4	7%
Lincoln County Hospital	581,895	10	1	11	17.2	18.9	7%
Northampton General Hospital	737,670	8	5	13	10.4	17.2	– 3%
Royal Derby Hospital	964,800	8	7	15	8.3	15.8	0%
Leicester Royal Infirmary	1,100,000	10	8	17	8.6	15.5	2%
ODN total	4,519,010	54	28	81	11.9	18	– 3%
East of England							
Peterborough City Hospital	276,375	6	4	9	20.5	33.8	10%
Addenbrooke's Hospital	1,451,220	21	19	40	14.2	27.5	0%
Southend University Hospital	680,385	14	5	19	20	27.3	8%
Ipswich Hospital	363,810	6	1	7	16.5	19.2	– 3%
Norfolk and Norwich University Hospital	868,320	11	2	13	12.3	15	2%
Colchester General Hospital	720,585	9	0	9	12.4	12.4	– 3%
ODN total	4,360,695	66	31	97	15	22.2	1%
Humber, Coast and Vale, West Yorkshire, South Yorkshire, Bassetlaw, North Derbyshire and Hardwick							
Castle Hill Hospital	1,047,210	13	9	22	12.4	21	3%
Leeds Cancer Centre, St James' University Hospital	2,885,355	35	22	57	12.1	19.8	6%
Weston Park Hospital	1,812,015	22	9	31	12.3	17	3%
ODN total	5,744,580	70	40	110	12.2	19.1	5%

Cancer Centre/hospital	Population estimate 2019	CO consultants (WTE) 2020	MO consultants (WTE) 2020	Total consultants (WTE)	CO consultants per million population	CO consultant (CO+MO) per million population	CO consultant workforce growth – average past 5 years
Lancashire and South Cumbria, Greater Manchester, Cheshire and Merseyside							
The Christie Hospital	3,348,660	47	32	79	14	23.5	4%
The Clatterbridge Cancer Centre	2,286,375	28	19	47	12.3	20.7	1%
Royal Preston Hospital	1,487,400	14	10	24	9.4	16.1	– 6%
ODN total	7,122,435	89	61	150	12.5	21.1	1%
North Central and North East London							
University College Hospital	895,455	20	18	38	22.8	42.9	6%
Royal Free Hospital	395,970	5	12	17	11.9	42.1	5%
North Middlesex University Hospital	590,940	9	2	12	15.6	19.6	5%
Queens Hospital	605,010	9	2	11	14.3	17.9	0%
St Bartholomew's Hospital	1,111,530	10	9	19	8.6	16.9	6%
Mount Vernon Cancer Centre	1,996,935	17	11	28	8.6	14.1	- 1%
ODN total	5,595,840	70	55	125	12.5	22.2	3%
North East and Cumbria							
Cumberland Infirmary	309,540	4	3	6	11.3	21	3%
Northern Centre for Cancer Care (NCCC), Freeman Hospital	1,809,000	21	14	35	11.6	19.2	1%
The James Cook University Foundation Hospital	1,042,185	15	5	20	14.4	19.1	6%
ODN total	3,160,725	39	22	61	12.4	19.3	3%
North West and South West London, Surrey and Sussex							
Royal Marsden Hospital	2,199,945	33	21	55	15.2	24.8	9%
Royal Sussex County Hospital	951,735	14	6	20	15	21.3	2%
Imperial College Cancer Centre	1,208,010	16	9	25	13.2	20.7	8%
Royal Surrey County Hospital	1,282,380	20	5	24	15.3	18.8	5%
ODN total	5,642,070	83	41	124	14.8	22	6%
Northern Ireland							
Belfast City Hospital	1,388,910	25	14	39	17.9	27.9	2%
North West Cancer Centre, Altnagelvin Hospital	502,500	7	1	8	13.5	15.5	18%
ODN total	1,891,410	32	15	47	16.7	24.6	5%

Cancer Centre/hospital	Population estimate 2019	CO consultants (WTE) 2020	MO consultants (WTE) 2020	Total consultants (WTE)	CO consultants per million population	CO consultant (CO+MO) per million population	CO consultant workforce growth – average past 5 years
Peninsula, Somerset, Wiltshire, Avon and Gloucestershire							
Musgrove Park Hospital	396,975	8	5	13	19	31.6	1%
Torbay Hospital	251,250	5	2	7	18.9	26.9	6%
Royal Cornwall Hospital	415,065	8	2	10	20.2	24.6	5%
Royal Devon and Exeter Hospital	589,935	11	3	14	18.9	24	0%
Plymouth Oncology Centre, Derriford Hospital	466,320	9	1	10	19.3	21.7	3%
Bristol Haematology and Oncology Centre	1,102,485	16	6	22	14.4	19.8	6%
Royal United Hospital Bath	445,215	4	3	7	9.2	15	– 4%
Cheltenham General Hospital	1,129,620	13	3	16	11.9	14.5	3%
ODN total	4,796,865	74	25	99	15.5	20.6	3%
Scotland							
Edinburgh Cancer Centre, Western General Hospital	1,398,960	23	18	41	16.3	29.2	4%
Beatson West of Scotland Cancer Centre	2,576,820	40	23	63	15.5	24.4	10%
Aberdeen Royal Infirmary	619,080	11	4	15	17.1	23.9	10%
Ninewells Hospital & Medical School	510,540	6	4	9	10.8	17.6	– 8%
Raigmore Hospital	360,795	4	1	5	12.1	14.8	12%
ODN total	5,466,195	83	50	133	15.2	24.3	6%
South East London, Kent and Medway							
Guy's and St Thomas' Cancer Centre	1,746,690	30	26	56	17.3	32	12%
Kent Oncology Centre	1,831,110	21	11	32	11.5	17.5	0%
ODN total	3,577,800	51	37	88	14.3	24.6	6%

Cancer Centre/hospital	Population estimate 2019	CO consultants (WTE) 2020	MO consultants (WTE) 2020	Total consultants (WTE)	CO consultants per million population	CO consultant (CO+MO) per million population	CO consultant workforce growth – average past 5 years
Thames Valley, Wessex							
Oxford Cancer Centre, Churchill Hospital	1,374,840	29	25	54	21.2	39.1	– 1%
University Hospital Southampton	1,303,485	21	19	41	16.4	31.2	7%
Portsmouth Oncology Centre, Queen Alexandra Hospital	811,035	12	10	22	15	26.8	4%
Dorset Cancer Centre, Poole Hospital	735,660	10	6	15	13	20.7	4%
Basingstoke and North Hampshire Hospital, Royal Hampshire County Hospital (satellite of Southampton)	148,740	2		2	15.5	15.5	3%
Royal Berkshire Hospital	737,670	8	2	10	11.4	14.1	0%
ODN total	5,111,430	83	61	144	16.2	28.2	2%
Wales							
Velindre Hospital	1,526,595	28	7	34	18	22.6	3%
Glan Clwyd Hospital	712,545	8	6	14	11.2	19.6	0%
South West Wales Cancer Centre, Singleton Hospital	915,555	11	5	16	12.3	17.8	4%
ODN total	3,154,695	47	18	65	14.8	20.5	3%
West Midlands							
New Cross Hospital	873,345	12	6	17	13.6	19.9	6%
University Hospital, Coventry	1,068,315	18	3	21	17.2	19.6	6%
Royal Shrewsbury Hospital	466,320	8	1	9	16.7	18.9	2%
Queen Elizabeth Hospital	1,989,900	20	14	34	10	16.9	3%
Royal Stoke University Hospital	677,370	8	3	11	11.8	16.2	– 6%
Worcester Oncology Centre	515,565	7	1	8	13.9	15.8	1%
ODN total	5,590,815	73	27	100	13.1	17.9	2%
UK total	65,734,565	913	509	1422	13.9	21.6	3%

2019 population estimate uses 2015 cancer centre population data uplifted by 2015–2019 population growth.[7,34]

Appendix 4. Census questions 2020

Stage 1: Workforce Census Privacy Notice

1.1 I have read and accept The Royal College of Radiologists' workforce census privacy notice*.

Stage 2: Organisational details

2.1 Census contact – full name*

2.2 Cancer centre name*

2.3 Trust/health board*

2.4 Census contact – email*

2.5 Census contact – telephone number*

Stage 3a: Staff details – clinical oncology

3.1 Forename

3.2 Surname*

3.3 Grade* (drop-down list)

- Consultant (clinical oncology)
- SAS-grade doctor (clinical oncology)

3.4 NHS/academic* (drop-down list)

- NHS
- Mixed NHS & academic
- Academic (university contract)

3.5 Direct clinical care (DCC) PAs*

- Supporting professional activities (SPAs)*
- Academic PAs* (academic roles only)
- Additional responsibility PAs*
- Total PAs (auto-filled)

3.6 Employment type (auto-filled – full time = 10 PAs+)

- Full time
- Part time

3.7 Research PAs. When a value is entered:

- Are these 'research PAs' included in the SPA value above? (yes/no)

3.8 Additional comments relating to PAs: (free-text box)
(Please use this field to note any changes that have been made in response to COVID-19).

3.9 Predominant workload* (drop-down list)

- Chemotherapy
- Radiotherapy
- Balance of both (not more than 60% (approx.) of workload dedicated one or the other)

3.10 Site specialties* (consultants only – drop-down list)

- Acute oncology
- Breast
- CNS/neuro
- Colorectal
- Genitourinary
- Gynaecology
- Haematological malignancy
- Head and neck
- Lung
- Paediatric
- Sarcoma
- Skin
- Teenager and young adult
- HPB (hepatobiliary and pancreas)
- Thyroid
- Upper GI
- Other

3.11 Employment

- Employed as a locum? if ticked …
- Period employed as locum up to 1 October 2020* (drop-down list)
  - 1–3 months
  - 4–6 months
  - 7–9 months
  - 10–12 months
  - >12 months
- Reason for locum position* (drop-down list)
  - Cover for long-term (>1 month) sickness
  - To fill vacant/unfilled post
  - Maternity cover/parental leave cover
  - Other

3.12 Cross-site working

- Employed at more than one trust
- Delivered care at more than one site on a regular basis in the 12-month period to 1 October 2020
- Required to travel to more than one site in a working day on a regular basis

3.13 Left since October 2019 if ticked …

- Reason for leaving (drop-down list)
  - Retired
  - Left for reasons other than retirement
  - Not known/don't wish to say

Stage 3b: Medical oncology

3.14 How many consultant medical oncologists (headcount) were employed at your cancer centre, as of 1 October 2020? Please include those employed by trusts linked to your cancer centre* (drop-down list contains 0 to 30 and unknown)

3.15 How many WTE consultant medical oncologists does this equate to, if known?
(A WTE is a whole-time (or full-time) doctor contracted for ten programmed activities (PAs) per week.)

Stage 4a. Vacancies – clinical oncology

4.1 Unfilled post status*

- Funded but not yet advertised
- Funded but not thought worth advertising
- Advertised but not yet interviewed
- Appointed but not yet taken up
- Advertised but failed to appoint AND planning to re-advertise in the next three months
- Advertised but failed to appoint AND not contemplating further re-advertising in next three months

4.2 Grade*

- Consultant (clinical oncology)
- SAS-grade doctor (clinical oncology)

4.3 Total PAs (consultants only)

4.4 Employment type* (Auto-filled – full-time = 10 PAs+)

- Full time
- Part time

4.5 Site specialties (consultants only – drop-down list – see 3.10)

4.6 Unfilled period (to the nearest month)* (drop-down list):

- 0 months
- 1 month (list proceeds in one-month increments)
- 12+ months
- Don't know

4.7 No vacancies (vacancy details must be entered or this box ticked to confirm no vacancies)

4.8 What are the plans for any vacant posts where recruitment attempts have been unsuccessful?

- Restructure teams to absorb workload
- Recruit from overseas
- Appoint locum to provide cover
- Significantly amend the job description and re-advertise
- Other (please specify in additional comments field below)
- Don't know
- N/A

4.9 Comments relating to vacancies and recruitment over the past year (eg, success/difficulties, with UK/overseas recruitment): (free-text box)

Stage 5a: Workforce shortages

5.1 If there are workforce shortages at your cancer centre, are they affecting the quality of care you provide to patients? (drop-down list – Yes/No/Don't know/N/A))

5.2 If yes, please describe how patients are being impacted by oncology workforce shortages (if possible, please provide anonymised examples): (free-text box)
Anonymised examples of the impact of workforce shortages on patients will help the RCR to illustrate and explain the effect of understaffing.

Stage 5b: Impact of COVID-19

5.3 Has COVID-19 reduced the consultant (clinical and medical) oncology workforce capacity at your cancer centre over the past year? (drop-down list – significantly/yes, to some extent, No, Don't know)

5.4 If yes, please describe the impact of COVID-19 on workforce capacity (for example any workforce shortages due to redeployment, sickness, shielding or self-isolation): (free-text box)

5.5 Have consultant working patterns at your cancer centre changed as a result of COVID-19? (drpo-down list – Yes, significantly/yes, to some extent, No, Don't know)
(Working patterns in this context refers to hours of work, place of work or ways of working.)

5.6 If yes, please describe changes to consultants' working patterns (for example, increased homeworking and/or use of remote meetings and patient consultations): (free-text box)

5.7 Additional comments relating to COVID-19 (free-text box)

Stage 6: Routine opening hours – radiotherapy and chemotherapy

6.1 Routine (non-emergency) radiotherapy opening hours at your (main) cancer centre in September 2020:* Matrix of:

- <8 hrs, 8–10 hrs, >10 hrs, Open on an ad hoc basis, Not open
- Monday to Friday, Saturday, Sunday

6.2 Have there been any changes to routine radiotherapy hours between March and September 2020?* (Yes/no)

6.3 If yes, details of changes: (free-text box)

6.4 Routine (non-emergency) chemotherapy opening hours at your (main) cancer centre in September 2020:* Matrix of:

- <8 hrs, 8–10 hrs, >10 hrs, Open on an ad hoc basis, Not open
- Monday to Friday, Saturday, Sunday

6.5 Have there been any changes to routine chemotherapy hours between March and September 2020?* (Yes/no)

6.6 If yes, details of changes: (free-text box)

6.7 Additional comments relating to radiotherapy or chemotherapy opening hours: (free-text box)

State 7: Acute oncology services (AOS)

AOS refers to the management of people with cancer who are acutely unwell with cancer symptoms or complications of cancer treatment, or those who present as an emergency with a suspected diagnosis of cancer. It does not refer to standard oncology on-call duties.

7.1 Do patients treated at your cancer centre have 24/7 telephone access to an acute oncology service for advice?* (*Yes/no)

7.2 Does your centre have a dedicated assessment or admissions unit for cancer patients?* (Yes/no)

7.3 If yes, how many hours does it function daily? (grid: Monday to Friday, Saturday, Sunday / 24 hours, 11 to 12 hours, 8 to 10 hours, 1 to 7 hours, Not open)

7.5 What is the consultant cover for AOS 9am–5pm Monday to Friday?*

- Dedicated AOS consultant
- On-call consultant
- Mixture of dedicated and on-call consultants
- Little/no consultant cover

7.6 If a patient is suspected to have neutropenic sepsis out of normal working hours, where and by whom are they assessed?*

- AOS unit/cancer ward – assessed by AOS/oncology team
- Acute medical unit (AMU)/emergency department – assessed by AOS/oncology team
- Acute medical unit – assessed by AMU team
- Other (please specify below)

7.7 Additional comments relating to AOS: (free-text box)

Stage 8. Permission and feedback

8.1 Do you grant permission for your centre to be included in the list of cancer centres and staffing levels per catchment population in the 2020 census report?*

- Yes
- No

8.2 Have you, or your colleagues, used past results of the RCR census?* (Yes/no/don't know)

8.3 If yes, how were census results used? Were they helpful?

8.4 Do you have any suggestions of how the RCR could improve the census questions, process, reports or infographic?

8.5 Additional comments (eg, further details regarding your census submission):

Appendix 5. Census completions 2020

Thank you to heads of service and their colleagues at the following cancer centres for completing the 2020 census.

Cancer centre/hospital	Trust/health board
Aberdeen Royal Infirmary	NHS Grampian
Addenbrooke's Hospital	Cambridge University Hospitals NHS Foundation Trust
Basingstoke and North Hampshire Hospital, Royal Hampshire County Hospital	Hampshire Hospitals NHS Foundation Trust
Beatson West of Scotland Cancer Centre	NHS Greater Glasgow and Clyde
Belfast City Hospital	Belfast Health and Social Care Trust
Bristol Haematology & Oncology Centre	University Hospital Bristol NHS Foundation Trust
Castle Hill Hospital	Hull and East Yorkshire Hospitals NHS Trust
Cheltenham General Hospital	Gloucestershire Hospitals NHS Foundation Trust
Colchester General Hospital	East Suffolk and North Essex NHS Foundation Trust
Cumberland Infirmary	North Cumbria University Hospitals NHS Trust
Dorset Cancer Centre, Poole Hospital	Poole Hospital NHS Foundation Trust
Edinburgh Cancer Centre, Western General Hospital	NHS Lothian
Glan Clwyd Hospital	Betsi Cadwaladr University Health Board
Guy's & St Thomas' Cancer Centre	Guy's and St Thomas' NHS Foundation Trust
Imperial College Cancer Centre	Imperial College Healthcare NHS Trust
Ipswich Hospital	East Suffolk and North Essex NHS Foundation Trust
Kent Oncology Centre	Maidstone and Tunbridge Wells NHS Trust and East Kent Hospitals University NHS Foundation Trust
Leeds Cancer Centre, St James' University Hospital	Leeds Teaching Hospitals NHS Trust
Leicester Royal Infirmary	University Hospitals of Leicester NHS Trust
Lincoln County Hospital	United Lincolnshire Hospitals NHS Trust
Mount Vernon Cancer Centre	East and North Hertfordshire NHS Trust
Musgrove Park Hospital	Taunton and Somerset NHS Foundation Trust
New Cross Hospital	The Royal Wolverhampton NHS Trust

Cancer centre/hospital	Trust/health board
Ninewells Hospital & Medical School	NHS Tayside
Norfolk and Norwich University Hospital	Norfolk and Norwich University Hospitals NHS Foundation Trust
North Middlesex University Hospital	North Middlesex University NHS Trust
North West Cancer Centre, Altnagelvin Hospital	Western Health and Social Care Trust
Northampton General Hospital	Northampton General Hospital NHS Trust
Northern Centre for Cancer Care (NCCC), Freeman Hospital	Newcastle upon Tyne Hospitals NHS Foundation Trust
Nottingham University Hospital, City Hospital Campus	Nottingham University Hospitals NHS Trust
Oxford Cancer Centre, Churchill Hospital	Oxford University Hospitals NHS Trust
Peterborough City Hospital	North West Anglia Foundation Trust
Plymouth Oncology Centre, Derriford Hospital	University Hospitals Plymouth NHS Trust
Portsmouth Oncology Centre, Queen Alexandra Hospital	Portsmouth Hospitals NHS Trust
Queen Elizabeth Hospital	University Hospital Birmingham NHS Foundation Trust
Queens Hospital, Romford	Barking, Havering and Redbridge University Hospitals NHS Trust
Raigmore Hospital	NHS Highland
Royal Berkshire Hospital	Royal Berkshire NHS Foundation Trust
Royal Cornwall Hospital	Royal Cornwall Hospitals NHS Trust
Royal Derby Hospital	University Hospitals of Derby and Burton NHS Foundation Trust
Royal Devon and Exeter Hospital (Wonford)	Royal Devon and Exeter NHS Foundation Trust
Royal Free Hospital	Royal Free London NHS Foundation Trust
Royal Marsden Hospital	The Royal Marsden NHS Foundation Trust
Royal Preston Hospital	Lancashire Teaching Hospitals NHS Foundation Trust
Royal Shrewsbury Hospital	Shrewsbury and Telford Hospital NHS Trust
Royal Stoke University Hospital	University Hospital of North Midlands NHS Trust
Royal Surrey County Hospital	Royal Surrey County Hospital NHS Trust

Cancer centre/hospital	Trust/health board
Royal Sussex County Hospital	Brighton and Sussex University Hospitals NHS Trust
Royal United Hospital Bath	Royal United Hospital Bath NHS Trust
South West Wales Cancer Centre, Singleton Hospital	Swansea Bay University Health Board
Southend University Hospital	Southend University Hospital NHS Foundation Trust
St Bartholomew's Hospital	Barts Health NHS Trust
The Christie Hospital	The Christie NHS Foundation Trust
The Clatterbridge Cancer Centre	The Clatterbridge Cancer Centre NHS Foundation Trust
The James Cook University Foundation Hospital	South Tees Hospital NHS Foundation Trust
Torbay Hospital	Torbay and South Devon NHS Foundation Trust
University College Hospital	University College London Hospitals NHS Foundation Trust
University Hospital, Coventry	University Hospitals Coventry and Warwickshire NHS Trust
University Hospital Southampton	University Hospital Southampton NHS Foundation Trust
Velindre Hospital	Velindre NHS Trust
Weston Park Hospital	Sheffield Teaching Hospitals NHS Foundation Trust
Worcester Oncology Centre	Worcestershire Acute Hospitals Trust

Appendix 6.
List of figures and tables

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