

Health and Social Care Select Committee Inquiry on the NHS backlog caused by the pandemic

Cancer Research UK Response – September 2021

Key Points

- Aspiring to achieve world class cancer outcomes in England is vital for the one in two of us who will be diagnosed with cancer in our lifetime.¹
 - COVID-19 has had a devastating impact on cancer services, leading to a significant backlog of activity that did not take place. Disruption to cancer screening, diagnosis and treatment means **around 36,500 fewer people started cancer treatment in England between April 2020 - March 2021**², and almost a third of cancer patients have reported receiving worse care.³
 - COVID-19 has severely disrupted cancer research, with **95% of CRUK trials either completely or partially paused** during the pandemic's first wave in early 2020⁴. Whilst patient access has partly recovered, recruitment to cancer studies has stagnated at half of pre-pandemic levels⁵ due to significant limitations on workforce and infrastructure.
 - The pandemic's impact will likely be felt for years to come and set back efforts to increase early diagnosis and improve cancer outcomes.
 - Cancer services are now beginning to make progress against tackling the impact of COVID-19, however, there are still tens of thousands of people left undiagnosed or waiting for tests and treatment, which must be urgently addressed.
 - The task ahead is significant. **Cancer services are struggling, and the Government and NHS must demonstrate that cancer is a priority. Cancer won't wait.** Action is needed to clear the backlog of people waiting for diagnoses and treatment.
 - Tackling the backlog will require the NHS to operate at above pre-pandemic levels, which will require additional capacity. Since we do not know how long it will take to address the backlog, **it is critical that efforts are made to increase capacity in the NHS now.**
 - In the short- to medium-term, steps can be taken to help the NHS and care services effectively deal with the backlog:
 - In the short-term, Government and NHS leaders must continue to protect cancer services protected from any further disruption due to COVID-19, and ensure the cancer backlog continues to be addressed – with sufficient resource and funding in place to enable this. In addition, implementing innovative technologies, such as colon capsule endoscopy (CCE), can also help to manage the backlog.
 - In the medium-term, steps can be taken to maximise the capacity of the cancer workforce, for example by adopting skills mix approaches and maximising staff wellbeing and retention. In addition, Community Diagnostic Hubs have the potential to maximise diagnostic capacity through consolidating services.
 - Crucially, the Government must invest in the NHS workforce to address staff shortages, and in the expansion of diagnostic equipment to ensure the NHS is adequately resourced and as capable as possible to deal with the impacts of COVID-19.
 - However, **aiming for recovery alone does not go far enough and while short- and medium-term actions may help, they will not be able to address the fundamental barriers facing cancer services.** Even before the pandemic cancer services were significantly struggling. Years of underinvestment and lack of strategic direction in growing capacity meant important Cancer Waiting Times were routinely missed and progress towards national cancer ambitions was off track as demand outstripped capacity. When we know things weren't good enough pre-pandemic, returning to where we were then will not be enough. We must aspire for more.
 - The Government and NHS have clear ambitions on cancer, with the NHS Long Term Plan setting the ambition to increase the proportion of cancers diagnosed early (Stage I and II), from a half to three quarters by 2028. However, progress towards this ambition was off track before the pandemic, and it is likely that COVID-19 will have hampered progress further still.
-

-
- **We are concerned that without investment, cancer survival could slide backwards in this country.** This will significantly undermine the Government's ability to deliver on its manifesto commitment to 'increase cancer survival rates' in this country.
 - To have any hope of meeting national cancer ambitions, **the Government must think long term and provide investment to increase capacity so the NHS can give all cancer patients the best chances of surviving their disease.** Paramount to these efforts will be:
 - Addressing staff shortages in the cancer workforce by investing year-on-year in training and employing more cancer staff to fill current vacancies and ensure that the workforce has the capacity to tackle the COVID-19 backlog, meet increasing demand as well as time to innovate and transform services.
 - Making significant, targeted capital investment, and as a priority, investing in the expansion of diagnostic equipment to not only bring the UK in line with comparable countries, but also support the reform of diagnostics, as recommended in Professor Sir Mike Richards' diagnostic review.
 - While there have been some positive commitments on elective recovery, workforce and equipment, there has been no much-needed long term settlement for NHS workforce training or capital investment since 2015.
 - The forthcoming 2021 Spending Review presents a vital opportunity for the Government to deliver vital long-term investments in workforce and diagnostic equipment to increase capacity in the NHS, enable the recovery and transformation of cancer services and research required to meet long-term cancer targets and ensure that more people survive cancer.
 - **The pandemic has taken us two steps backwards; the Government must now look to make a giant leap forward for cancer patients in this country.**

Recommendations

- The **Government must take steps in the short- to medium-term to help the NHS and care services effectively deal with the backlog:**
 - Cancer services must continue to be protected to stop any further disruption from the waves of COVID-19, and sufficient resource and funding for cancer services (including through the use of the independent sector and allocation of NHS recovery funding) must be in place to ensure the cancer backlog is quickly addressed.
 - Innovative technologies, such as colon capsule endoscopy (CCE) and cytosponge can be implemented to help manage the backlog.
 - The capacity of the cancer workforce can be maximised by embedding effective skills mix approaches and supporting wellbeing and retention.
 - Investment in Community Diagnostic Hubs will support the required expansion of diagnostic services to help tackle the backlog and meet future demand.
 - We estimate that the Government must invest **around an extra £200m in Health Education England (HEE) for cancer in the 2021 Comprehensive Spending Review** to meet the 2017 Cancer Workforce Plan target for 45% growth in the cancer workforce by 2029.
 - Government must **ensure that funding is provided to expand diagnostic capacity and fully implement the recommendations of the 2020 Richards review of diagnostic services in the 2021 Comprehensive Spending Review**, including £1.3 billion in capital funding required to bring CT, MRI and PET-CT equipment capacity to the average across comparable OECD countries.
 - To overcome the obstacles limiting the NHS's capacity to conduct life-saving research, the **Government must implement the recommendations set out in Cancer Research UK's 'Creating Time for Research' report.**
-

About Cancer Research UK (CRUK)

Cancer Research UK (CRUK) is the world's largest cancer charity dedicated to saving lives through research. We support research into over 200 types of cancer, and our vision is to bring forward the day when all cancers are cured. Our long-term investment in state-of-the-art facilities has helped to create a thriving network of research at 90 laboratories and institutions in more than 40 towns and cities across the UK supporting the work of over 4,000 scientists, doctors and nurses. In 2020/21, Cancer Research UK invested £421 million on new and ongoing research projects into the causes and treatments for cancer.

Cancer is one of the leading causes of death in the UK, and before the COVID-19 pandemic, there were around 367,000 new cases of cancer in the UK each year, and sadly, around 165,000 deaths.⁶ Cancer incidence continues to rise across the UK, due both to a growing and aging population and to genuine increases in risk of developing cancer, and by 2035, over half a million people will be diagnosed with cancer in the UK each year.⁷

Inquiry questions

1. What is the anticipated size of the backlog and pent-up demand from patients for different healthcare services including, for example, cancer services, and more widely across the healthcare system?

The pandemic has exacerbated challenges that were already endemic in the health system and has created a significant cancer backlog - all the cancer activity that didn't take place, such as people receiving invites to screening, presenting with symptoms or receiving treatment.

- We estimate that **around 36,500 fewer patients started treatment for cancer in England in April 2020 - March 2021** compared to the same time pre-pandemic*, a reduction of **12%**.⁸ While this figure looks specifically at treatment, it's largely driven by a drop in the number of people who were diagnosed with cancer during this period.
- There were **around 6-8 times more patients waiting for 6+ weeks for key diagnostic tests in England** at the end of June 2021 compared with June 2019.⁹ Whilst the number of patients waiting 6+ weeks has generally been improving since January 2021, numbers on overall waiting lists have been increasing.
- We estimate around 327,000 fewer people were urgently referred for suspected cancer in England between March 2020 and March 2021 compared with pre-pandemic*.¹⁰ However, the **number of USC referrals in England was 8% higher** in June 2021 compared with June 2019, which indicates that the health service is returning to full functionality. However, there is some variation by cancer type, with lung, testicular, urological and brain/central nervous system USC referral numbers still below pre-pandemic levels in June 2021, compared with June 2019.
- We estimate that **more than 3 million fewer people were invited to cancer screening between March and September 2020 in the UK**¹¹. The number of patients starting cancer treatment having been diagnosed through screening in England was 42% lower in March 2020- March 2021, compared with pre-pandemic*. However, in June 2021, the number of patients starting cancer treatment having been diagnosed through screening in England was 14% higher compared with June 2019.

*Pre-pandemic refers to the same months in 2019, and figures have been adjusted for working days where appropriate

Since March 2021, cancer services have continued to recover, and are currently operating around or slightly above pre-pandemic levels, which indicates that some progress is being made to tackle the backlog. However, there are still tens of thousands of people left undiagnosed or waiting for tests and treatment, which must be urgently addressed, requiring urgent and bold action. While the COVID-19 backlog must be addressed quickly to ensure that patients receive the care they need as quickly as possible, aiming to return cancer services to pre-pandemic levels is simply not good enough. We must go further and faster than ever before so that the NHS can meet the rising demand of cancer incidence, adapt to the added pressure that COVID-19 will likely bring for years to come, and accelerate progress towards the UK's cancer ambitions.

In addition to the backlog of activity that has built up throughout the course of the pandemic, COVID-19 has also seen patients reporting receiving worse care since the pandemic began. In May 2020, CRUK conducted a survey of cancer patients to understand their perspectives on the initial impact COVID-19 was having on their testing, treatment and care. Since then, a second survey of 900 cancer patients was conducted from December 21st 2020 - March 25th 2021.

- Of those asked, **29% experienced delays, cancellations or changes to their treatment.**
- More than 8 in 10 (84%) had recalled their care as being 'very good' pre-pandemic. However, **almost 3 in 10 (31%) have subsequently downgraded their rating** since the start of the pandemic.
- Moreover, **around 1 in 10 (12%) felt their previously 'very good' care had slipped to 'average' or below.**¹²

2. What capacity is available within the NHS to deal with the current backlog? To what extent are the required resources in place, including the right number of staff with the right skills mix, to address the backlog?

The COVID-19 pandemic hit an overstretched and under-resourced health service. In England, systemic and long-standing gaps in capacity in diagnostic services have been apparent for years due to underinvestment and a lack of strategic planning for the NHS workforce, equipment and infrastructure. Even before the pandemic, cancer services were already significantly struggling, with the NHS significantly understaffed and overly reliant on ageing and outdated equipment. These challenges limit capacity and have meant that important Cancer Waiting Times targets were being routinely missed pre-pandemic, with **the 62-day target for patients to begin treatment following an urgent GP cancer referral has not been met since December 2015 in England.**¹³

The pandemic has exacerbated existing challenges in the health service, and as discussed above, has created a significant cancer backlog that must be addressed. Tackling the backlog will require the NHS to operate at above pre-pandemic levels, which will require additional capacity. Additional capacity will also be essential in the longer term, if the NHS is to cope with rising demand for cancer services from a growing and ageing population and diagnose people earlier and faster to meet national cancer ambitions.

Expanding capacity through capital investment

To ensure diagnostic services are able to meet current patient need and future demand, significant, targeted capital investment is vital. At present, we are overly reliant on ageing scanners, and there is strong evidence of outdated equipment frequently disrupting care, with clinical staff concerned ageing diagnostic equipment has negatively impacted their work.¹⁴ In late 2019, Professor Sir Mike Richards' review of England's adult screening programmes highlighted that constraints on capital funding stopped trusts from replacing equipment such as mammography machines and mobile vans.¹⁵ In some cases, this meant mobile vans over 17 years old with leaking roofs were still in operation. It is therefore important that funding is in place so that scanners can always be replaced before the end of their lifespan.

However, replacing equipment alone is insufficient. There must be investment to significantly expand diagnostic equipment numbers. The UK compares poorly internationally on diagnostic capacity, ranking close to the bottom on average number of MRI and CT scanners per million out of 36 OECD countries.¹⁶ PET-CT is an advanced technology which allows for more accurate diagnosis and staging than CT scanners. However, England has the second lowest number of the International Cancer Benchmarking Partnership countries and has also been slow to acquire them.¹⁷ **As a priority, the Government must invest in the expansion of diagnostic equipment to bring the UK in line with comparable countries and ensure cancer services are equipped to meet future demand, supporting effective and timely diagnosis.** The expansion of imaging equipment would also support the reform of diagnostics, as recommended in the Richards diagnostic review. The roll out of Community Diagnostic Hubs, a new service model in which a single hub, based at NHS sites or other community spaces, provides imaging, pathology and endoscopy, amongst other services has the potential to maximise diagnostic capacity through consolidating services, but they must be fully equipped, and staffed, to realise these benefits.

There is a significant risk that the benefits of capital investment will not be fully realised if there is not a strong cancer workforce in place, with both areas critical to increasing capacity and transforming UK cancer services to a world-leading standard.

Expanding capacity by addressing shortages in the cancer workforce

Staff shortages in the professions key to the timely diagnosis and treatment of cancer (the ‘cancer workforce’) are a fundamental issue that must be addressed in order to mitigate the impact of COVID-19, transform cancer services and build capacity for the future. Shortages across the cancer workforce limit capacity, impede research opportunities, timely diagnosis and treatment and ultimately lead to poorer outcomes. Even before COVID-19, staff shortages affected every part of the cancer pathway, and limited capacity. One in 10 diagnostic posts across the NHS were vacant in 2018/19 and it was estimated that, with no action taken, this would rise to 1 in 7 posts vacant by 2023/24.¹⁸ The NHS continues to be significantly understaffed, limiting the ability of current staff to deliver the best care for its patients and innovate, and the impact is being felt across the health service. For example:

- Due to shortages in the endoscopy workforce, the Faecal Immunochemical Test (FIT) used in screening for bowel cancer had to be introduced in England at a less sensitive level than in Scotland. This means that more than 1,000 cancers and nearly 7,000 potentially pre-cancerous growths might be missed every year, compared to if England use the same sensitivity as used in Scotland.¹⁹
- The Royal College of Radiologists 2020 Census found that more than half (58%) of radiology leaders say they do not have enough radiologists to keep patients safe. Almost half of trusts, health boards and health and social care trusts (47%) do not have the staff or transfer arrangements needed to run safe 24/7 interventional radiology services, meaning patients are potentially missing out on life-saving procedures.²⁰

While the scale of the impact of the pandemic on staff morale, retention and retirement is still emerging, there are also concerns that the pressure of the pandemic and the impact this has had on wellbeing within the cancer workforce will damage retention, reducing the capacity of an already stretched cancer workforce.

Growth of the cancer workforce is therefore crucial to recovering from the impact of COVID-19 and building cancer services fit for the future. Addressing staff shortages in key cancer professions is also key to the dramatic shift needed by the Government to meet their own commitment of 75% of cancers diagnosed early by 2028 – and saving thousands more lives. Achieving this ambition would significantly improve cancer survival and help close the gap between the UK and other comparable health systems. **The Government must expand the number of staff in key cancer professions by investing year-on-year in**

training and employing more cancer staff to fill current vacancies and ensure that the workforce has the capacity to tackle the COVID-19 backlog, meet increasing demand as well as time to innovate and transform services.

Investment in expanding the workforce is vital solution to workforce shortages but will take time. In the short- to medium-term, **there are steps we can take to maximise the capacity of the cancer workforce to help tackle the backlog.** However, it is important to note **that the below measures will not be a solution to the wider issues of understaffing,** and without investment in workforce education and workforce planning, we won't have the frontline staff and specialists needed to address the cancer backlog, cope with future demand, or make progress towards ambitions to diagnose and treat more cancers at an early stage.

Adopting skill-mix approaches

Adopting skill-mix approaches in the health workforce means designing the roles and responsibilities in a team around the needs of the patient, and ensuring you have the right skills at the right level to meet those needs.²¹ In practice, non-medical staff often increase their training, skills and responsibilities, allowing them to undertake medical tasks that require less training. This enables consultants to spend their time on the most complex investigations, reporting and treatment. Skill-mix approaches provide opportunities for the cancer workforce for example,; Macmillan Cancer Support found that many specialist nurses spend a lot of time on administrative tasks that could be done by a support role, freeing up the nurse to focus on clinical work.²²

At their best, skill-mix approaches can deliver measurable improvements for patients, staff and finances.²³ They can improve the care cancer patients receive by allowing for a better alignment between the workforce and the needs of service users.²⁴ They can also increase capacity in the cancer workforce more quickly than the recruitment and training of new staff. for example, the HEE Clinical Endoscopist Training Programme can be completed in 30 weeks.²⁵

To deliver these benefits, national health leaders and healthcare providers must work to tackle the barriers to the adoption of skill-mix approaches. For example, national and local health leaders must ensure that teams have the capacity to backfill the roles of upskilled staff, the government must tackle inconsistent access to training and development opportunities, and national and local health leaders must ensure they have clinical buy-in so that upskilled staff can make use of their new skills.

Maximising wellbeing and retention

Supporting wellbeing and maximising retention in the cancer workforce is vital so that current capacity is not lost once the immediate pressures of the pandemic recede. The need to maximise retention was recognised even before the pandemic, with the NHSE Long Term Plan committing to improve staff retention rates by 2% by 2025.²⁶

Following COVID-19, there are growing concerns that the level of strain placed on the cancer workforce could have a lasting impact on workforce numbers. The 2020 NHS Staff Survey for England found that 44% of staff reported feeling unwell as a result of work-related stress in the last 12 months.²⁷ This figure had steadily risen from 36.8% in 2016 to 40.3% in 2019 prior to the pandemic, reflecting that the pandemic accelerated existing trends in an already struggling workforce.

The cancer workforce cannot afford to lose valuable staff, meaning the Government must act to support wellbeing and retention in the cancer workforce. Following COVID-19, scaled-up mental health support made possible due to emergency COVID-19 funding should continue to be available for all staff while being targeted at those who need the most support, flexible working practices – in many cases, rolled-out in response to COVID-19 – should continue to be explored where they can support a better work-life balance

and improve wellbeing, measures to reduce early retirement such as modified job plans should be made available and barriers to learning and development opportunities should be tackled.

Making use of innovative new technologies and approaches

Innovative new technologies and approaches to workforce management have the potential to ease the pressure on the cancer workforce, for example, by triaging patients to reduce demand for the areas of the cancer workforce suffering from backlogs, or by reducing the administrative burden on the workforce. The Topol Review on preparing the healthcare workforce to deliver a digital future emphasised the need for workforce planning to explore the opportunities for use of technologies.²⁸

Investment in innovation itself is often more forthcoming than investment in the training, kit and capacity needed to fully adopt that innovation. However, for innovation to improve workforce capacity, system leaders need to support and invest in adoption as well as innovation.

Innovation has been central to how the health workforce has dealt with the pandemic and will be central to how it recovers. Where innovative technologies and approaches can help reduce the pressure on the cancer workforce, the Government and NHS leaders should encourage and enable their adoption.

3. How much financial investment will be needed to tackle the backlog over the short, medium, and long-term; and how should such investment be distributed? To what extent is the financial investment received to date adequate to manage the backlog?

As explored above, the pandemic has created a large backlog of cancer activity that must be addressed in order ensure that patients receive the care they need as quickly as possible. However, aiming to return cancer services to pre-pandemic levels is simply not good enough. The scale of the challenge is significant, and will require significant investment from the Government in the short- and long-term in order to ensure the NHS is adequately resourced to tackle the backlog, adapt to the added pressure that COVID-19 will likely bring for years to come, meet rising demand driven by increased cancer incidence, and accelerate progress towards the UK's cancer ambitions.

Short-term investment

Health systems have made extensive use of independent sector capacity in the last year, which has played a vital role in increasing diagnostic and treatment capacity to support resilience in cancer services throughout the pandemic. In the short-to-medium term, use of the independent sector remains an important part of wider efforts to expand capacity, and the Government must ensure that where health services are in need of additional capacity to facilitate patient access they are able to utilise independent sector facilities where it would be beneficial.

Positive commitments were made at the 2020 Spending Review to invest £1 billion in the NHS in England (and proportionate amounts given to devolved nations) to tackle backlogs in elective care through the Elective Recovery Fund, with further commitments made in the 2021 Spring Budget for operational support. However, this additional operational funding to address the pressures of COVID-19 on health systems currently only extends to autumn 2021. This means there is a risk that, just as we are making headway on measures to address the impact of COVID-19 on cancer services, desperately needed additional funding to support increased activity will disappear. Governments must therefore maintain increased financial resources for health systems to fully address the impact of the pandemic, ensuring cancer services receive adequate funding to increase capacity in diagnostic and treatment services, clinical trials and screening programmes.

Long-term investment

Investment for the long-term is also urgently needed. While the NHS Long Term Plan in England was matched with a multi-year revenue funding settlement, no such commitment was made for wider health budgets including capital – a pattern of underinvestment in the fundamental diagnostic infrastructure seen across the UK's four nations. The scale of investment required in equipment and infrastructure is reflected in the current backlog in repairs and maintenance. NHSE currently faces a growing backlog of maintenance that would cost approximately £9 billion to eradicate, compared to an annual capital budget of £7.5bn²⁹. This means that simply maintaining current infrastructure would require significant investment – but what is required is a major expansion of diagnostic services. As mentioned above, OECD comparisons show that the UK lags far behind the average number of MRI and CT scanners per million population.³⁰ Successive spending reviews and budgets have plugged gaps but failed to tackle the fundamental issues. It is estimated that, accounting for recent spending commitments, **approximately £1.3bn is still required to reach the OECD average for diagnostic imaging.**³¹ Importantly, this is the minimum requirement, and significant, further investment will be critical to expanding all diagnostic services and enabling the reforms set out in the Richards Review. **In the 2021 Comprehensive Spending Review, Government must ensure that sufficient funding is provided to expand diagnostic capacity and fully implement the recommendations of the 2020 Richards review of diagnostic services.**

Health Education England (HEE) have previously estimated that the NHS will require an aggregate growth of 45% in its cancer workforce to deliver world-class cancer services by 2029. Last year, CRUK estimated that to achieve this level of growth across seven key cancer professions, an additional investment of between £142m and £260m would be required in staff training and education.³² Some welcome investment was made in the 2020 Spending Review, with £46 million committed to diagnostics and cancer workforce, supporting 245 new training posts in key professions. However, to ensure progress towards the growth needed in the cancer workforce is maintained, we anticipate **Government must invest around £200 million for cancer in HEE at the 2021 Comprehensive Spending Review.**

Given growing cancer incidence and the impact of the COVID-19 pandemic on cancer services and the cancer workforce, it will be important that projections of demand on cancer services and anticipated workforce supply continue, and that investment in workforce education and training keeps pace with patient need. Cancer Research UK is currently updating its estimate of what is needed for the cancer workforce, and intends to share this with the Committee in due course.

The NHS People Plan 20/21 stated: “transformation is an ongoing process and work will continue beyond 2020/21 in all the areas set out in this plan. In addition, when the government further clarifies the available budget to expand the workforce and make sure that education and training is fit for the future – as expected to be set out in the forthcoming spending review – more details will follow.” We are still waiting for that budget commitment.

Investing to expand the NHS workforce is a fundamental requisite for improving UK cancer survival. But there is also a strong economic case for doing so:

- **Driving growth and creating jobs:** The NHS is the largest employer in England, giving it an unparalleled ability to enhance local economies and drive growth and prosperity. England's growing and ageing population means that to meet demand the NHS workforce will need to grow in the coming years, for example, by 2035 the number of people estimated to be diagnosed with cancer in the UK is expected to reach over half a million per year, an increase of 40% since 2015. As a result, its potential to support local economies in its role as an employer is only likely to increase.

- **Levelling up:** The NHS provides the most economic benefit to more deprived areas, meaning that investing in the health workforce can support 'levelling up' those regions. By embracing the role of hospitals as 'anchor institutions' in communities, the government can cement this.
- **Being fiscally responsible:** Due to the premium cost of locum and agency staff and the centrality of workforce to making effective use of other investments, investing in the health workforce is fiscally responsible, rather than simply another cost to be borne.
- **Supporting innovation:** Investing in the cancer workforce will free up the capacity of the health workforce to carry out clinical research, contributing to the life sciences innovation that not only discovers lifesaving new interventions and treatments but also helps the UK economy thrive.
- **Improving productivity:** A healthier population are better able to take part in work, be more productive when at work and to be able to engage in education and training. Investing in the NHS workforce can help improve population health, therefore improving productivity.

4. How might the organisation and work of the NHS and care services be reformed in order to effectively deal with the backlog, in the short-term, medium-term, and long-term?

Short-term

In the short-term, it is critical that cancer services are protected to stop any further disruption from the impact of COVID-19 and ensure the cancer backlog continues to be addressed. Whilst the immediate impact of COVID-19 on health services has receded, having COVID-protected spaces in place will limit further disruption in the event of any future resurgence and during the winter months, when the service will be under significant pressure.

Implementing available, innovative technology could also support in managing the backlog in the short-term. For example, colon capsule endoscopy (CCE) uses a video capsule to investigate the colon. CCE has been implemented in England and Scotland and has the potential to reduce demand for traditional colonoscopies – freeing up the struggling endoscopy workforce to reduce waiting times. When implemented on the symptomatic pathway, CCE can be used to help rule out bowel cancer and triage patients, reducing the demand on colonoscopy services. A publication which discusses the preliminary (unpublished) results of the ScotCAP study suggests that CCE could be used to reduce colonoscopy demand by up to 70% for symptomatic patients referred, and effectively triage patients to colonoscopy with appropriate urgency.³³ However, it is important to note that CCE presents challenges too. While its simplicity means that minimal training is required for administering staff, the reading of CCE will need to be interpreted by a trained professional.³⁴ Further, there is limited evidence for assessing the cost effectiveness of CCE and, ultimately, colonoscopy remains the gold standard insofar as diagnostic accuracy is concerned. Ongoing research and evaluation is therefore essential for informing its use, and the evaluations in Scotland and England will be key for informing future programmes.

Cytosponge is another example of an innovation which could support managing the backlog. The 'sponge on a string' test can be used to identify individuals at risk of developing oesophageal cancer, and offers an alternative to a diagnostic endoscopy. Critically, administering cytosponge is a much quicker process than an endoscopy, meaning it could play a key role in reducing the incredibly high waiting lists currently facing the diagnostic service. As with CCE, ongoing monitoring and evaluation is essential to informing safe and effective use.

Successful innovations and changes should then be sustained and funded in the medium- and long-term, to ensure their benefits are fully realised.

Medium-term

Dealing with the backlog in the medium-term will require innovation and new ways of working, as well as significant investment, to maximise NHS capacity.

Community Diagnostic Hubs (CDHs) are a new service model with the potential to improve our approach to elective diagnostic services. Recommended in Professor Sir Mike Richards' diagnostics review, CDHs will be based at NHS sites or other community spaces and provide imaging, pathology and endoscopy, amongst other services. This approach will support the required expansion of diagnostic services to help tackle the backlog and meet future demand, through increasing efficiency in the diagnostic pathway. It is important to note that investing in CDHs could see improvement for cancer patients, but could also benefit the health systems and patients with other conditions by facilitating more timely diagnosis and therefore access to appropriate treatments. It is positive that the government has earmarked some funding for these and initial roll out plans are in place. However, significant investment in new kit, facilities and digital infrastructure, as well as workforce, is required to ensure these hubs have their intended impact and do not unintentionally draw capacity out of other settings. Alongside their rollout, robust evaluation and data tracking will be required to ensure their aims of improving population health outcomes, increasing diagnostic capacity and improving service access, amongst others, are realised.

Embedding effective skill-mix approaches will also be important for tackling the cancer backlog in the short-to-medium term, as skill-mix can increase capacity of the cancer workforce more quickly than the recruitment and training of new staff. Skill-mix approaches can have benefits across the cancer pathway. For example, in diagnostic services, radiographers can be trained to take on imaging duties that would traditionally be the responsibility of radiologists.

To deliver these benefits, national and local health leaders should tackle the barriers to adopting skill-mix approaches. NHS Trusts and Health Boards should consider whether they are able to backfill the roles of upskilled staff and, if not, take steps to enable this, for example by recruiting more support workers. In driving the implementation of skill-mix approaches, it is important health leaders have the support of the cancer workforce, meaning patient safety and staff wellbeing – not cost – should be at the heart of the case they make. And health education providers across the UK should design training courses flexibly to maximise their availability, aiming to reduce the geographical and financial barriers to participation.

Long-term

To tackle the cancer backlog and achieve the recovery and transformation of cancer services required to meet long-term cancer targets, we need a cancer workforce that is fit for the future. Without investment in medical education and workforce planning, we won't have the frontline staff and specialists needed to address the cancer backlog, cope with future demand, or make progress towards ambitions to diagnose and treat more cancers at an early stage. Whilst action must be taken immediately to address the cancer workforce shortages, the effect of this will be realised in the long-term once new staff are fully trained.

Alongside strategic investment in diagnostic capacity, opportunities for service transformation must be unlocked, such as utilising innovative technologies. Artificial intelligence (AI) has the potential to expand capacity for screening and diagnostic services. AI will not replace clinicians, but in some circumstances it can deal with any tests which have clear normal results, allowing clinicians to spend more time reporting on tests which may have an abnormal result.

In addition, we must expand the NHS's ability to generate innovations as well as enhance its ability to adopt them – by increasing NHS capacity and capability in research. As well as improving the quality of care received by patients in the future, NHS research improves the care received by today's patients³⁵ and benefits the NHS workforce by increasing staff wellbeing and retention.³⁶ Learning from the pandemic and

embedding clinical research into everyday NHS practice is therefore vital to improving patient outcomes and developing the NHS's ability to tackle the challenges posed by cancer. More detail is given on this in response to question 6.

There are also major opportunities to improve the effectiveness and efficiency of pathology services. Sharing slides digitally rather than physically can reduce turnaround times in pathology and utilise expertise nationally, maximising limited capacity among the pathology workforce.³⁷ One of the few cancer centres with a digital pathology centre of excellence has successfully piloted using digital technology to scan slides in labs, reporting increased efficiency.³⁸ However, at present, digital capabilities are far below what is required for a seamless digital pathology system, meaning these innovative approaches cannot be put into widespread practice.³⁹

5. What positive lessons can be learnt from how healthcare services have been redesigned during the pandemic? How could this support the future work of the NHS and care services?

During the pandemic, the NHS has adapted rapidly to unprecedented circumstances, harnessing the power of innovation and collaboration at pace and scale. We must ensure that this momentum is not lost as we move forward.

For far too long, critical shortages in staff capacity, equipment and technology have limited the NHS's ability to adapt and innovate. To build on the lessons learnt from the pandemic and ensure that no part of the system is left behind, financial and technical support from the centre along with flexibility to adapt to their local circumstances will be key.

Collaboration

Collaboration between NHS bodies is not new, but during the pandemic this activity was accelerated and scaled up at great pace. For cancer services, providers worked together and shared resources to ensure that patients with the greatest need were prioritised.

The surgical hub model introduced across the country during the pandemic allowed NHS providers to share stretched capacity across their geography and supported clinical prioritisation to ensure the most urgent cases were seen first. Upcoming health legislation means it's likely that all NHS trusts will be expected to be part of at least one provider collaborative in the future. Provider collaboratives are partnership arrangements between two or more trusts, working across multiple places to meet patient demand. We welcome this direction of travel, and health systems should continue to find opportunities to embed and expand collaborative measures to build resilience in cancer services, such as surgical hubs, in order to put patients first across geographical footprints.

Remote care

A major innovation during the pandemic has been delivering care remotely, reducing the need for hospital visits and introducing greater flexibility into primary care.

For cancer treatment, a range of medicines have been delivered at home or in the community. Innovation has also reduced the hospital visits required for treatments which can't be delivered remotely. For example, hypofractionation approaches in radiotherapy services, such as stereotactic ablative radiotherapy (SABR), have been rolled out, requiring many fewer doses of radiation in each treatment cycle. While these approaches are in response to the pandemic, many had been long proven but not fully adopted, and they

clearly have the potential to offer benefits to patients through fewer trips to hospital and more care closer to home, and potentially less severe side effects from less exposure to radiation.

Primary care has also quickly adapted, with the significant expansion of remote consultations. Data from some GP practices indicates the degree of the switch to more remote consultations after the first lockdown started: pre-pandemic, in February 2020 just 14% of GP appointments were recorded as taking place over the telephone. By April 2020 in England, this had risen to almost half of appointments, and 41% of appointments were still over the phone by April 2021⁴⁰. There have been significant benefits to this change in approach – people have been triaged through e-tools to the most appropriate healthcare professional in a practice, it has reduced barriers to access for some due to eliminating travel, and it also provided greater flexibility to primary care staff.

Remote care should therefore continue post-pandemic to help the NHS to work with greater flexibility and meet different patient need. However, the barriers to accessing care digitally must be recognised. Some patients, such as older patients, people for whom English is not a first language and more deprived groups who may not have access to technology, will likely face greater difficulties in accessing these services. It will be important that steps are taken to ensure that health inequalities are not exacerbated through the increased and continued use of remote consultations. GPs have also raised concerns that remote consultations mean it is more challenging to use their professional judgement when assessing a patient, a particular issue for some cancers where a physical examination is an important part of decision-making. Expanding options such as video, rather than phone, consultations may help to alleviate some challenges here. Further research and evaluation will be critical to fully understand the optimal role of remote modalities across healthcare settings. Importantly, the principle of patient choice must remain central as digital approaches are explored and expanded further.

Triage

Cancer services were under significant pressure before the pandemic, which will need to be addressed with as the backlog is reduced. One lesson from the pandemic is the use of tools to triage patients, identifying which suspected cancer patients are at highest risk to inform prioritisation for further investigation.

The quantitative Faecal Immunochemical Test (qFIT) and use of cytosponge are examples of triage tools that have been used over the course of the pandemic to help health professionals triage patients based on their risk of having cancer. Whilst FIT implemented prior to the pandemic, during the pandemic access increased, including using it for higher risk patients. These tools should continue to support triaging efforts, although ongoing research and service evaluation is essential in informing their use. Furthermore, any patients deemed to be lower risk through use of these triage tools must have appropriate safety-netting measures put in place to ensure adequate follow up, as some of them may have cancer.

6. What can the Department of Health & Social Care, national bodies and local systems do to facilitate innovation as services evolve to meet emerging challenges?

COVID-19 has raised public awareness of research's vital role in delivering health innovation to a record high, with 78% of the public now wanting health research to be part of the NHS's routine care.⁴¹⁻⁴² The public's support for NHS research is well warranted, as evidence shows that NHS Trusts with higher levels of clinical trial activity have lower levels of patient mortality and receive better Care Quality Commission ratings.⁴³ Delivering these improvements to patient outcomes is the most common motivation for NHS staff

seeking research opportunities,⁴⁴ and staff that go on to participate in research experience higher levels of retention and wellbeing.⁴⁵

Unfortunately, the pandemic has significantly disrupted the NHS's ability to perform non-COVID research, including cancer research. During the pandemic's first wave in early 2020, 95% of CRUK trials were either completely or partially paused, and recruitment of patients to cancer studies across the UK fell to 8% of pre-pandemic levels by April 2020.⁴⁶ Although the situation has since improved, thanks to the tireless efforts of NHS staff and researchers, patient access to cancer research has yet to fully recover, with patient recruitment to cancer studies currently stagnant at half of pre-pandemic levels.⁴⁷ The recovery of cancer research is being inhibited by significant limitations on both staffing levels and access to vital diagnostic and therapeutic infrastructure, both of which are the result of pressures caused by COVID-19 and the backlog it has created in cancer services – which often rely on the same equipment and staff used in cancer research.

Yet these limitations on research are not new. Many of the obstacles preventing the NHS from expanding its capacity to conduct ground-breaking research and generate life-saving health innovations predate the pandemic – though it has arguably exacerbated them. Our report '[Creating Time for Research](#)' examines these barriers to research in greater detail and we encourage you to consider its policy recommendations for long-term capacity building in the NHS.

As outlined in our report, the Department of Health & Social Care, national bodies and local systems can spur innovation in the NHS and augment its ability to meet the needs of service users by addressing the challenges found in the NHS's research capacity, disparities, careers, and culture. CRUK has been involved in the design and delivery of the cross-government Vision for the Future of UK Clinical Research Delivery, which we support as an essential step towards embedding research into everyday NHS practice.

Research capacity

With 60% of NHS research directors saying there is insufficient funding to support research,⁴⁸ a lack of resources to invest in capacity building is a fundamental limit on the NHS's ability to innovate. This scarcity explains why NHS staff struggle to secure the resources required to have dedicated research time, free from the overwhelming clinical duties that both justify and inhibit health innovation. Our report found that this lack of time was the most common barrier to NHS staff participating in research,⁴⁹ which, in turn, constrains the NHS's capacity to deliver research studies that could innovate and improve the health service. Inadequate research funding also explains why some NHS researchers are forced to self-fund their research through mechanisms such as annual leave.⁵⁰ This cost imposes an additional barrier to entry that could deter NHS staff from becoming researchers, thus making it harder still for the NHS to expand its research capacity and promote innovation.

To address these challenges, we recommend:

- The UK Government and Devolved Administrations should uplift long-term funding for the National Institute for Health Research, Chief Scientist Office, Health and Care Research Wales, and the Health and Social Care R&D Division. At a minimum, these funding increases should be in line with broader uplifts in public R&D investment and keep pace with future increases in inflation.
- In line with the Academy of Medical Sciences' proposals, the UK Government and Devolved Administrations should implement fully funded pilot programmes that offer a proportion of health service staff (including those in under-represented professions) contracts that include dedicated time for research.

Research disparities

Innovation in the NHS is further limited by significant regional and inter-profession disparities in research activity support that limit the NHS's research capacity and stymie innovation.

Our report identified sizeable differences in research activity between larger and smaller NHS Trusts and Health Boards that limit the NHS's overall capacity to conduct research. Interviews with NHS staff and researchers revealed that larger NHS organisations, especially those connected with medical schools and universities, were better able to attract and retain the research funding, infrastructure and expertise required to carry out studies and generate innovation.⁵¹ As a result, staff in smaller NHS organisations are more likely to face barriers to research (e.g. staff in research-inactive Trusts and Health Boards are 32% more likely to feel unconfident in their research skills or knowledge) and this limits their opportunities to join the research workforce and expand the NHS's ability to innovate.

Our report also identified substantial inter-profession inequalities, with 36% of nurses and midwives reporting barriers to getting sufficient research training versus 25% of doctors.⁵² These discrepancies are partly the result of research funding being "disproportionately skewed to doctors rather than anyone lower on the food chain",⁵³ such as nurses and midwives. Even professions that are well-represented in research still experience inequalities in access and support, as the Royal College of Physicians found that physicians who were women, ethnic minorities, or based in rural hospitals had fewer opportunities to participate in research.⁵⁴ By creating additional barriers for under-represented professions, women and ethnic minorities to overcome to join the research workforce, disparities in research activity and support limit the NHS's capacity to conduct research and therefore inhibit innovation.

To address these challenges, we recommend:

- The UK Government should conduct a regional review of clinical research activity. The review's findings should inform proposals for additional funding that facilitates increased research engagement within regions currently under-served by research. The review's findings should also inform revisions to existing R&D investment, with a view to making this investment more regionally equitable and unlocking research capacity.
- Local NHS R&D Offices and Human Resources departments should collaboratively consult under-represented professions to identify and address the social and cultural barriers they face to engaging with research. Progress towards this goal should be locally monitored using the research metrics and reviews we also recommend, as well as periodically reviewed by national NHS bodies.

Research careers

Another inhibitor of health innovation is the insufficient career support and opportunities made available to NHS researchers, which exacerbate the challenges faced in attracting and retaining research talent into the health service.

For prospective researchers looking to join the research workforce and expand the NHS's capacity, to innovate, a major barrier to entry is a lack of confidence in their research skills and knowledge.⁵⁵

Overcoming this barrier requires increasing access to research training and early-career opportunities to develop these skills, and 85% of surveyed NHS staff and researchers agreed that research training would support health service staff to become more research active.⁵⁶ However, achieving this would first require increased investment in the NHS's science base, as outlined in our recommendations for research capacity.

For established researchers wanting to further develop their expertise and deliver ground-breaking research, there is a dearth of mid- and late-career opportunities and support. In our survey, just 51% of NHS staff and researchers believed their NHS "organisation recognises research engagement in the promotion criteria" despite 73% believing that their NHS "organisation sees research and evaluation as integral to our work".⁵⁷ The consequence of this absent support for experienced researchers is that NHS risks under-utilising or even losing talent and expertise from its research workforce. In our report, this risk was poignantly described by a nurse who explained that:

“When I finished my PhD fellowship and was going to come back to my NHS post, there was no job for me. So, I ended up jobless for almost four months before I got back into an NHS post, and in there they didn’t recognise my increments...I actually took a pay cut to go back to my job.” – Nurse⁵⁸

By making research a potentially unrewarding career path, the NHS disincentives experienced researchers from using their training and skills to conduct research and therefore constrains its capacity and ability to innovate.

To address these challenges, we recommend:

- The NIHR, CSO and HSC R&D should develop new programmes modelled on the HCRW’s Pathway to Portfolio Development Funding Scheme to fund small-scale projects that develop the confidence, expertise and capacity of NHS staff to deliver research.
- NHS Trusts and Health Boards should embed research into their strategies for staff recruitment and retention, and workforce development planning. These local efforts should be reinforced by ambitious national strategies for supporting clinical research that recognise the NHS as an indispensable part of the UK’s research environment.

Research culture

Lastly, health innovation is inhibited by an organisational culture within the NHS that sees research as an immensely valuable but burdensome add-on to routine care. Interestingly, this limited research culture afflicts staff in both research-active and -inactive NHS organisations, with 35% and 43% of staff respectively reporting it as a barrier to research.⁵⁹ A significant cause of this barrier is the disconnect between local NHS decisionmakers and the impact of research and health innovation. For instance, 44% of surveyed senior NHS managers were unsure whether research was a priority in their Trust or Health Board’s organisational strategy.⁶⁰ This uncertainty amongst NHS leadership stands in stark contrast to the 73% of surveyed NHS staff that believe research is integral to their NHS organisation’s work.⁶¹ By viewing research and the health innovations it generates as a ‘nice to have’ rather than as an integral part of delivering and improving care, the NHS limits its ability to innovate and stifles collaboration within and between NHS organisations.

To address these challenges, we recommend:

- All four national departments of health should develop a coordinated set of metrics to capture NHS research engagement and impact. These quantitative metrics should capture research’s impact on patients, staff, NHS systems and cost savings. The resulting data should be incorporated into existing platforms for evaluating NHS Trusts and Health Boards.
- Local NHS R&D Offices should undertake periodic reviews of research awareness and activity amongst their health service staff and patients. The resulting qualitative insights should inform local efforts to showcase research’s value and increase staff engagement with research.

For more information, please contact Abby Lever, Westminster Public Affairs Officer, at Abigail.lever@cancer.org.uk.

¹ Ahmad AS, Ormiston-Smith N, Sasieni PD. Trends in the lifetime risk of developing cancer in Great Britain: comparison of risk for those born from 1930 to 1960. *Br J Cancer*. 2015 Mar 3;112(5):943-7. doi: 10.1038/bjc.2014.606. Epub 2015 Feb 3. PMID: 25647015; PMCID: PMC4453943.

² Cancer Research UK analysis of Cancer Waiting Times data for England. For full analysis, see - https://www.cancerresearchuk.org/sites/default/files/covid_and_cancer_key_stats_august_2021.pdf

- ³ Cancer Research UK (2021) Cancer Patient Survey https://www.cancerresearchuk.org/sites/default/files/cancer-stats/cruk_patient_survey/cruk_patient_survey_0.pdf
- ⁴ National Institute for Health Research. (2021). *Open Data Platform*. [Accessed 24 August 2021].
- ⁵ National Institute for Health Research. (2021). *Open Data Platform*.
- ⁶ Cancer Research UK, <https://www.cancerresearchuk.org/health-professional/cancer-statistics-for-the-uk#heading-Zero> Accessed August 2021
- ⁷ Smittenaar, C., Petersen, K., Stewart, K. et al. 2016. Cancer incidence and mortality projections in the UK until 2035. *Br J Cancer* 115, 1147–1155. Accessed March 2021 via <https://doi.org/10.1038/bjc.2016.304>
- ⁸ Cancer Research UK analysis of Cancer Waiting Times data for England. For full analysis, see - https://www.cancerresearchuk.org/sites/default/files/covid_and_cancer_key_stats_august_2021.pdf
- ⁹ NHS England, Monthly Diagnostic Waiting Time and Activity
- ¹⁰ CRUK estimate based on England and Wales trends from Cancer Waiting Times data.
- ¹¹ CRUK estimate based on pre-pandemic averages of the number of people screened with FIT/FOBT bowel screening, breast screening mammogram and cervical smear programmes across the UK countries.
- ¹² Cancer Research UK (2021) Cancer Patient Survey https://www.cancerresearchuk.org/sites/default/files/cancer-stats/cruk_patient_survey/cruk_patient_survey_0.pdf
- ¹³ NHS England. 2021. Cancer Waiting Times. Accessed August 2021 via <https://www.england.nhs.uk/statistics/statistical-work-areas/cancer-waiting-times/>.
- ¹⁴ NHS Providers, (2020). *Rebuilding Our NHS: Why It's Time to Invest*, NHS Providers. Available: <https://nhsproviders.org/rebuilding-our-nhs>
- ¹⁵ Richards, M. (October 2019). *Report of the Independent Review of Adult Screening Programmes in England*. Available: <https://www.england.nhs.uk/wp-content/uploads/2019/02/report-of-the-independent-review-of-adult-screening-programme-in-england.pdf>
- ¹⁶ OECD. 2019. Health at a Glance 2019: OECD Indicators. Accessed via https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2019_4dd50c09-en;jsessionid=Yc5fHtz1KVuoFQjYGpuL7l8h.ip-10-240-5-138
- ¹⁷ Lynch, C. et al. 2021. A comparative analysis: international variation in PET-CT service provision in oncology—an International Cancer Benchmarking Partnership study, *International Journal for Quality in Health Care*, 33:1. <https://doi.org/10.1093/intqhc/mzaa166>
- ¹⁸ NHS England and Improvement, 2019. Interim NHS People Plan https://www.longtermplan.nhs.uk/wpcontent/uploads/2019/05/Interim-NHS-People-Plan_June2019.pdf
- ¹⁹ Internal CRUK analysis with estimates are based on the rate of participation and the cancer detection rate for the relevant threshold from the England FIT pilot in 2014 (data based on Moss et al., Gut; 2016), and assume 4.6 million screening programme invites for 60-74 years olds in England per year. Estimates are for the years immediately following the introduction of FIT.
- ²⁰ https://www.rcr.ac.uk/system/files/publication/field_publication_files/clinical-radiology-uk-workforce-census-2020-report.pdf
- ²¹ <https://think.macmillan.org.uk/mixing-it-up-what-is-skill-mix-and-how-can-it-transform-the-cancer-workforce-2d450b42c9ae>
- ²² <https://think.macmillan.org.uk/mixing-it-up-what-is-skill-mix-and-how-can-it-transform-the-cancer-workforce-2d450b42c9ae>
- ²³ <https://www.nuffieldtrust.org.uk/news-item/facing-future-challenges-do-changes-in-skill-mix-offer-some-solutions>
- ²⁴ <https://think.macmillan.org.uk/mixing-it-up-what-is-skill-mix-and-how-can-it-transform-the-cancer-workforce-2d450b42c9ae>
- ²⁵ <https://www.hee.nhs.uk/our-work/cancer-diagnostics/clinical-endoscopist-training-programme/30-week-clinical-endoscopist-programme>
- ²⁶ <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf>
- ²⁷ <https://www.nhsstaffsurveyresults.com/wp-content/uploads/2021/03/ST20-national-briefing-doc.pdf>
- ²⁸ Topol, E. 2019. 'The Topol Review: Preparing the healthcare workforce to deliver the digital future.' <https://topol.hee.nhs.uk/wp-content/uploads/HEE-Topol-Review-2019.pdf>
- ²⁹ NHS Digital, (January 2021). Estates Returns Information Collection Summary page and dataset for ERIC 2019/20, NHS Digital. Available: <https://digital.nhs.uk/data-and-information/publications/statistical/estates-returns-information-collection/england-2019-20>
- ³⁰ OECD. 2019. Health at a Glance 2019: OECD Indicators. Accessed May 2021 via <https://www.oecd-ilibrary.org/docserver/4dd50c09-en.pdf?expires=1620211757&id=id&accname=guest&checksum=340E4B0D5E08ABF2154B4177080E0484>
- ³¹ The Health Foundation, "New funding for diagnostic equipment falls considerably below what is needed," 27 09 2019. [Online]. Available: <https://www.health.org.uk/news-and-comment/news/new-funding-for-diagnostic-equipment-fallsconsiderably-below>

https://www.cancerresearchuk.org/sites/default/files/estimating_the_cost_of_growing_the_nhs_cancer_workforce_in_england_by_2029_october_2020_-_full_report.pdf

³³ MacLeod, C., Wilson, P. and Watson, A.J.M. (2020), Colon capsule endoscopy: an innovative method for detecting colorectal pathology during the COVID-19 pandemic?. *Colorectal Dis*, 22: 621-624. doi:10.1111/codi.15134

³⁴ <https://www.thejag.org.uk/CMS/UploadedDocuments/Scheme/Scheme5/Capsule%20endoscopy%20certification%20criteria%20and%20process%201.1.pdf>

³⁵ Jonker, L. and Fisher, S.J. (2018). The correlation between National Health Service trusts' clinical trial activity and both mortality rates and care quality commission ratings: a retrospective cross-sectional study. *Public Health*, 157., pp. 1-6.

³⁶ Lichten, A. et al. (2017). Does a biomedical research centre affect patient care in local hospitals? *Health Research Policy and Systems*, 15(2).

³⁷ Royal College of Pathologists. Digital Pathology. Available: <https://www.rcpath.org/profession/digital-pathology.html>

³⁸ NHS England, (October 2017). Achieving World-Class Cancer Outcomes: A Strategy for England 2015-2020 – Progress Report 2016-17, NHS England. Available: <https://www.england.nhs.uk/publication/achieving-world-class-cancer-outcomes/>

³⁹ Royal College of Pathologists, Digital Pathology. Available: <https://www.rcpath.org/profession/digital-pathology.html>

⁴⁰ NHS England, Appointments in General Practice Dataset

⁴¹ National Institute for Health Research. (2021). *NIHR survey reveals public's attitudes to health research following coronavirus*. [Online]. Available at: <https://www.nihr.ac.uk/news/nihr-survey-reveals-publics-attitudes-to-health-research-following-coronavirus/27728> [Accessed 10 August 2021].

⁴² Health and Care Research Wales. (2021). *More than 90% of people in Wales think health research has been important during COVID-19 pandemic*. [Online]. Available at: <https://healthandcareresearchwales.org/more-90-people-wales-think-health-research-has-been-important-during-covid-19-pandemic> [Accessed 10 August 2021].

⁴³ Jonker, L. and Fisher, S.J. (2018). The correlation between National Health Service trusts' clinical trial activity and both mortality rates and care quality commission ratings: a retrospective cross-sectional study. *Public Health*, 157., pp. 1-6.

⁴⁴ Peckham, S. et al. (2021). *Creating Time for Research: Identifying and improving the capacity of healthcare staff to conduct research*. [Online]. Cancer Research UK. Available at: https://www.cancerresearchuk.org/sites/default/files/creating_time_for_research_february_2021_-_full_report-v2.pdf [Accessed 10 August 2021], p. 39.

⁴⁵ Lichten, A. et al. (2017). Does a biomedical research centre affect patient care in local hospitals? *Health Research Policy and Systems*, 15(2).

⁴⁶ National Institute for Health Research. (2021). *Open Data Platform*. [Accessed 24 August 2021].

⁴⁷ National Institute for Health Research. (2021). *Open Data Platform*.

⁴⁸ Peckham, S. et al. (2021). *Creating Time for Research*., p. 27.

⁴⁹ Peckham, S. et al. (2021). *Creating Time for Research*., p. 30.

⁵⁰ Peckham, S. et al. (2021). *Creating Time for Research*., p. 8.

⁵¹ Peckham, S. et al. (2021). *Creating Time for Research*., p. 29.

⁵² Peckham, S. et al. (2021). *Creating Time for Research*., p. 32.

⁵³ Peckham, S. et al. (2021). *Creating Time for Research*., p. 32.

⁵⁴ Royal College of Physicians. (2020). *Research for all? An analysis of clinical participation in research*. [Online]. Available at: <https://www.rcplondon.ac.uk/projects/outputs/research-all-analysis-clinical-participation-research> [Accessed 13 July 2021].

⁵⁵ Peckham, S. et al. (2021). *Creating Time for Research*., p. 30.

⁵⁶ Peckham, S. et al. (2021). *Creating Time for Research*., p. 10.

⁵⁷ Peckham, S. et al. (2021). *Creating Time for Research*., p. 41.

⁵⁸ Peckham, S. et al. (2021). *Creating Time for Research*., p. 10.

⁵⁹ Peckham, S. et al. (2021). *Creating Time for Research*., p. 30.

⁶⁰ Peckham, S. et al. (2021). *Creating Time for Research*., p. 42.

⁶¹ Peckham, S. et al. (2021). *Creating Time for Research*., p. 41.