



# Creating Time for Research

Identifying and improving the capacity of healthcare staff to conduct research

February 2021

Together we will beat cancer



## Reference

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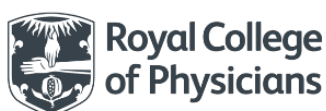
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## Cancer Research UK

Cancer Research UK is the world's largest independent cancer charity dedicated to saving lives through research. We support research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. In 2018/2019, we committed £546m to cancer research.

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Cancer Research UK is a registered charity in England and Wales (1089464), Scotland (SC041666) and the Isle of Man (1103)



<http://www.cancerresearchuk.org/>

## Centre for Health Services Studies, University of Kent

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Services Studies

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# List of acronyms

AHP	Allied Healthcare Profession
ARCs	NIHR Applied Research Collaborations
BCUHB	Betsi Cadwaladr University Health Board
CQC	Care Quality Commission
CRN	NIHR Clinical Research Network
CSG	Clinical Studies Group
CSO	Chief Scientist Office
DHSC	Department of Health and Social Care
GSTFT	Guy's and St Thomas' NHS Foundation Trust
HCRW	Health and Care Research Wales
HEI	Higher Education institution
HSC R&D	Health and Social Care Research & Development Division
ICAPs	Integrated Clinical Academic Programmes
KCHFT	Kent Community Health NHS Foundation Trust
LSIS	Life Sciences Industrial Strategy
MRC	Medical Research Council
NHS	United Kingdom National Health Service
NIHR	National Institute for Health Research
PCAF	Pre-doctoral Clinical Academic Fellowship
PHT	Portsmouth Hospitals University NHS Trust
PI	Principal Investigator
QI	Quality Improvement
R&D	Research and Development
RDS	Research Design Service
RfPB	Research for Patient Benefit
SEHSCT	South Eastern Health and Social Care Trust
SPA	Supporting Professional Activities
SWBT	Sandwell and West Birmingham Hospitals NHS Trust
WP	Work package

# Foreword

Medical research is an indispensable part of the United Kingdom's national identity. From the world's first vaccine to the world's first bionic hand, innovations in healthcare have played an integral part in shaping the UK's international status and contribution to humankind. When the UK invests in medical research it delivers improvements to patient care, develops the skills of our health service staff, and drives economic growth through innovation.

People are at the heart of driving this innovation – researchers in industry, academia and the NHS working together and playing critical roles in leading and delivering research. Never has this been needed more. Faced with a global pandemic and pressures on frontline care, researchers worked together to rapidly recruit patients onto COVID-19 studies and discover that Dexamethasone can significantly reduce mortality from COVID-19 – a world first.

Although this achievement has been deservedly applauded across the globe, its publicity masks systemic and persistent obstacles in the UK's health system that make these accomplishments exceptional case studies, rather than the norm. It's therefore essential that we learn from COVID-19 and expand on programmes like the Life Sciences Industrial Strategy (LSIS) to build a stronger UK research ecosystem.

The NHS is an integral part of this ecosystem. It makes a unique contribution to the UK's global status as a world leader in health, and it provides the foundation for medical research's ambitious future. Yet for many NHS staff, research is presented as an over-bearing add on, despite studies showing participation in research improves staff retention and morale.

This weak research culture has made research inaccessible for many NHS professions, particularly nurses, midwives, and Allied Health Professionals. Even professions with research

experience, such as doctors, face difficulties accessing dedicated research time and funding, forcing some to conduct research using annual leave at their own expense. Research is particularly inaccessible for NHS Trusts that lack adequate research facilities and expertise, as this makes it difficult to hire experienced researchers and secure funding in competition with research-experienced NHS Trusts.

These barriers to research predate COVID-19, but the pandemic has exacerbated them by placing severe pressure on research staff, infrastructure and funding. Previous efforts like the LSIS have attempted to overcome these obstacles, but they've been marred by disconnects between ambitious national strategies and the reality on the ground. This report bridges that gap. It builds on successful initiatives, such as the Pathways to Portfolio programme, to detail an actionable policy agenda that comprehensively addresses the barriers to expanding NHS research. Achieving this will require a truly cross-sector effort, with collaboration across all four nations in tandem with the NHS, universities, industry and medical research charities.

The challenge is great, but the rewards are greater. Expand the NHS's ability to conduct life-saving research. Make research truly accessible to all. And deliver better patient outcomes.



A handwritten signature in black ink, appearing to read 'N Blackwood'.

**Baroness Blackwood of North Oxford**  
**Former Minister of Innovation**

# Executive Summary

Clinical research is at the heart of driving improvements for patients, developing new ways to prevent, diagnose and treat disease. There is growing evidence that patients treated in research-active hospitals get better quality care, even if they are not taking part in research.<sup>1,2</sup> Conducting research also has significant system-wide benefits beyond improving patient outcomes, including greater staff retention and financial benefits to the health system through commercial revenue.<sup>3,4</sup> Clinical research is a historic strength of the UK, with one of the strongest health and life science industries in the world. This status has recently been enhanced, through the leading role the UK has played in developing COVID-19 treatments and vaccines.<sup>5,6</sup> Despite this success, we cannot rest on our laurels in an increasingly competitive global R&D economy; we must go further and faster.

Improving our capacity and capabilities in clinical research is central to ambitious visions like the UK's Life Sciences Industrial Strategy (LSIS). Capitalising on this area of strength will be critical to achieving broader Government ambitions for the UK to be a global science superpower as we forge a new future outside of the European Union.<sup>7</sup>

However, while we can point to successes in areas such as COVID-19 research and learn from these experiences, they mask fundamental barriers to research in the UK that existed before the pandemic. Evidence over many years shows that a lack of time and capacity for healthcare staff to conduct or participate in research significantly holds us back.<sup>8</sup> NHS staff report having insufficient time, funding and skills support to undertake research; inadequate organisational support for research; and limited opportunities to engage with research.<sup>9,10</sup> Staff even report having to take annual leave to conduct research and funders report finding it harder to set up and run clinical trials. Pressure on time is only increasing as clinical trials become ever more complex due to advances in scientific understanding<sup>11,12</sup> and persistent staff shortages across the health service.<sup>13</sup>

Cancer Research UK commissioned this study on behalf of the medical research sector to identify solutions to these fundamental issues. This study offers a system-wide approach to improve capacity for clinical research in a breadth of research settings, professional groups – including doctors, nurses, midwives and allied health professionals – and disease areas. Addressing chronic staff shortages in the NHS is a critical issue, one that requires a sustained and comprehensive response. There are many excellent examples of good practice we can learn from in order to shift NHS research from separate siloes of activity to a cohesive, networked system of collaborative research.

The pandemic has led to greater public recognition of the importance of research alongside innovations in how research can be conducted.<sup>14,15</sup> This provides an unprecedented opportunity for a paradigm shift, where research is no longer seen as an 'add on' but fully integrated into the psyche of how the UK delivers healthcare. This report strives to achieve this ambition by informing new strategies to tackle persistent barriers to research, bridging the gap between national ambition and local practice, and driving forward a new era of research in the UK's health service.

## Key findings

There is no shortage of policies, strategies and initiatives nationally and locally within health care organisations aiming to overcome barriers to research. These strategies are welcome, and were frequently endorsed by our interviewees and survey respondents. However, concerns were raised about the poor implementation of these strategies and lack of co-ordination between policy and practice. Long-term and significant capacity building requires a comprehensive and integrated package of policies, which combat the disconnect between national strategies and local practice. In this report we explore the issues and make recommendations for their improvement across four broad themes, at both the national UK and Devolved Government and local NHS organisational level. While R&D Offices are the natural home for many of these recommendations, it is vital they are implemented with the support of the entire NHS organisation they sit within. Our core recommendations are outlined in the executive summary, with our further recommendations presented in the body of the report.

## Better support staff and research infrastructure

Dedicated research time is too inaccessible and inadequately supplied, meaning many staff conduct research in their own time and at their own expense. In our survey, 'high demands of clinical services' and 'no protected time for research' were the most cited barriers across all professions. Increasing research capacity can only go so far without addressing this underpinning limitation. This issue is exacerbated by a lack of visibility of research support schemes; with opportunities communicated to staff who are already research active.

"They say 'oh, it's really good, because you're building the profile of the hospital up', but you don't get protected time for it. So, say I need to spend a day in a conference and I have to travel...when I come back I have to catch up with all my work. I take it as annual leave that's how I get round it. But then you know, to use half your annual leave up to promote your hospital and your work, is a little bit cheeky." – Nurse

Funding must be increased to finance research itself and the time needed to carry out research through backfilling research-engaged roles. Study

participants at all levels called for more financial support. The way existing research funding is allocated must also be improved to become more accessible to non-research active organisations. Due to their role in funding NHS-based research, the National Institute for Health Research, Chief Scientist Office, Health and Care Research Wales, and Health and Social Care Research and Development Division would be ideal vehicles for increased R&D investment by the UK Government and Devolved Administrations.

### Key recommendations:

- 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.
- The UK Government and Devolved Administrations should uplift long-term funding for the NIHR, CSO, HCRW and HSC R&D. 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.

### Good practice examples:

- ✓ Research time provided through **country specific fellowship schemes**, supported by mentoring and support through a local university research centre
- ✓ **Sponsorship through charitable funds** and providing tasters to teams as part of an uplift cycle: particular areas targeted by Trust by offering financial support to non-portfolio studies.



- NHS Trusts and Health Boards should increase the visibility and accessibility of dedicated time for research in order to expand research engagement amongst staff, especially under-represented professions. 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.

## Target disparities in research activity and capacity

“Depending on whether you are a clinician or AHP or Nurse or any other professional, the funding is disproportionately skewed to doctors rather than anyone lower on the food chain.” – AHP Lead

Persistent regional disparities in research funding, infrastructure and expertise exist, both within and between the UK nations. These disparities lead to regional variation in investment, professional development, and opportunities for patients to participate in research. Staff from less research-active Trusts or Health Boards were more likely to report experiencing barriers such as lack of time, limited research culture, and lack of confidence.

There is substantial variation in research engagement between health service staff. Nurses, midwives and allied health professionals are particularly under-supported and under-represented.

These professions aren’t an exhaustive list of who is under-represented, but their experiences reflect wider disparities in research engagement. When these professions successfully participate in research, their value and contribution is less well recognised, and they suffer from lack of access to research infrastructure and support.

Similarly, disparities in research opportunities between specialties must be addressed to increase capacity across the breadth of the health service. Each specialty faces unique barriers to improving research capacity, so improved monitoring of resource distribution and research activity is needed.

Good practice examples:

- ✓ **Building partnerships** between research-active and smaller Trusts
- ✓ **The 70@70 NIHR Senior Nurse and Midwife Research Leader Programme** as an initiative specifically aimed at nurses and midwives raising research awareness, understanding, capacity and capability.

### Key recommendations:

- 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.

## Develop pathways for getting into and progressing in research

While variations exist, all staff can experience barriers on the pathway to building research into their career. One-off opportunities to get involved in research are not enough; resources and support must be applied continuously along health professional career pathways, enabling research capacity to be developed cumulatively.

Insufficient research training and lack of research knowledge and skills is one of the top barriers for health service staff; 85% of survey respondents felt that training would support health service staff to be more research active. A long-term approach to research is needed to facilitate early and continued research exposure. Confidence, capacity and experience of staff to conduct research can be developed through small-scale research projects and sustained exposure to research throughout the career pathway.

“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, because I was in an academic post, although I was working all that time in the NHS. I actually took a pay cut to go back to my job.” Nurse

Good practice examples:

- ✓ **Pathway to Portfolio Development Funding Scheme** open to all healthcare staff in Wales to fund small-scale research scoping projects that will develop research skills such as grant-writing, research question design, and community engagement.
- ✓ Including **research, audit, and quality of care improvement in job descriptions and work plans** to raise research’s profile amongst staff, including middle managers.

Research must not be seen and treated as a one-size-fits-all system. There are many diverse ways in which to get involved with and conduct research, and staff have a range of motivations for engaging with research, all of which requires different support. The top motivations were the same among both research-active and non-research-active staff: to improve patient experience and outcome, personal interest in the research topic, and opportunity to continue learning. Understanding what makes staff want to get involved in research should be used for a basis for action.

### Key recommendations:

- 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.

## Strengthen national- and organisational-level research culture

In a strong research culture, research is valued, normalised and supported through connected bottom-up and top-down approaches. Research's value must also be recognised at the societal, organisational, team and individual level. The actions set out above will in themselves contribute to building a stronger research culture. However, there are also actions which can be taken now to support the development of this culture.

"There's only so many hours in the day, and when you're being pulled in every direction, something that requires you to sit down and think about how you're going to tackle it goes to the bottom of the pile" - Pharmacist.

Good practice examples:

- ✓ Using **annual activity reviews of funded researchers** to quantify and assess the quality of their contribution using locally developed metrics.
- ✓ **Collaborations between Trusts and universities** to deliver placements for nursing students within research nurse teams.

Research must be better connected to practice, with better illustration of the impact of research on patient care. There are insufficient metrics and processes to capture, report and communicate the value of research, in all its diverse forms.

These should be based around what is important to staff, the service and patients: the impact and value in terms of patient experience, outcomes and perceptions; staff morale, development and retention; systems improvements and potential cost savings. Welcome progress has been made, such as inclusion of research in the Care Quality Commission well-led framework,<sup>16</sup> but this must be built upon.

Siloed research cultures create boundaries within and between organisations, hindering their ability to explore different perspectives, gain new insight, and pool resources in collaboration across sectors and institutions. There is widespread support for addressing this; 82% of survey respondents stated that closer ties with local academic organisations or industry would increase staff's research activity.

### Key recommendations:

- 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.

## Conclusion

It is well known that more time and more funding for research is needed. Supporting this is vital, but in isolation will be insufficient. There is no one size fits all approach to increasing capacity. We must ensure that capacity-building initiatives benefit all health service staff, regardless of geography, profession or specialty. Staff at all stages of the career pathway must be supported to get engaged in research, in a consistent and cumulative way. These actions will contribute to building a strong research culture, where research in all forms is valued, all

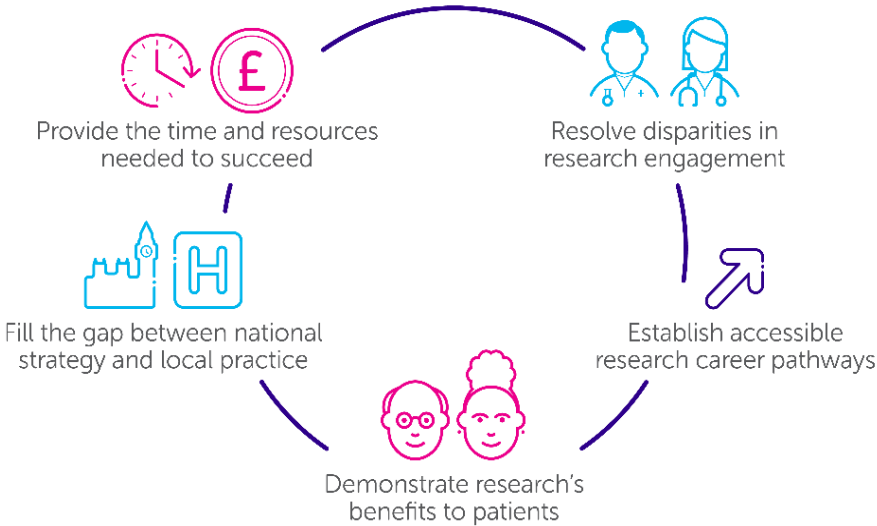
staff have the opportunity to get involved in research and all staff are research aware; an environment which will further promote, prioritise and support research.

The report outlines four key themes, but none of these actions can overcome persisting barriers and build research capacity without emphasising the interconnected nature across policies recommended here and elsewhere across the sector. Better strategic coordination is needed at all levels, and this interconnected response must be overseen by a body with a clear mandate for monitoring the implementation of each individual policy by its respective body (Figure 1).

DHSC and the Devolved Administrations should be given responsibility for ensuring this report's recommendations are implemented as an integrated package of policy solutions to the systemic challenges afflicting NHS research.

Figure 1: The interconnected policy response

### Tackling barriers to conducting research requires an interconnected policy response



# Contents

Executive summary .....	7
Introduction.....	14
Research aims and objectives .....	18
Methods .....	20
Results and Conclusions .....	22
Theme One: Supporting health service staff and resourcing research infrastructure .....	23
Theme Two: Regional and professional disparities .....	28
Theme Three: Pathways to research .....	34
Theme Four: Strengthening research culture .....	40
Discussion .....	48
Policy recommendations.....	51
Appendices .....	53
References.....	66

# Introduction

Over the last decade there has been a growing emphasis on increasing health service staff capacity to support, undertake and use research. The importance of research has never been more publicly recognised than in the COVID-19 pandemic, with research funders, industry, academia and the NHS all working collaboratively to develop treatments and vaccines. Globally, the UK has one of the strongest and most productive life sciences sectors in the world.<sup>17,18,19</sup> Yet despite this success, structural problems in developing and sustaining research capacity in NHS organisations persist.<sup>3,19,23</sup>

The UK Research & Development (R&D) Roadmap highlights the importance of creating opportunities for people to develop their skills and experience in order to address the lack of research capacity amongst health care staff.<sup>24</sup> The UK Government has committed itself to developing a comprehensive new R&D People and Culture strategy that includes supporting research.<sup>25</sup> These ambitions are also reflected in the new NHS England People Plan and in Devolved Administration policies, such as NHS Wales' research delivery framework. These emphasise the role research plays in improving and delivering good quality care, as well as aiding staff recruitment, development and retention.

These latest strategies build on earlier initiatives and policies developed by the UK Government, Devolved Administrations, research funders, and professional bodies.<sup>26,30</sup> Successive policies have sought to increase life sciences research and NHS research activity by improving R&D infrastructure and supporting the development of research careers. However, while initiatives have been developed for 20 years or more, the impact has been variable with many studies questioning their effectiveness.<sup>31,32,33,34,35</sup> Key problems persist in relation to inequalities in funding and opportunity, variation in where studies are undertaken and their subject matter, and a lack of coordination between policy and practice. If these new strategies and policies are to have an impact, we need to understand why previous initiatives have failed and what needs to be done differently in order to expand the NHS's research capacity.

## Benefits of research

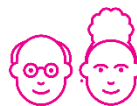
The benefits of research have been demonstrated at a national, local and individual level (Figure 2), which has led the Government to designate life sciences research as a key element of its industrial strategy.<sup>19</sup> Building the research capacity of health professionals and supporting their involvement in research is therefore central to the UK and Devolved Administrations' strategic goals – an approach supported by industry, academic and charity research funders.

Figure 2: The benefits of research

## Increasing research activity and health service staff capacity to get involved in research should be a priority. Clinical research benefits...



The economy: Every £1 invested in cancer research generates 40p in additional value to the UK economy



Patients: through improving healthcare and survival rates



Staff: Being involved in research enhances job satisfaction and clinical expertise



Healthcare organisations: by supporting service changes, and improved staff recruitment and retention

### Economic benefits

The UK life sciences sector is seen as a significant contributor to the economy and the NHS provides a unique institutional framework for health-related research.<sup>36,37</sup> Studies have shown that there is a national economic benefit derived from medical research with public investment, which attracts additional private investment benefits to the overall economy.<sup>19,38</sup> For example, £1 invested in medical research generates 25p in additional value to the economy, alongside the patient benefit of improvements to healthcare.<sup>39</sup>

### Benefits to patients

There is clear evidence of patient benefit from research, as shown by the PARROT trial, and the response to the urgent need for research on COVID-19 has highlighted the NHS' essential role in delivering clinical research, as well as long-term limitations on its capacity to fulfil that role.<sup>40,41</sup> Research provides both organisational and patient benefits through supporting service changes, such as service evaluations which assess service quality. There is a positive relationship between the amount of research undertaken in Trusts/Health Boards and lower mortality rates.<sup>3,20</sup>

### Examples of research's patient benefits

**In the PARROT trial** NIHR-funded researchers demonstrated that a blood test for pre-eclampsia could reduce the time pregnant women wait for a diagnosis from 4.1 days to 1.9 days, reducing their risk of serious health problems. The results were chosen as a rapid uptake product by the accelerated access collaborative so it was recommended by NHS England very quickly and there is evidence that it is in use.<sup>40</sup>

**The RECOVERY Trial** is a large range of suggested treatments for COVID-19. Conducted by researchers at Oxford University, the ongoing Randomised Evaluation of Covid-19 Therapy (RECOVERY) trial involves all major hospitals in the UK on an unprecedented scale and as many as 3500 doctors, nurses, and research staff, including consultants, junior doctors, and those newly graduated. Within its first three months it reported its first policy changing result: that the widely promoted antimalarial drug hydroxychloroquine was ineffective. This was swiftly followed by the announcement that dexamethasone is an effective treatment.<sup>41</sup>

## Benefits to healthcare organisations and staff

The role of research in improving service changes and provision of care benefits healthcare organisations; research-active organisations achieve better Care Quality Commission (CQC) ratings.<sup>20</sup>

Impactful research is reliant on involving health service staff who can translate their day-to-day clinical experiences into research designs that deliver improvements to healthcare processes, performance and the quality of patient care.<sup>42,43,44,45,46,47,48</sup> Recruitment and retention remain significant concerns for UK health providers, which participation in research can support. **Health professional engagement can also enhance job satisfaction and professional confidence, with improved staff recruitment and retention helping to build and retain clinical expertise and improve patient care.**<sup>44</sup> Active engagement also contributes to improved staff attitudes towards research.<sup>49</sup>

Increasing research activity and health service staff capacity to become involved in research should be a priority for all NHS organisations, not just those associated with universities or established research reputations.

## Barriers to research

The NHS is undertaking more research than ever before, with 50% of NHS trusts increasing their research activity during 2018/19.<sup>50</sup> Despite this increase, there remain significant variations between regions, specialties and types of healthcare organisation, with many healthcare professions – such as nurses, midwives and allied health professions (AHPs) – reporting significant barriers to engaging in clinical research.<sup>21,26,35,51,52</sup> This increase in research also comes with increasing complexity, requiring additional resource to support activity.<sup>53,54</sup> Previous studies and surveys have identified a wide range of barriers to involving health professionals in research. Barriers stem from national priorities, funding, NHS organisational issues, relationships with academia, under-representation in research driven by systemic sexism and racism, disciplinary and professional inequalities, and individual opportunities.<sup>3,55,56,57</sup> Barriers to research include:

- **Lack of time, funding or skills support** to enable health professionals to undertake research;
- **Disparities in opportunities** to develop research careers between different regions, professions, specialties, genders, and different ethnic groups;
- **Lack of research expertise and training**, particularly among nurses, midwives and AHPs;
- **Lack of communication** of research's role in improving the quality and safety of healthcare, patient experience, and patient outcomes;
- **Lack of organisational support**; and
- **De-prioritisation of research.**



## A systems approach to improving research capacity

If the aspirations of government policy, research funders, health care organisations and of patients are to be met, it is essential we understand why such barriers persist and why efforts to address them fall short.

Recent reports have suggested that the barriers to increased research activity persist due to competing priorities, NHS organisational issues and inequalities in funding, training, support, and opportunities to participate in research.<sup>3,58,59</sup> However, whilst many of these studies provide useful insight into the drivers of NHS research activity, they frequently lack analysis of the entire NHS research system, which includes a diverse array of healthcare organisations, professions, specialties, government agencies, research funders, and health service staff.

This study, therefore, considers enhancing health service staff research involvement and building research capacity from a systems perspective. Rather than focusing on bolstering research within a specific specialty or profession, this report considers how all components of the UK research ecosystem (policy, funding, training, academia, healthcare organisations, government bodies) can be used more cohesively to increase health service staff's research activity.

In taking a system-based approach to addressing research capacity, we explored system-wide, organisational, team and individual level factors (macro, meso and micro levels) and built on the framework for research capacity development developed by Gee and Cooke.<sup>60,61,62,63,64,65</sup> We drew on this to consider developing and supporting health service staff research engagement at these different levels to ensure our policy analysis and recommendations understand the relationship between local practice and national strategy.

# Research aims and objectives

## Addressing research capacity

This report examines how the NHS, health care funders, national professional bodies and individual NHS Trusts/Health Boards can increase capacity of health professionals to support and conduct research. The study was commissioned by Cancer Research UK to *“identify the scale of the challenge associated with health service staff lack of capacity to conduct research, then identify practical policy solutions to improve and boost capacity of the existing workforce to conduct research.”* This includes not just the capacity of staff undertaking research (as research leaders or as team members), but also staff who may support research through patient recruitment, provide support services to studies, or those who use research findings in their clinical work.

Our concept of health service staff research capacity is rooted in definitions of general research capacity. For this study we were interested in interventions operationalised through a range of levels to support health care staff’s ability to carry out research or achieve objectives in the field of research over the long-term.<sup>64</sup> While we recognised that many types of health care organisations and staff are engaged in research this study was limited to NHS organisations and staff in the UK.

Our definition of research concentrates on research directly impacting patients, including clinical research and research that harnesses existing patient data.

## Research objectives

The aim of the study was to identify the scale of the challenge associated with the lack of capacity, then identify practical policy solutions to improve and boost capacity of the existing workforce to conduct research.

Our objectives were to:

- Examine the scale of, and reasons for, organisational and structural factors which are associated with health service staff lacking capacity to conduct clinical research.
- Identify examples of initiatives aimed at facilitating capacity to conduct clinical research including:
  - Ways of working that encourage and support a greater level of research;
  - Organisational factors that support a greater level of research; and
  - System factors that support and sustain a greater level of research.
- Develop recommendations for policy and practice.

This report presents the findings from this more holistic approach and identifies policy solutions for organisations, funders and policy makers. These aim to support the NHS and Departments of Health and Social Care across the UK and funding agencies in policymaking on optimising the health service research environment.

## Study scope

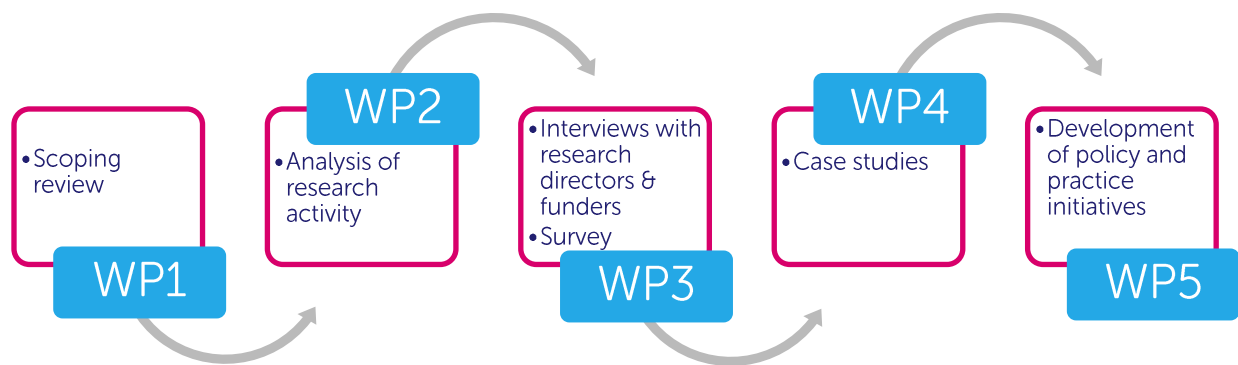
Whereas previous studies have focused on specific sectors or professional groups, we took a system-wide approach, acknowledging that research capacity is a cross-cutting issue. This study is UK-wide, and the scope includes:

- Public, charity and industry funders of research
- Staff from a wide range of health care professions and specialties
- Staff of varying levels of research activity and engagement
- National service and professional bodies, research support and infrastructure organisations
- Both acute and community healthcare provider organisations, excluding primary care.

# Methods

Building on the findings of previous studies on research engagement, we undertook a mixed-methods study to examine how to support, enhance and sustain health practitioner research engagement.<sup>66</sup> This explicitly involved collecting data at the micro (individual staff member/researcher), meso (organisational) and macro (system/policy) levels. Our approach also involved secondary data analysis, interviews and survey data in five interlinked work packages as shown in Figure 3:

Figure 3: Study work packages



**Work-package one: Scoping review of the evidence and knowledge on research engagement support in health care organisations.**<sup>67,68</sup> The aim was to identify the current extent of knowledge about initiatives/interventions/policies that support successful research engagement. We reviewed key published studies and interviewed 12 key informants from across the UK including research staff, funders, regulators and research support infrastructure roles.

**Work-package two: Analysis of secondary data on research activity.** The aim of this work-package was to obtain an overview of research activity by organisation and staff group/speciality to help provide a national picture of activity and to help identify locations for work-packages three and four.

**Work-package three: Survey of research active and research non-active staff in health care providers.** The aim of the survey was to identify the views of health service staff on issues related to what enables them to become more involved in clinical research, with a specific focus on what drivers and incentives support research activity and capacity. Survey questions were developed based on data from interviews with 14 research funder representatives and 25 R&D directors and leads, combined with data from Work-package one. We surveyed staff from different professional groups, specialities, current research activity in 11 NHS health care providers across the UK. Survey locations were selected in discussion between the research team and the Steering Group. In total we received over 1200 responses (see Appendix 1 for full details of the survey and [Supplementary Survey Report](#)).

**Work-package four: Case study research in selected health care providers.** The aim of the case studies was to gain an in-depth understanding of the context at an individual and organisational level of initiatives to support health service staff engagement in research.<sup>69</sup> We interviewed 51

staff in six NHS Trusts/Health Boards in four countries (3 in England, 1 in Wales, 1 in Scotland and 1 in Northern Ireland). (See Appendix 1 for more details).

**Work-package five: Assessment and prioritisation of interventions.**<sup>70</sup> The aim of this phase of the research was to assess actions identified throughout the research that potentially could increase health professional involvement in research. The identified initiatives were assessed through a prioritisation process with the Steering Group to develop policy recommendations.

Our methods ensured that we obtained a holistic view of the factors affecting healthcare professionals research engagement and contextualised understandings from a range of organisational and stakeholder perspectives at a national, local and organisational levels staff working in healthcare organisations. We surveyed a wide array of staff, including nurses, midwives, doctors, AHPs, healthcare scientists, and decisionmakers such as directors and professional leads. They were working in NHS acute and community health providers of varying size, type (teaching and non-teaching), acute and community and geographically spread across the UK. We interviewed stakeholders from across the UK and from research and non-research active groups of staff, funders, regulators and research support infrastructure roles, which contributes to the theory application.<sup>66,69</sup> We conducted the scoping interviews by telephone and the case study interviews through a mixture of face to face and telephone interviews. All interviews applied a semi-structured interview approach and were audio recorded. We applied framework analysis for interview data from WP1 and WP3, and thematic analysis for case study interviews from WP4.<sup>71-74</sup> The interview topic guides and analysis framework focused on key areas of motivation and research culture; challenges for healthcare staff at various career stages; funding; and operationalising strategies (Appendix 2 and 3).

We worked closely with Cancer Research UK and the members of our Steering Group. Members of the Steering Group were drawn from the NHS, academia, departments of health and social care, professional bodies, health regulators and research funders to ensure that each element of the data collection fully addressed our research objectives and contributed to achieving actionable policy recommendations. This included reviewing our full range of evidence, survey and interview findings to develop our key recommendations, and inputting into the prioritisation of policy recommendations. The research methods are detailed more fully in Appendix 1.

# Results and Conclusions

From our scoping review, survey and interviews, we identified four recurring themes that impact research capacity and require policy responses. These were to:

- **Support staff and resource research infrastructure** on a practical level, through investment in dedicated research time and facilities.
- **Target variations in research activity and capacity of staff**, which exist across regions, professions and specialties.
- **Develop pathways to research**, where opportunities to conduct and improve research capacity should exist for staff at all career stages, along the career pathway in a cumulative way rather than as one-off opportunities.
- **Strengthen national and organisational-level research culture** to create an environment where research is valued, normalised and supported through connected bottom-up and top-down approaches.

Many of the issues we identified have been highlighted in previous work concerning the barriers to health service staff's engagement in research, reflecting the persistent and entrenched nature of these barriers. Our findings also support recommendations made in other reports such as those by the Academy of Medical Sciences<sup>22</sup> and the Royal College of Physicians.<sup>3</sup> Our interviewees and survey respondents frequently endorsed many existing policy responses to these barriers. However, they raised concerns over their poor implementation and lack of co-ordination between policy and practice. As one Associate Director of Research and Development from a national funder reflected:

**“In fairness, there is an acknowledgement to want to develop a workforce who want to learn and innovate – however, this is not sufficiently linked to the reality on the ground.”**

There is no shortage of policies, strategies and initiatives nationally and locally within health care organisations. However, the persistent findings in studies of barriers and lack of research engagement by staff clearly point to a problem of implementation. This disconnect is illustrated in Figure 4.

Figure 4: Research engagement: from strategic policy to a failure of implementation and impact



Long-term and significant capacity building can only be achieved if a comprehensive and integrated package of policies is introduced and implemented. Overarching responsibility for implementing these initiatives should fall to a clearly defined network of organisations that understand the interconnectedness of the research pathway and how competing priorities and capacity issues within this network can undermine policy responses.

We recommend DHSC and the Devolved Administrations should be given responsibility for ensuring this report's recommendations are implemented as an integrated package of policy solutions to the systemic challenges afflicting NHS research.

## Theme One: Supporting health service staff and resourcing research infrastructure

Barriers to expanding research capacity are interconnected and varied. Yet underpinning cultural barriers, research disparities and limited pathways (which will be explored in themes 2-4) is a widespread scarcity of research time and funding. Limited access to allocated research time forces too many staff to conduct research in their own time, sometimes at their own expense, and in turn increases the opportunity cost clinicians face when considering research engagement. Likewise, scarce funding restricts the number of research projects staff can participate in, thereby limiting the opportunities for staff to develop research experience, skills and capacity.

These material constraints create a tangible limit to how far research capacity can expand, and they must therefore be urgently addressed. Achieving this requires a significant expansion in

access to dedicated time for research, funding uplifts for key research funders and a review of how existing funding is allocated across UK regions.

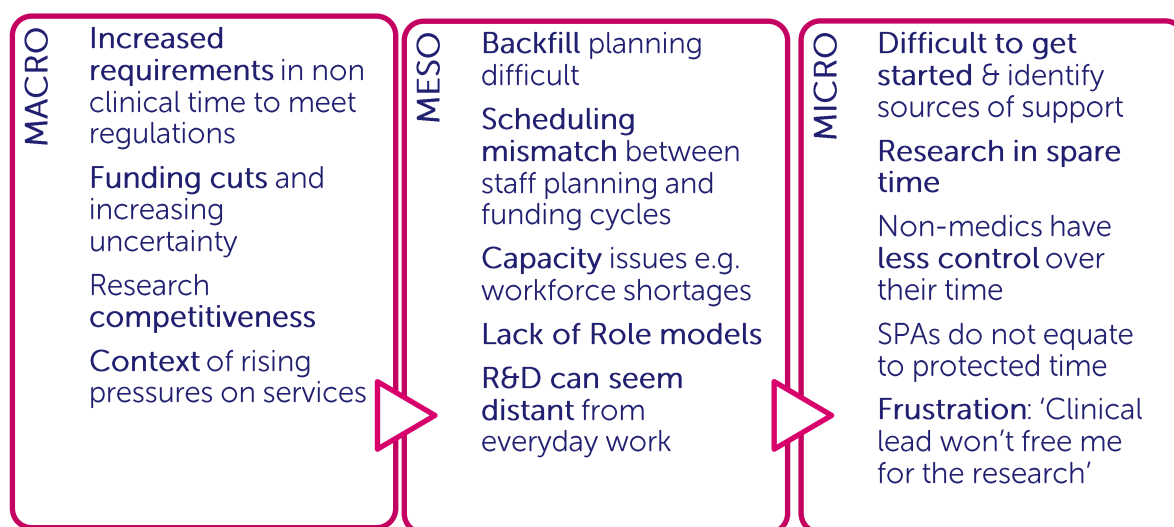
### Key messages: Theme One

- **Dedicated research time is too inaccessible and too inadequately supplied**, forcing many health service staff to conduct research activity in their own time and even at their own expense; this is unsustainable.
- To backfill dedicated time and finance research, **funding must be increased**, especially for organisations that enable NHS research such as the NIHR, CSO, HCRW and HSC R&D.
- **The way existing research funding is allocated must also be improved**, with a view to making it more accessible to non-research active healthcare organisations.

## 1.1 Accessible time for research

Access to time for research, specifically allotted time free of immediate clinical tasks, was cited by interviewees and survey respondents as an essential driver of NHS research. A lack of allocated time can be caused by a variety of factors at every level of the health service (Figure 5).

Figure 5: Overview of issues impacting time for research



A key barrier to research is pressure on staff time caused by high caseloads and limited clinical capacity, with one R&D manager noting:

**“We’ve got winter pressures, we’ve now Coronavirus...So, ultimately, this I suppose is where it does feel like research is the add-on...there is no way of backfilling, it’s just impossible with the way NHS funding is at the moment, and financial budgets are at the moment.”**

In our survey, ‘high demands of clinical services’ and ‘no protected time for research’ were the most frequently selected barriers to research across each professional category.





There were disparities between professions, with nurses finding they had less autonomy to push for allocated research time within their roles:

**“A frontline nurse is going to find it very difficult (I think) to be allocated time, we are like every other NHS Trust, stretched to the bare bones at times, especially at this time of year, and to say to somebody, oh well, you’re going to be taking two days off a month to do this bit of this research project, I don’t know how that would work”** – Patient governor

In contrast, higher-band staff, belonging to professions with established research experience, had a stronger prerogative to incorporate research activity into their workplans. This disparity forces lower-band staff to pursue research using their own time and resources, a prospect which can deter enthusiastic but inexperienced researchers.

**“They say ‘oh, it’s really good, because you’re building the profile of the hospital up’, but you don’t get protected time for it. So, say I need to spend a day in a conference and I have to travel...when I come back I have to catch up with all my work. I take it as annual leave that’s how I get round it. But then you know, to use half your annual leave up to promote your hospital and your work, is a little bit cheeky.”** – Nurse

The issue of balancing **work-life priorities** was echoed in our survey and was rated the **fourth greatest barrier** overall to becoming more research active. This was exacerbated by a very commonly held belief that research processes were daunting and difficult to navigate alone.



However, even for doctors who are allocated time for ‘Supporting Professional Activities’ (SPAs), this rarely equated to protected time specifically for research. Even if a clinician has a SPA, these cannot be ringfenced for research as SPAs include other roles such as management duties. Additionally, clinicians still have clinical commitments that can dominate their schedules and prevent substantive engagement with research. After clinical duties into SPA time, clinicians are **“lucky if they will allow two hours a month...how can you possibly deliver PI oversight in that time?”** – R&D Manager

This situation is further exacerbated by the poor visibility of research support schemes, which is primarily rooted in differences in how research and non-research active staff are communicated with. As our survey respondents explained:

**“I am research active, so I know where everything is and I actively pursue that, but if I wasn’t really that engaged in research, I’d not necessarily know where those things are and I think we’re still developing ways to communicate where those resources are.”** – Nurse

**“Research is talked about within the trust but never Radiographer-led research. I would be more than happy and willing to participate in research however I wouldn’t know where to start and there isn’t the culture to support it.”** – Radiographer

Once again, this disparity was prevalent amongst health professions with less-established research reputations, such as AHPs. One AHP lead was concerned that **“you can move through various grades even to the point of a consultant nurse, midwife or AHP, and have done no research whatsoever with no research training.”** Similarly, we heard that contracts and

communication were not geared towards research for nurses, meaning **“it’s not the culture for us to do it...we do it either accidentally because we're trying to do something else, or you have an interest in it.”** Although research is still going ahead within these professions, our stakeholders emphasised just how much effort was required to achieve this. As one clinical nurse specialist explained:

**“we struggle and just try and learn on our feet, rather than being coached or guided into it...we didn't know what support we had in R&D, because especially for nurses it's more like, ‘well that's for doctors’...doctors, now they get priority.”**

Positive solutions to this are happening at the local level which can inform the development of wider policies:

#### Good practice examples:

- ✓ Bringing research into departments by offering supervision to PhD students who then strengthen the clinical element of their study – offering greater contact with research without being away from clinical time. (Betsi Cadwaladr University Health Board)
- ✓ Research Champion programmes with diverse uptake and promoted through varied channels which emphasise their clinical as well as research interests. (Kent Community Health NHS Foundation Trust)
- ✓ Local agreement of time for research agreed and supported within teams (Sandwell and West Birmingham Hospitals NHS Trust)
- ✓ Research time provided through country specific fellowship schemes – NRS in Scotland – supported by mentoring and support through a local university research centre (NHS Lanarkshire)
- ✓ Joint roles between the health organisation and a local university to develop and support research within a particular profession (across a number of health boards and universities in Scotland; reported by NHS Lothian)

To address these barriers to research and unlock more of the NHS’ research capacity, we need to achieve three changes to how time for research is allocated and resourced:

1. Schemes that provide support for researchers, including allocated time for research, must be made more visible, particularly to under-represented professions.
2. Time for research must be distributed more equitably amongst professions, in order to make research more accessible to under-represented professions.
3. The total supply of time for research allocated to health service staff must increase, both to expand NHS research capacity and provide more opportunities to non-research active staff.

The breadth of ‘under-represented professions’ is wide and cannot be exhaustively detailed in this report. Instead, nurses, midwives and AHPs have been identified as representative examples of these inter-profession disparities.

One potential solution would be to replace Trust-specific frameworks for allocating time for research with a nationwide and uniform application system available and visible to all health service staff. This could make research time much more accessible, as a national application route could be designed to account for existing inter-profession disparities in research engagement and be widely publicised amongst all health service staff. However, a uniform

system risks ignoring Trust-specific needs and challenges (such as limited research facilities) which need to be addressed in order to reduce regional disparities in research engagement.

Instead of a national approach, we should give individual Trusts/Health Boards the autonomy to develop their own strategies for improving the accessibility and visibility of research support schemes - including time for research. For example, Trusts/Health Boards could begin offering health service staff (across all professions) contracts that includes dedicated time for research, as recently suggested by the Academy of Medical Sciences.<sup>22</sup> To provide a clear incentive and feedback mechanism, Trust performance on making time for research more equitable should be monitored and evaluated using research metrics and reviews (theme 4). If a Trust successfully makes dedicated research time more accessible then this should be reflected in the research engagement metrics of their staff, particularly those in under-represented professions.

1. We therefore recommend NHS Trusts and Health Boards should **increase the visibility and accessibility of dedicated time for research** in order to expand research engagement amongst staff, especially under-represented professions. 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.

2. 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.**

## 1.2 Resourcing infrastructure, capacity building and research

Making time for research more accessible and visible will be a positive step in expanding NHS research capacity, but alone, it is not enough. The number of opportunities to access time for research is dependent on funding, as this directly finances research projects and backfills roles engaged in research. Yet despite its importance, voices at all levels of the health service stated that more generous and better-targeted financial support was needed to fund research, develop infrastructure, and expand research capacity.

In our survey, **60% of research directors said there was insufficient funding to support research studies.**



The NIHR, CSO, HCRW and HSC R&D are pivotal funders of medical research conducted within the NHS. They directly fund innovative research and facilitate collaborative research by acting as a forum for researchers (e.g. NIHR's Clinical Research Networks), which in turn develop research expertise and capacity within a network that researchers across the NHS can tap into.

Given their role in expanding the NHS' research capacity, the NIHR CSO, HCRW and HSC R&D are ideal vehicles for increased government R&D spending, especially now given their role in facilitating vital COVID-19 clinical trials in NHS Trusts/Health Boards across the country. Not

only would uplifting their funding provide an invaluable stimulus to the growth of UK medical research, it would also make progress towards achieving the Government's target of spending 2.4% of GDP on R&D by 2027.

3. We therefore recommend the UK Government and Devolved Administrations should **uplift long-term funding for the NIHR, CSO, HCRW and HSC R&D**. 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.

## Theme Two: Regional and professional disparities

Our research identified regional, professional and specialty disparities in research activity as an urgent and severe challenge to developing the capacity of health service staff to deliver research.

According to data gathered by the NIHR CRN, MRC, and UK Clinical Research Collaboration, the UK has been persistently marred by stark regional disparities in research capacity and activity. Because research has a positive relationship with patient outcomes,<sup>3,20</sup> these regional disparities in research activity contribute to regional inequalities in quality of care. In other words, there are UK regions where patients are being 'under-served' by their Trust/Health Board's lower research activity, compared with more Trusts and Health Boards more engaged with research.

Alongside regional disparities, there are significant professional disparities in opportunities to engage in research. Nurses, midwives, AHPs and other under-represented professions report having significantly less to access dedicated research time, funding and support when compared with professions such as doctors.<sup>75,76,77,78,79</sup> However, even within well-represented professions, disparities exist. As a recent report from the Royal College of Physicians highlighted: physicians who are women, in rural hospitals, or from ethnic minority communities have access to fewer opportunities to participate in research.<sup>80</sup>

Rectifying these disparities will require additional public investment in research targeted at under-served regions, professions and specialties. This investment must be informed by the research metrics described in theme 4, and by a review of regional imbalances in research activity. Key to this will be local consultation with staff to identify the social and cultural barriers they face to participating in research.

### Key messages: Theme Two

- The government must **resolve the persistent regional disparities in research funding, infrastructure and training**.
- There is **substantial variation in research engagement between health service staff**, with doctors and other established research professions receiving greater access to research funding and support; this must be addressed.
- Similarly, **disparities in research opportunities between specialties** must be addressed in order to increase research capacity across the breadth of the health service.

## 2.1 Targeting regional variations

Regional variations (both between and within nations) in research activity remain a persistent obstacle to bolstering the UK's research capacity. A wide array of factors can cause these disparities, meaning they vary in severity and scope. For example, some community and non-teaching Trusts/Health Boards are forced to deprioritise research due to limited capacity, especially those that lack an affiliated medical school, as this makes it harder to attract and retain staff with research training and experience. For example:

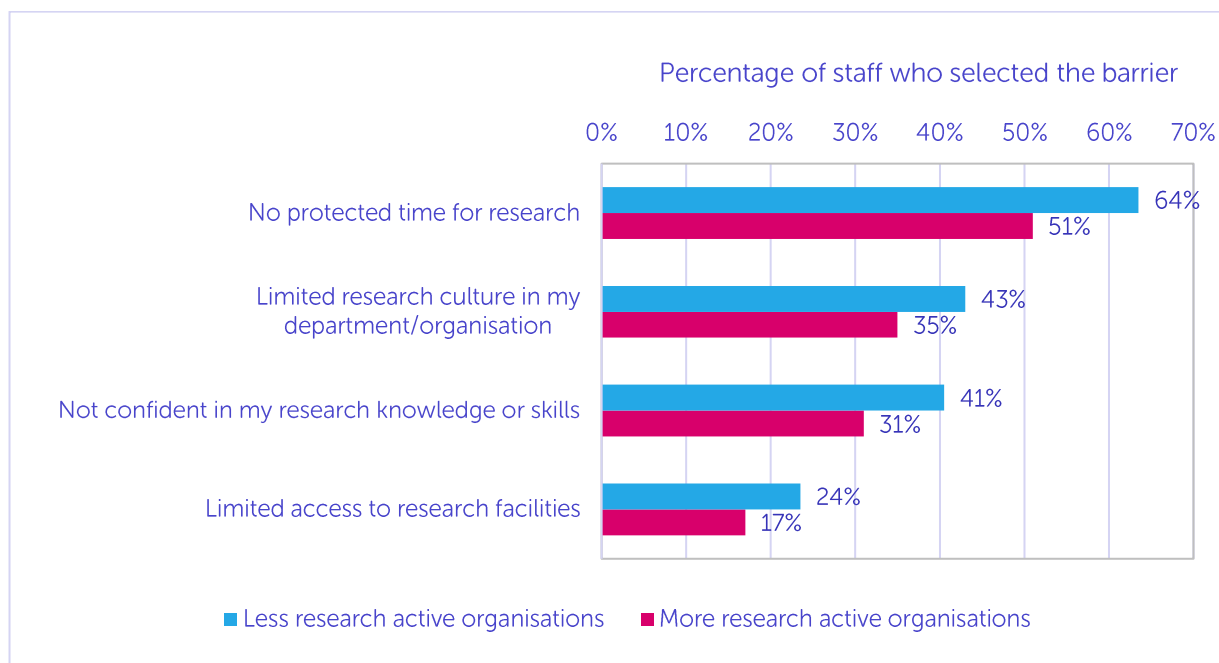
**“In Scotland, research is a key element in four main Health Boards associated with university medical schools – Edinburgh, Glasgow, Aberdeen, Dundee, but other smaller Boards have much less research activity”** – Research & Development Director

Regional variations also have significant impacts on access to research opportunities for health service staff. As one Deputy Head of Dietetics Services suggested:

**“In a bigger hospital you'll have a whole team of head and neck dietitians, and they all work so much better and they've got the opportunity to do so much more research. It is frustrating from that point of view because, I think the will is there but it's just the practicality, don't allow you to do it (in smaller trusts).”**

There was a consensus amongst our interviewees that the allocation of funding is skewed towards larger Trusts/Health Boards with established research capacity and expertise. By prioritising established expertise, rather than potential, research investment reinforces regional disparities and concentrates the development of research staff and facilities into these larger Trusts/Health Boards. Our survey data reflect these trends, showing how staff from less research-active Trusts/Health Boards (as defined in Figure 6 below and Appendix Table 1.1) are more likely to experience barriers to research such as lack of confidence in research knowledge and skills, limited research culture in their department/organisation, no protected time for research and limited access to research facilities (Figure 6).

Figure 6: Barriers to research activity in less research-active versus more research-active Trusts/Health Boards



Note: NIHR Clinical Research Network research activity quintile data is used to divide more research active Trusts/Health Boards (quintile 1-2, top 40%) and less research-active Trusts/Health Boards (quintile 3-5) in our sample.

Targeted funding for non-teaching or less research-active Trusts/Health Boards, driven by a long-term vision for addressing regional disparities, was widely recommended by interviewees as an essential step in building research capacity. This targeted funding will enable less research-active Trusts/Health Boards to develop the research experience of their staff and expand their research facilities, both key factors when competing for funding. Achieving this will require research funders, authorities and NHS organisations to work collaboratively in delivering a joined-up strategy that will unlock the potential of less research-active Trusts/Health Boards.

4. 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.

Alongside direct research investment, access to research training was identified by interviewees as an essential (but often absent) driver of increasing research capacity in less research-active Trusts/Health Boards. We heard through our interviews that support sessions provided by external research networks to Trusts/Health Boards (e.g. free research training from Higher Education Institutions) were invaluable for health service staff working to develop their research capacity. These sessions laid the groundwork between health service staff and academic staff to develop partnerships between less-research active Trusts/Health Boards and

HEIs and research-experienced Trusts/Health Boards. Such partnerships could further develop research capacity by providing health service staff with a network of experienced researchers who can advise less research-active Trusts/Health Boards, on issues ranging from applying for funding and setting research strategies to developing study methodologies and engaging with research regulators. These partnerships should be a central feature of the integrated research offices and academic-clinical setting exchanges described in theme 4.

#### Good practice examples:

- ✓ Linking academics and external experts to Trusts/Health Boards to work alongside health service staff, e.g. Kent Community Health NHS Foundation Trust collaborates with a newly established medical school, universities, national experts and international research teams.
- ✓ Building partnerships between research-active and smaller trusts e.g. Guy's and St Thomas' NHS Foundation Trust working with Darent Valley District General Hospital (Dartford & Gravesham NHS Trust)

## 2.2 Disparities across healthcare professions and specialties

Another key factor emerging from our scoping review and empirical studies was the clear disparity of research engagement between different health service staff, with nurses and AHPs being particularly under-supported and under-represented in research activity undertaken by Trusts/Health Boards.<sup>81</sup> To ensure our survey and interview data represented the full breadth of health professionals, we consulted health service staff working across a wide array of roles, including those who are, and are not, engaged in research.

Our interviews explained that the competitive nature of some research programmes meant they favoured experienced principal investigators and doctors over inexperienced staff with research potential. This disparity was less apparent in research programmes specifically tailored to engage professions that are under-represented in research, such as nurses and AHPs. These tailored programmes are necessary because many health professions have less access to support mechanisms such as: allocated research time; funding opportunities; research networks; resource allocation; and learning programmes.

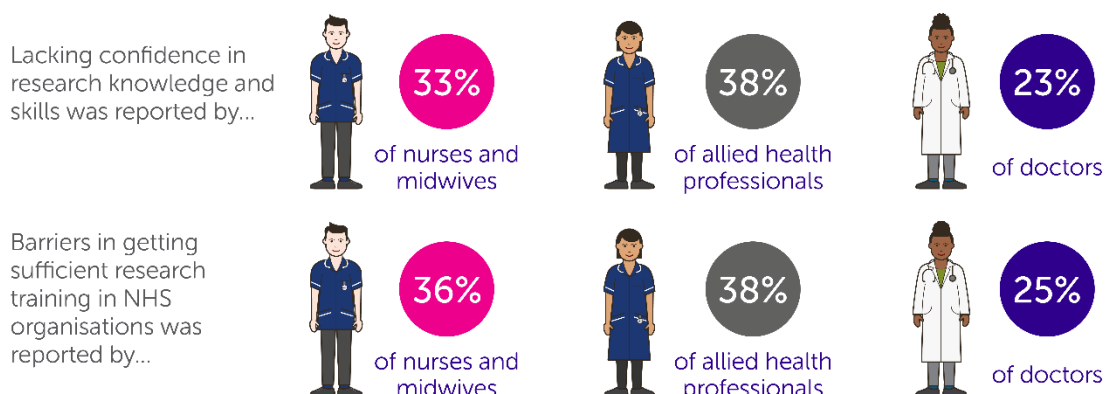
**“There is a lot of barriers because you are nurses, and as nurses you are viewed as why are you doing research? Why do you want to do this? It's not in your job description, you are not in an academic job role, so all the priority goes to the doctors that are in academic job roles or the new assistant roles that are coming out, that's more academic assistance. So, all the resources from a nursing point of view goes to them.” – Nurse**

This disparity is reflected in our survey data, which shows different responses to the barriers to research activity questions between the job role groupings (Figure 7).



Figure 7: The research active pathway

All health service staff face barriers to research.  
However, research access and capacity varies across professions:



Our interview and survey data show that even when nurses and AHPs overcome these barriers and successfully participate in research, their value and contribution is recognised and encouraged less than doctors. A few interviewees noted frustration that although a high proportion of research clinics and daily work are nurse-led, the nurses usually only get a mention in the appendix in publications of the resulting studies, with authorship almost always given to the Principal Investigators (typically doctors). These interviewees suggested that authorship should be more representatively presented to ensure that the contributions of all staff are acknowledged. This lack of visibility in research output contributed to a feeling amongst some nurses, midwives and AHPs that they were a lower priority for research funding and investment. Interviewees criticised the limited information given on available funding opportunities, with doctors and other experienced researchers receiving more active support from R&D boards when pursuing funding.

**“Depending on whether you are a clinician or AHP or Nurse or any other professional, the funding is disproportionately skewed to doctors rather than anyone lower on the food chain.” – AHP Lead**

Many schemes have already been established to level the playing field across health professions and reduce these disparities:

#### Good practice examples:

- ✓ **The 70@70 NIHR Senior Nurse and Midwife Research Leader Programme** as an initiative specifically aimed at nurses and midwives raising research awareness, understanding, capacity and capability.
- ✓ **Health Education England’s Integrated Clinical Academic Programmes (ICAPs)** provide key early-career opportunities to develop research capacity. One case study involved a physiotherapist using the programme to backfill some clinical time to develop research proposals and apply for the NIHR’s Clinical Research Doctoral Fellowship.
- ✓ **NIHR’s Research for Patient Benefit Programme** fund research that will directly improve patient care, drawing from the clinical experience of under-represented professions, such as nurses and AHPs.



Further support targeted at under-represented professions is required to bolster their participation in research and expand research capacity. This support needs to be highly visible and accessible to these professions and include solutions to the practical obstacles to research engagement, such as a lack of time and funding. An awareness of the competition for funding and how this can discourage under-represented professions is also needed to ensure all staff have an opportunity to work on research.

5. We recommended national and local research funders should **increase the funding that is targeted towards under-represented professions**. This should include increasing the number of structured opportunities for these professions to participate in research (e.g. Clinical Studies Groups and NIHR Specialty Clusters focusing more on involving under-represented professions).

Alongside increasing the participation of under-represented professions, many interviewees and survey respondents called for greater diversity of professions within research project teams, especially in positions of leadership. Greater access to these positions would enable under-represented professions to lead on the development of research questions and outputs, ensuring both address practical issues drawn from their clinical experience.

#### Good practice examples:

- ✓ Build a broad mix research interest group and maintain communications, involving health service staff who are not doctors (Kent Community Health NHS Foundation Trust)
- ✓ Take a move to be research active and promote clinical academic careers with nurses and allied health professionals (Guy's and St Thomas' NHS Foundation Trust)
- ✓ Through delivering the in-house nurse training academy, the trust has greater potential to integrate research as well as into clinical practice (Kent Community Health NHS Foundation Trust)

Increasing the funding and research opportunities available to these professions will certainly be necessary to achieving this goal. However, Trusts/Health Boards must also consult under-represented professions and identify the social and cultural barriers to their engagement with research (including the impact of racism and sexism). This consultation must then inform concrete strategies designed to address these barriers, progress towards which should be monitored and periodically reviewed.

6. We recommend 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.

Finally, our research also identified disparities between specialties. This adds another axis of inequity, with prevention, public health, pharmacy, and mental health being some of research fields that experience underinvestment. The lack of support makes it harder for researchers in

these areas to recruit patients, develop research experience, and evidence the value of their research. This reflects the broader pattern of investment favouring established expertise over potential, which in turn limits cumulative research activity and capacity-building across the entire health service.

Interviewees agreed that access to funding and research support needs to be equally distributed across specialties in order to reduce this disparity. Achieving this will require better monitoring of this resource distribution and research activity within specialties, which can be achieved through the research metrics and review we propose (theme 4). This is necessary because each specialty faces its own unique set of barriers to expanding research capacity and therefore requires tailored solutions that will be informed by this improved monitoring.

Clinical Studies Groups (CSGs) would be an optimal vehicle for delivering tailored funding, training and support schemes. CSGs are multidisciplinary networks of researchers that work with a range of stakeholders to identify research priorities and secure research funding. By acting as ‘hubs’ for their specialty, CSGs provide an invaluable platform designing and implementing schemes tailored for under-supported specialties. Alongside CSGs, the NIHR’s Specialty Clusters (though broader in scope) would also be invaluable in delivering change, especially thanks to their relationship with a key life sciences research funder. Devolved equivalents of NIHR Specialty Clusters should also be utilised where available.

7. We recommend the UK Government and Devolved Administrations should **invest more in under-served specialties** and engage with their networks (e.g. CSGs) to identify opportunities to unlock research capacity.

## Theme Three: Pathways to research

Alongside profession- and specialty-specific barriers to developing research capacity, our interviewees and survey respondents noted that all health service staff can experience barriers on the pathway towards building a research career. Figure 8 identifies critical points along the research career pathway and various factors that enable or frustrate research development.

Our findings demonstrate the importance of looking beyond providing one-off opportunities. Instead, resources and support for research engagement must be continuously applied along the career pathway, cumulatively developing research experience, skills and capacity. Interviewees and survey respondents raised the lack of sustainability behind career development support, particularly during and beyond early entry into research:

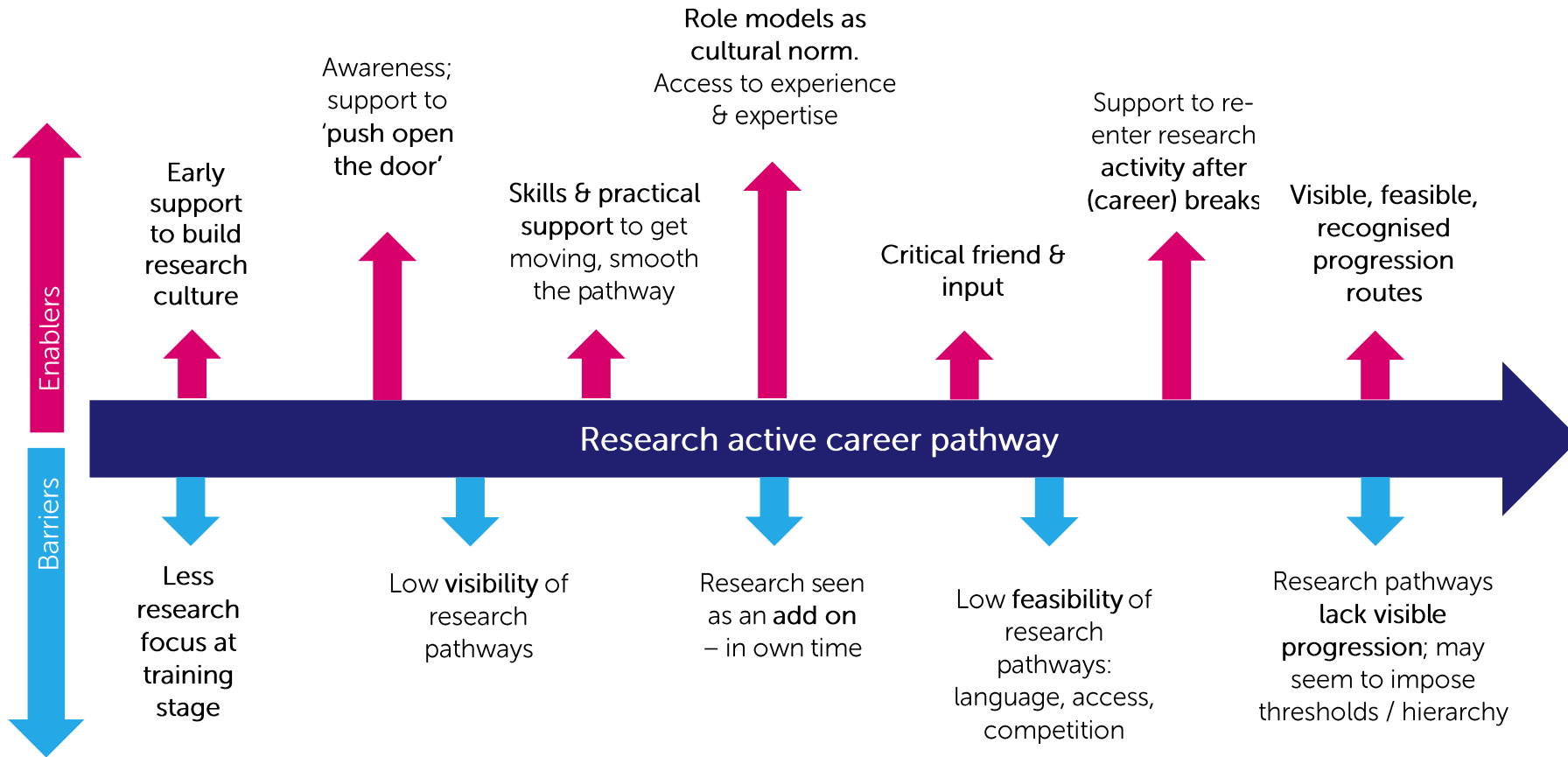
**“When I finished my PhD fellowship and was going to come back to my NHS post, there was no job for me. So I ended up jobless for almost four months before I got back into an NHS post, and in there they didn’t recognise my increments, because I was in an academic post, although I was working all that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

There is also an urgent need to increase access to research training across all healthcare professions in order to fill the confidence gap many prospective researchers have about their skills and expertise. Finally, we must ensure NHS research does not become a one-size-fits-all system and instead develop multiple research career pathways in order to reflect the diversity of research motivations and professions.

### **Key messages: theme three**

- **Resources and support for research engagement should to be applied along the career pathway** in a cumulative way instead of one-off opportunities.
- **Insufficient research training and lack of research knowledge and skills is one of the top barriers for health service staff to be involved in research activities.** It is important to invest in a life course approach to research to facilitate early and continued exposure to research.
- **There should not be a 'one size fits all system'**, instead, it is important to be inclusive and acknowledge the diversity of pathways into and through research.
- **Research should be embedded across organisational-level decision-making,** including in workforce planning.

Figure 8: The research active pathway



### 3.1 Early and continued exposure to research

Early exposure to research provides an invaluable opportunity for health service staff seeking to build research confidence and skills. Our interviewees stressed the importance of involving students in practical research studies and providing them with research training before entering clinical jobs, regardless of whether research is a core function of that job:

**“Having that opportunity while they’re a student gives them a chance to understand better what the role is and what’s involved in it, even if they don’t end up as research nurses then, you know, at least they have developed an understanding of it hopefully”**  
– Nurse

Yet despite the value of early exposure, some interviewees suggested that they had research as a mandatory part of the curriculum at medical schools, yet **“with several lectures discussing ‘research’, I have not been trained to actually carry out a research project”**. Our survey data also showed that **“research needs de-mystifying for people”**, with insufficient research training and lack of research knowledge being one of the top barriers inhibiting staff’s involvement in research (Figure 7).

85% of survey respondents agreed that **research training** would support health service staff to be more research active



#### Good practice examples:

- ✓ **Pathway to Portfolio Development Funding Scheme** open to all healthcare staff in Wales to fund small-scale research scoping projects that will develop research skills such as grant-writing, research question design, and community engagement.
- ✓ **Clinical Research Time Award** open to staff in NHS Wales, or staff contracted to NHS Wales, such as doctors, dentists, nurses, midwives, allied health professionals and clinical scientists.
- ✓ **HEE Integrated Clinical Academic Programme** provides research training awards for health service staff (excluding doctors and dentists) to develop careers that combine clinical research and research leadership with continued clinical practice and professional development.

Overcoming this challenge will require a substantial increase in the number of opportunities made available to early-career researchers to develop confidence, experience and skills. Numerous existing schemes (see above) are already pursuing this goal, though each face obstacles that inhibit their success. A notable obstacle identified by our research is the opportunity cost associated with research, a cultural attitude that sees research as an add-on to clinical work, not an integral part of it. Reducing this perceived opportunity cost is essential to successfully implementing research funding and support.

Many interviewees emphasised the importance and necessity for Trusts/Health Boards to support health service staff to deliver small-scale research projects that build expertise and experience. Pathway to Portfolio not only delivers skill-oriented projects but does so in a way that minimises the perceived opportunity cost of research. Firstly, Pathway to Portfolio projects can only last 6 months, thereby limiting the time cost faced by applicants wary of longer

schemes. Secondly, projects receive a maximum of £20,000 in funding, thereby forcing applicants to limit the scope to small (but achievable) objectives that directly develop research skills (e.g. research question design). The effectiveness of this approach is reflected in the scheme's established track record of success as well as its alignment with other key objectives, such as community engagement in research and inter-researcher networking.

8. We therefore 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.**

In addition to early research exposure, health service staff need sustained exposure and active support to aid in the development of research skills and experience. For example, in Betsi Cadwaladr University Health Board, collaboration with universities has enabled health service staff to supervise PhD students.

#### Good practice examples

- ✓ Embed structured opportunities for secondments to work as research nurses to promote the cross over between clinical and research roles. (Guy's and St Thomas' NHS Foundation Trust & South Eastern Health and Social Care Trust)
- ✓ Learn from those professions (e.g. doctors) which already have clearer pathways in place and pilots where research has been added into the job plan (Betsi Cadwaladr University Health Board).

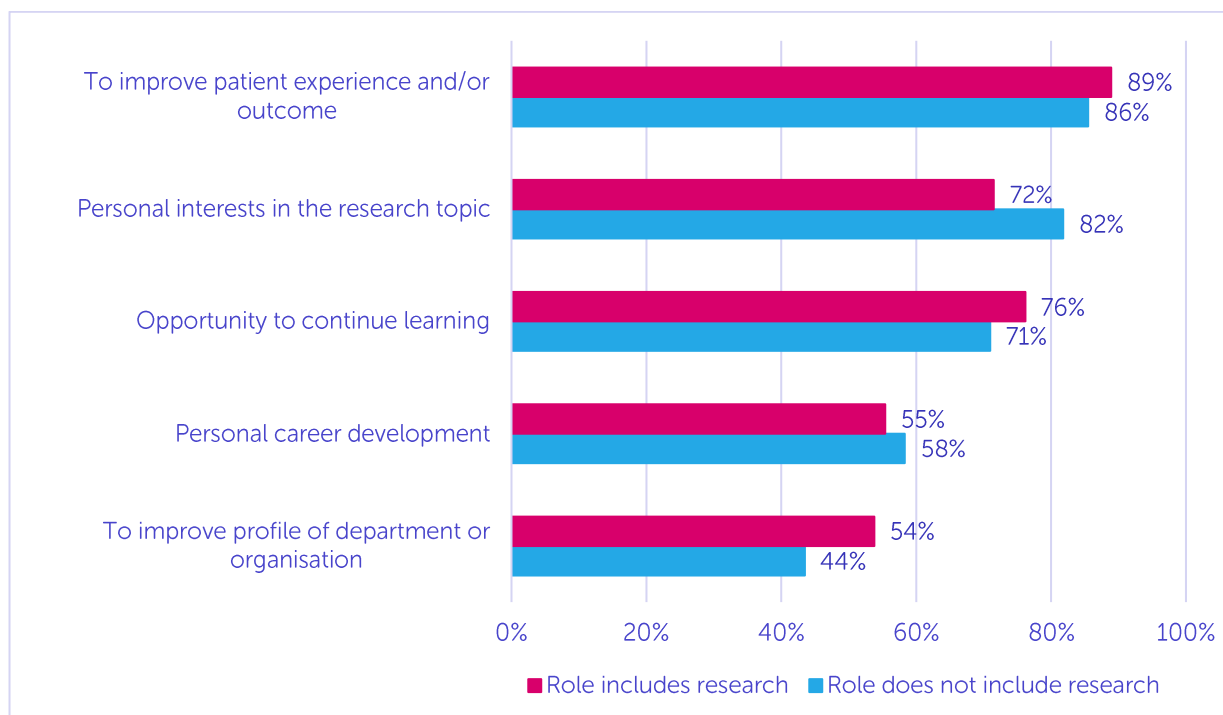
Whilst the exact shape of this continued research exposure will vary between organisations (due to differences in funding, staffing and facilities), a focus on mentorship and role models should be core to Trust/Health Board programmes. The value of role models, both to inspire new researchers and 'bang the drum' for research in Trusts/Health Boards, was repeatedly emphasised by interviewees and survey respondents. Mentorship is also an opportunity that can be afforded by greater collaboration and knowledge sharing between clinical and academic institutions (see integrated research offices in theme 4).

9. We therefore recommend local NHS R&D Offices, with support from their NHS organisations, should **establish mentorship programmes that pair prospective researchers with established researchers.** These programmes should be available to all health service staff and be designed to support staff's professional development and engagement with research.

## 3.2 Multiple pathways of research engagement

Alongside increasing the number of opportunities for health service staff to engage with research, we must also increase the visibility and accessibility of opportunities in order to prevent NHS research from becoming a one-size-fits-all system. This is necessary because staff have a diverse array of motivations for engaging research, each of which demands different types of support:

Figure 9: Top 5 factors that motivate health service staff to be research active



Personal interest in a research topic, for example, is a more effective motivator for research engagement amongst non-research active staff compared with established researchers (Figure 9). In contrast, established researchers are more actively motivated by a desire to develop their department’s profile and their own personal learning compared with non-research active staff; motivations that are often directly addressed in doctoral and post-doctoral funding schemes.

10. We recommend the **onboarding process for all NHS staff should include an induction on their Trust/Health Board's research strategy**, how it is being operationalised (e.g. research time applications, funding opportunities, secondments, etc.), and the role staff can play in delivering that strategy.

Ensuring all health service staff are aware of research’s place in their Trust/Health Board should help raise the visibility of opportunities to engage with research and establish a clear, organisation-wide motivation to do so. Including all staff will also aid efforts to make research participation more accessible to under-represented professions, who may not currently be aware of their organisation’s research strategy and their potential role within it.

**Good practice examples**

- ✓ Including research, audit, and quality of care improvement in job descriptions and work plans to raise research’s profile amongst staff, including middle managers (NHS Lanarkshire).

Efforts to bolster the visibility and attractiveness of research engagement can be further enhanced by amending Trusts/Health Boards’ workforce strategies. Engagement with research can improve job satisfaction and staff retention rates, especially when that research clearly translates into improved patient care. Trusts/Health Boards should more actively utilise this principle to bolster the effectiveness of their hiring, retention and development strategies.

For example, many interviewees suggested having research as part of promotion criteria. This could be achieved by emphasising patient benefit and outcomes rather than publications in high impact journals alone and could support progression. Similarly, respondents highlighted the need to move away from a “**training and then get on with research**” model, and instead shift towards a lifelong career development approach. These career pathways were suggested to include a wider scope on how to develop their roles and grant autonomy to be able to take patient care and research further, which “**allow us the ability to be able to do that and to have our skills recognised better**”.

11. We recommend that 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.

How research should be embedded into these strategies should be a decision made locally by Trusts/Health Boards, as they are best positioned to understand their own staffing needs. However, we do recommend these new strategies be informed and monitored using the metrics and reviews we propose in theme four. This could include linking this policy with wider NHS workforce policies, such as the NHS People Plan.

## Theme Four: Strengthening research culture

Taking the steps above will provide an essential foundation for greater NHS research capacity. However, our interviewees and survey respondents repeatedly stressed the necessity of strong Trust/Health Board-level research cultures. Our research identified it as a pivotal driving force behind research engagement and efforts to develop research capacity.

We define a strong research culture as a joined-up environment where research is valued, normalised and supported through by both strategic decision-makers and operational health service staff. This requires all stakeholders (including patients and the public) to understand and see research’s beneficial impact on patient care.

Although our interviews and survey identified positive initiatives being taken to strengthen research culture, we found there are often significant gaps between ambitious national strategies and local practice. This gap is exacerbated by the lack of national- or local-level evaluation of where research occurs and why. The result of these gaps is a ‘siloes’ culture of research where research-active Trusts/Health Boards work within themselves and other research-experienced organisations (e.g. universities), depriving themselves of day-to-day clinical insights gathered by organisations under-served by research.

Addressing this requires improved monitoring of research activity on both a national and local scale. The patient benefits of research must also be visibly and routinely communicated by local leaders in order to build greater staff interest in, and understanding of, research’s role in improving quality of care.



#### Key messages: theme four

- There are **multiple gaps between positive research strategies and their delivery** in practice at the local level. This makes it hard to achieve a more consistent and embedded research culture.
- There are **insufficient metrics and processes to capture, report and communicate research value** in its diverse forms – this makes it difficult to evidence its importance at the board, middle management and staff levels.
- Stakeholders acknowledged that **moving beyond ‘silo cultures’ through partnership between Trusts/Health Boards and academia was the key to extending research** understanding, debunking research myths and strengthening infrastructure.
- Healthcare organisations must better communicate **research’s role in improving patient care** in order to engage non-research active health service staff.

## 4.1 The profile of research

At the national, or macro, level there was widespread support for strategies to raise the profile of research, such as the Life Sciences Industrial Strategy. However, our national and local stakeholders felt that these national strategies were not sufficiently joined up or rooted in local practice to be effective. Similarly, at the meso or health organisation level, there was concerted effort to increase research activity. Yet, gaps remain between strategic statements about research and their delivery in practice, even among those Trusts/Health Boards with an explicit research strategy in place. Support for research activity at the micro line management level was therefore inconsistent, despite several committed and supportive managers and team leaders.

Throughout our interviews, we heard that these inconsistencies make it hard to embed and integrate aspects of a strong research culture, such as policies which value research, make engagement feasible and recognise research activity and achievements in job planning.<sup>82,83</sup> This was illustrated through our survey where respondents were more likely to agree with general ‘mission’ statements than they were with statements about the organisation delivering practical steps to increase research activity.

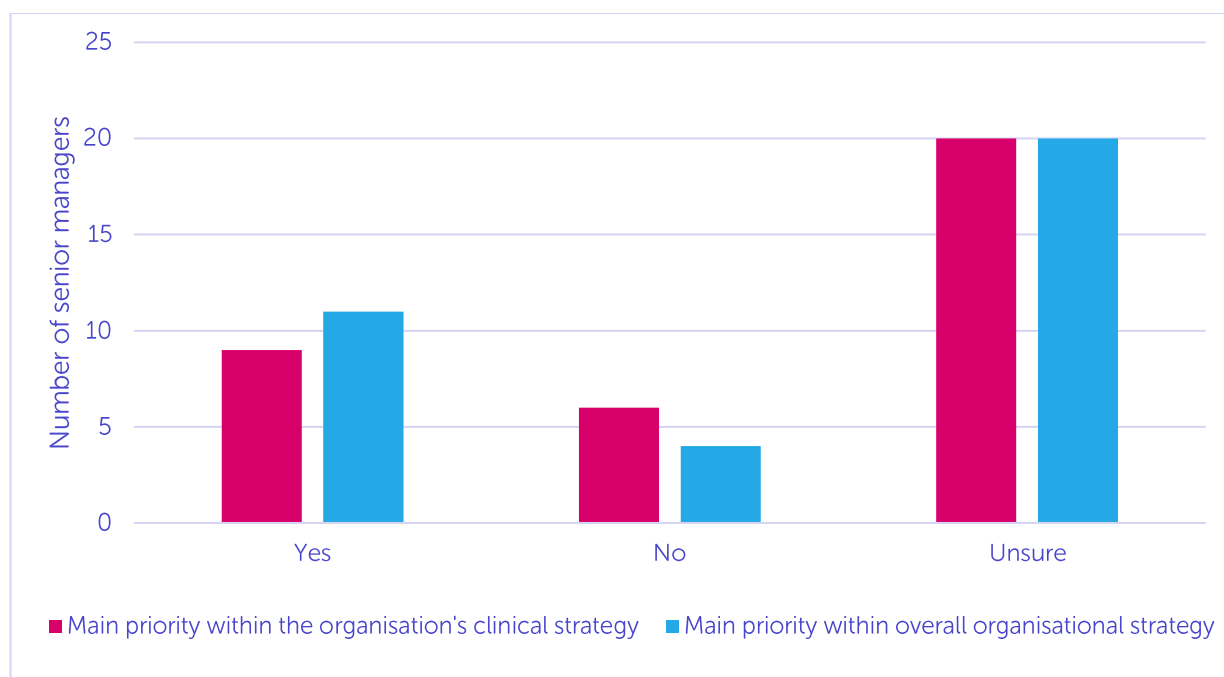
**73% of survey participants agreed with the statement, ‘my organisation sees research and evaluation as integral to our work’, whereas only 51% agreed with the statement, ‘my organisation recognises research engagement in the promotion criteria’.**



At both board and middle management levels, there is a need to provide structured and meaningful insight into the value of research. We asked our survey participants about the role of research within their Trust/Health Board’s clinical strategy (i.e. setting the direction across services and disease areas), and broader organisational strategy (i.e. how to realise the clinical strategy, such as workforce). **Amongst 45 surveyed senior managers (medical directors, chief**

nurses and AHP leads), 44% were unsure about whether research development was a main priority within their Trust/Health Board’s clinical strategy or overall organisational strategy (Figure 10).

Figure 10: The role of research in strategy



Illustrating the importance of research to staff is not clear cut, however. Respondents across professions and specialties described a ‘chicken and egg’ scenario: even where high quality research is delivered, evidence of research value was not systematically collected or routinely reported at leadership level. This was exacerbated by a relatively low number of research-experienced, or high profile, role models to ‘bang the drum’ for research and normalise research activity. As a result, it was difficult to keep research on the agenda, potentially weakening its profile.

One AHP echoed the feeling of many health service staff in describing research as a “**nice to have**” rather than an integral feature of their health organisation. This separation was further illustrated by a Pharmacist who felt research was seen as something delivered or used by specialists. They noted research active staff were “**put on a sort of a pedestal of ‘you’re a researcher so you understand this and I’m not so I don’t get involved.**” This both fed into and resulted from research not being seen as essential to improving patient care and clinical outcomes. Our interviewees felt that this effectively deprioritised not just involvement in research but also the use of research results, with health service staff not having the time to utilise others’ academic research and evidence.

In response, our interviewees and survey respondents repeatedly recommended developing new research metrics, explaining that improved monitoring of research’s value could reverse its deprioritisation by decisionmakers. Efforts to implement this have been made, with the CQC introducing new research-oriented questions into its well-led framework for evaluating patient care.<sup>84</sup>

However, there was a caution to ensure these measures were appropriate and stimulated a positive research environment. To more consistently contribute to a stronger research profile, they stressed the need to illustrate the diverse and meaningful ways that research can add

value ensuring, as one service lead suggested, “**we make sure we measure the things that matter to the service, not the things that are easy to measure.**” Among the items our respondents suggested to illustrate the breadth of research impact were:

- impact and value in terms of patient experience, outcomes and perceptions;
- staff morale, retention, connectivity and development;
- systems improvements; and
- potential cost savings.

**12. We recommend that 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.**

A version of this proposal has been previously recommended by the Academy of Medical Sciences.<sup>85</sup> We seek to build on it by couching it into a package of policy responses designed to use the metrics to aid their implementation.

Alongside this, it is essential that local R&D Offices consult their staff and patients to understand local challenges and opportunities to research engagement. Examples of this local monitoring already exist and should be learned from. For example, staff at the Betsi Cadwaladr University Health Board have organised to hold the Board’s research strategy to account, highlighting the need for a rigorous and joined-up approach to research. Similarly, NHS Lothian has used its annual activity reviews of funded researchers to quantify and assess the quality of their contribution using locally developed metrics, which in turn better illustrated and communicated research’s value to decision-makers.

These local reviews should be designed to provide qualitative insights into staff and patient engagement with research – this should sit separately to the more targeted consultations with under-represented professions (theme two). These insights should then be used by Trusts/Health Boards to inform the design and implementation of their research strategies in order to ensure local needs and challenges are being met.

**13. We therefore recommend 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.**

Both initiatives are required to address the gaps between ambitious national research strategies and local practice. The quantitative metrics will provide national decision-makers with a clearer picture of where research takes place, enabling them to quickly identify failings in existing strategies and provide targeted support. Simultaneously, the qualitative reviews will provide local decisionmakers with a more tactile understanding of their organisation’s specific barriers to research activity, which can then inform Trust/Health Board-level strategies and decisions.

## 4.2 Collaboration within and across sectors and institutions

A strong research culture should enable staff to collaboratively explore new perspectives and gain insight, support each other's research, and access a diverse network of insight and infrastructure. Our stakeholders acknowledged that achieving this is difficult due to the “**silos**” often associated with large institutions, such as the NHS. The resultant boundaries can deter collaboration within and between these organisations, preventing individuals from accessing new perspectives and established expertise. The need to overcome these boundaries and establish new collaborative relationships with academia was widely acknowledged by our stakeholders:

**82% of survey respondents agreed that close ties with local academic organisations or industry would support health service staff to be more research active, and 79% thought that external research partners would help.**



Fortunately, there are already numerous examples of successful collaboration between the NHS and other research institutions. In North Wales, Betsi Cadwaladr University Health Board and the University of Bangor have piloted a virtual, multidisciplinary Community of Scholars network. This platform aims to develop the applied health research infrastructure in North Wales by supporting greater collaboration. As well as providing an effective, everyday communication and support platform to health service staff spread across a considerable geographical area, the network's remote collaborations and academic relations are even more valuable in the context of COVID-19.

**14. We therefore recommend local NHS R&D Offices and universities should establish integrated research offices in order to facilitate the exchange of research expertise and build research capacity.** These integrated research offices should be responsible for the local implementation of our recommendations (below) to increase formal opportunities for inter-profession learning.

This recommendation was originally made by the Academy of Medical Sciences<sup>22</sup> but has yet to be implemented. These integrated research offices will play an essential role in developing relationships between clinical and academic researchers. This collaboration should improve the connection between clinical challenges and research design, spurring innovative research projects and providing Trusts/Health Boards with an opportunity to bolster their research profile. Academic partners could also help Trusts/Health Boards apply for research grants, structure more roles around research, and use research engagement to improve staff retention rates.

However, working with a range of partners at the inter-profession and inter-specialty level is not straightforward. Our stakeholders expressed concern over the hierarchy which exists between organisations, specialties and roles.

As described in theme 2, **nurses, midwives and AHPs had less confidence in their research knowledge and skills than doctors**, and cited this as a deterrent against engaging in research (Figure 5).



For example, some clinical nursing staff felt removed from research and were left with the impression that it was the sole reserve of research nurses. This disparity was further exacerbated by the two professions being based in different locations, minimising interaction and learning between the two. As one research nurse explained:

**“I think that there’s this perception that...research nurses are just sitting in a little ivory tower looking at journal articles all day - we’re actually clinical and we’re out on the floor and we’re looking after patients...so it’s raising that awareness.”**

Our research identified several initiatives to address this gap and promote inter-profession learning. The South Eastern Health and Social Care Trust, for example, has collaborated with universities to deliver placements for nursing students within research nurse teams. This enabled the students to learn more about research in clinical practice and the opportunities available to participate in research. Intra-organisational partnerships have also been strengthened at Sandwell and West Birmingham Hospitals NHS Trust where secondments between clinical and research nursing teams are providing clinical staff opportunities to engage with research and develop their skills. Similarly, negotiated secondments between Kent Community Health NHS Foundation Trust and local universities have enabled clinical staff (including AHPs and nurses) to become involved in research for a set number of days per week, making it more ‘operationally viable’ for their teams.

**15. We therefore recommend NHS Trusts and Health Boards and local universities should increase the number of formal opportunities available to their staff to work in academic/clinical settings. These secondments should formally focus on building research capacity and be available to all health service staff.**

### 4.3 Connecting research to practice

To raise and maintain the profile of research, our respondents prioritised studies which address real issues faced ‘on the ground’ and are designed to translate well into practice. This sub-theme considers the barriers and enablers to devising, delivering and communicating this kind of research, including: health service staff capacity; confidence and training; data considerations; and readiness to change.

90% of research active staff and 87% of non-research active staff consider **‘improving outcomes for patients’** as their top motivator for engaging with research.



Yet despite this strong motivation, interviewees repeatedly stated that they lacked the time needed to frame and communicate research questions informed by their day-to-day clinical experiences:

**“There’s only so many hours in the day, and when you’re being pulled in every direction, something that requires you to sit down and think about how you’re going to tackle it goes to the bottom of the pile”** – Pharmacist

This is exacerbated when staff feel unconfident in their research skills and cannot access mentors who could build their confidence and guide them through the research design process. This lack of support is replicated on an organisational level, with non-research active Trusts/Health Boards having a weaker culture of working with staff to generate and evaluate

new research and incorporate their findings into clinical practice.

Just under **40% of our survey respondents said that their organisation involved health service staff in discussions about how research evidence relates to practice.**



Our interviewees said this disconnect begins at the under- and post-graduate level, as there is a tendency for student research projects to fit within academic norms and that this does not necessarily prepare health service staff to plan and deliver research within clinical settings. To address this, many interviewees recommended increasing the number of opportunities available to students to undertake research projects connected to clinical practice, thereby showcasing how research can be applied practically. We also heard of growing opportunities for research-experienced clinicians to co-supervise PhD students at nearby universities, further demonstrating the role research can play in driving clinical improvements.

**16. We therefore recommend that universities should increase the number of opportunities for students (across all health service professions) to undertake research projects in clinical settings. These projects should formally focus on developing students understanding of the exchange between research and clinical practice.**

Alongside introducing incoming health service staff to the exchange between research and clinical practice, our interviews showed an urgent need to better showcase the value of research to existing staff. However, achieving this can be extremely challenging for certain specialties. For example, our respondents noted that it was harder to evidence and communicate research outcomes for public health studies, especially within short timeframes. As one public health service lead noted, **“it’s data rich but it’s really difficult to show the outcomes of that data because anything you’re doing is years down the line.”** This makes it harder to showcase the value of these studies to R&D boards and staff, in turn contributing to the research disparities between specialties discussed in theme 2. Research that is poorly communicated is also less likely to be incorporated into clinical practice and benefit patient care, a key motivator for staff to conduct research. This reduces the incentive for staff to conduct research since **“nobody wants to invest time and effort for the paper or findings to sit in a cupboard”**.

In response, our respondents gave a clear message on how to better communicate research impact: frame the research as important (rather than ‘interesting’) and showcase a clear local application of its findings. Some Trusts/Health Boards are already embracing this approach, with Sandwell and West Birmingham Hospitals NHS Trust actively using their Communication and Engagement teams, backed by clear managerial support, to effectively disseminate research findings and promote their clinical utility. Similarly, Betsi Cadwaladr University Health Board has introduced dedicated ‘research days’ where the findings of local research projects are presented, and their clinical ramifications discussed by staff. Given the success of these initiatives and the clear need to improve the visibility of research, it is strongly advisable that all Trusts/Health Boards adopt their own strategies to better communicate the value of research to staff, especially those in under-represented professions, groups and specialties.

17. We therefore recommend local NHS R&D Offices should frequently **showcase and promote their research using events, reading groups, consultations and other active methods of engagement** in order to raise awareness and encourage wider participation amongst NHS staff and the public.

# Discussion

One of the advantages of investigating this policy area is the wealth of past work done to understand and overcome the barriers to research, motivated by a desire to improve patient outcomes and develop the NHS's workforce.<sup>3,22,23,86</sup> The need to expand research capacity is also widely, and rightly, acknowledged by policymakers as a key priority, leading to ambitious strategies like the LSIS and UK R&D Roadmap.

Yet this sustained policy interest, though undoubtedly welcome, raises a challenging question: why do barriers to expanding NHS research engagement and capacity persist?

In answering this, we encountered many of the same issues identified in previous studies: inadequate research support; disparities in opportunity; restrictive career pathways; weak research culture; and so on. Many of our findings reflect those found in the Academy of Medical Sciences' report *Transforming health through innovation: Integrating the NHS and academia*.<sup>87</sup> The AMS' report offers invaluable insight into the challenges NHS researchers face and we sought to build on four key areas of the report's recommendations:

- Taking a system-wide approach to supporting and valuing research.
- Integrating research teams across academia and the NHS and establishing joint research and development offices.
- Providing dedicated research time for staff to become research-active across all professional groups.
- Improving career pathways for research from the undergraduate curricula through to postgraduate training pathways.

We built on their study by adopting a system-based approach centred on Gee and Cooke's framework of developing research capacity.<sup>43</sup> We found that existing capacity-building initiatives fail for many reasons, including: competing objectives and priorities; lack of resources; dispersed actors responsible for implementation; lack of accountability; and poor communication.<sup>88,90</sup> To avoid these pitfalls, greater emphasis must be placed on the interconnected nature of these problems and the need for an integrated package of policy solutions.

## Improved strategic co-ordination

To provide clearer strategic direction and to increase the incentive for local leadership to prioritise research, NHS research must be given equivalent status with other national targets for NHS Trusts/Health Boards. This will ensure it is taken seriously as an objective. This strategy must be co-developed by national policy makers -including those responsible for workforce and education/training - research funders, and regulatory bodies. Inclusion in regulatory reviews (e.g. CQC well-led framework) is welcome, but local implementation will be dependent on a clear, cohesive national framework supported by all stakeholders and proper analysis of key barriers to increasing staff research capacity at a local level.

Positive action should be taken to address disparities in activity and funding between professions, regions, specialties and demographic groups. Approaches such as linking research active and non-active Trusts/Health Boards and monitoring how resources are allocated across the system are promising strategies, but require sustained support at a national level to be



impactful.<sup>88</sup> Research funders should address disparities in funding by giving greater consideration to the accessibility of funding schemes and addressing unnecessary barriers to new researchers. Doing so would also help accomplish a key NIHR objective of improving the link between research activity and local population needs.

## Clearer links between research and career development across all professions

Awareness of research and opportunities to develop research skills should be available to all staff, from pre-qualification training and throughout an individual's career. Research should have equivalent status to practice, as applying evidence to practice is an important professional competence. Opportunities should be made available to support diverse ways for staff to gain exposure and experience along clearly communicated, incremental pathways.

## Improved local and organisational co-ordination

Research must be embedded in organisational culture and be part of healthcare workforce plans and organisational development plans. To be successful this needs to be supported by changes to infrastructure support, education and training, funding opportunities and organisational strategies for recruitment, staff development and time allocation of staff.

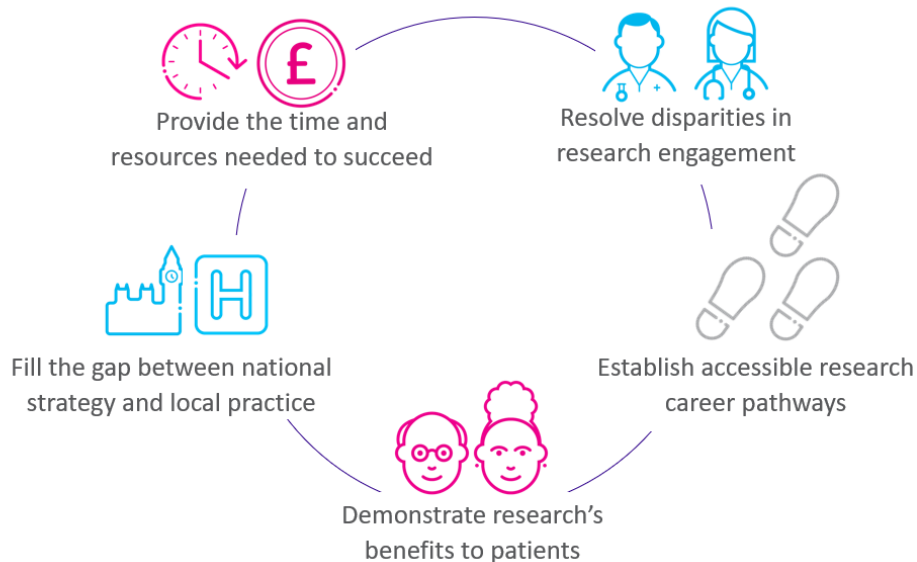
There needs to be greater local collaboration between research active and non-research active organisations: where NHS Trusts/Health Boards with lower levels of research activity were linked together with successful research-active ones, there was a clear transfer of knowledge and skills and improvements in research performance. Similarly, linking academic researchers with NHS staff improved research capacity. Developing infrastructure to support links such as joint research offices appears to be an effective intervention.

This interconnected response (Figure 11) must be overseen by a body with a clearly established mandate for monitoring the implementation of each individual policy by its respective body (e.g. NHS Trusts/Health Boards). We recommend DHSC and the Devolved Administrations should be given responsibility for ensuring this report's recommendations are implemented as an integrated package of policy solutions to the systemic challenges afflicting NHS research:

- **Filling the gap between national strategy and local practice** – Research needs to be embedded in local organisational culture, with metrics and consultations in place to capture research awareness and inform wider strategies.
- **Demonstrating research's patient benefits** – Improvements to care driven by research need to be better communicated to staff and patients, preferably in tandem with established researchers in other organisations and local universities.
- **Resolving disparities in research engagement** – Regional imbalances must be addressed in order to improve the link between research activity and local population needs. We must also more equitably distribute research opportunities amongst both healthcare professions and specialties, working with under-represented staff to identify and solve whatever barriers they may face.
- **Establishing accessible research career pathways** – All staff should be aware of opportunities to develop research skills and be onboarded into their local research strategy. Organisations should adopt research as a central pillar of their workforce planning and follow this through with programmes such as Pathway to Portfolio.

- **Providing the time and resources needed to succeed** – All prospective NHS researchers should have the opportunity to apply for, and access, dedicated time for research. NHS Trusts/Health Boards also need adequate funding to develop and maintain their organisation’s research capacity, including currently research-inactive Trusts/Health Boards.

## Tackling barriers to conducting research requires an interconnected policy response



*Figure 11: The interconnected policy response*

Looking forward, it is essential that stakeholders across the life sciences sector voice their own ambitions for the future of NHS research, the immense value of which has been repeatedly demonstrated through the course of the COVID-19 pandemic. With that in mind, we encourage the Government to use its Comprehensive Spending Review and recently announced UK R&D Roadmap to take ambitious forward in achieving the above goals.

Following this report, we will continue to critically evaluate the challenges faced by health service staff researchers and maintain our commitment to making research accessible to all. This includes CRUK’s responsibility to confront systemic racism and racial prejudice in scientific research,<sup>91</sup> an issue which we aim to examine in greater in detail in future policy reports as part of our wider strategy to champion equality, diversity and inclusion in research.

# Policy Recommendations

Throughout this report, we have put forward a number of recommendations across four key themes, which together will form an interconnected policy response to overcome persisting barriers to research and build research capacity in the NHS.

We recommend DHSC and the Devolved Administrations should be given responsibility for ensuring this report's recommendations are implemented as an integrated package of policy solutions to the systemic challenges afflicting NHS research.

While all the recommendations presented here are needed, we have identified our core asks as those which we believe will be most impactful and are required most urgently. The full list of policy recommendations is presented in Appendix 4.

## **To better support staff and research infrastructure:**

- 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.
- The UK Government and Devolved Administrations should uplift long-term funding for the NIHR, CSO, HCRW and HSC R&D. 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.
- NHS Trusts and Health Boards should increase the visibility and accessibility of dedicated time for research in order to expand research engagement amongst staff, especially under-represented professions. 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.

## **To target disparities in research activity and capacity:**

- 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.

**To develop pathways for getting into research:**

- 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.

**To strengthen national- and organisational-level research culture:**

- 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.

# Appendices

## List of Appendices

<b>Appendix number</b>	<b>Heading</b>
<b>Appendix 1</b>	Study design and methods
<b>Appendix 2</b>	Coding framework for work-package one and work-package three interviews
<b>Appendix 3</b>	Coding framework for work package four (case study) interviews
<b>Appendix 4</b>	Full list of policy recommendations

# Appendix 1: Study design and methods

This was a mixed methods study comprising of five inter-linked work packages (Figure 1.1) and worked iteratively in partnership with CRUK and other key stakeholders to address the key research objectives to ensure that they were achieved. Our approach involved collecting primary and secondary data from a diverse group of sources, national and local organisational stakeholders and people who work in different areas of health research and practice. We adopted qualitative and quantitative data collection methods split between a scoping review, key informant interviews, case studies and a structured survey.<sup>92,93</sup> This approach provided broad stakeholder perspectives.

We initially undertook a scoping review of the extant literature, interviews with UK-wide key stakeholders and interviews with research support staff in NHS organisations. We conducted an online questionnaire survey of a wide range of staff in NHS Trusts/Health Boards of varying size, university and non-university linked, acute and community and geographically spread across the UK. We then conducted case studies involving interviews with staff in health care providers. We obtained ethics approval for the study from the University of Kent.

Our original research proposal included a phased approach to data collection involving national and local stakeholders, research evidence, secondary data on research activity and research active and non-research active health service staff in local NHS hospital and community Trusts/Health Boards.

We adopted this approach to examine health service staff research engagement and how this can be supported and sustained at the micro (individual staff researcher), meso (organisational) and macro (system/policy) levels.

At the **micro level** we wanted to identify what facilitated greater individual involvement in research. Key questions included:

- How are research priorities and questions arrived at?
- Who delivers the research and advocates for the patients?
- Who does/could develop research?
- How is/can clinical research be made a career pathway of choice?
- How can we ensure the quality and skill set of our future research workforce?

At the **meso organisational level** we sought to understand the way organisations did or could support greater staff involvement in research:

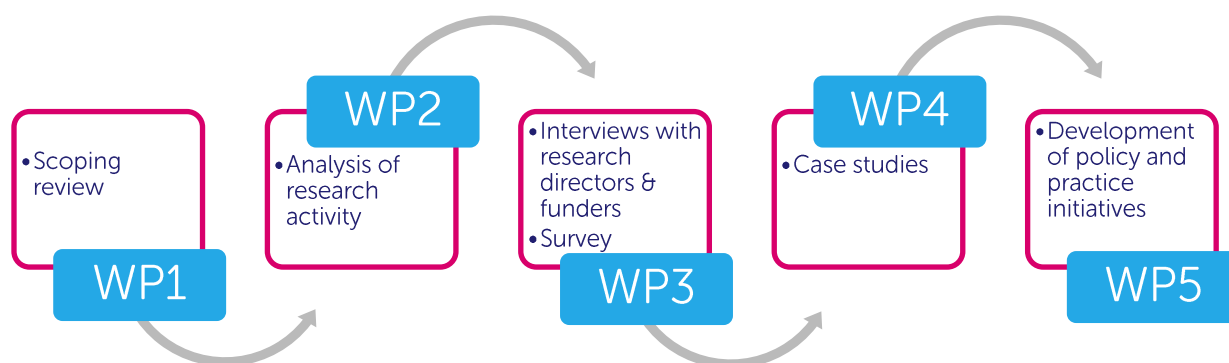
- What strategies do organisations use to support staff research?
- Are there effective models for embedding research in health care organisations?
- What support do organisations need to increase staff engagement in research?
- How do organisations use patient/public engagement to enhance staff engagement?

At a **macro system level**, the key questions included:

- What national NHS strategies can support staff engagement in research?
- What strategies can/do funding organisations pursue to support health service staff engagement in research?
- How can the public influence staff engagement in research?

The research programme was split into five work-packages shown in Figure 1.1 and described below. We made two revisions to our original research proposal. The first was to delay the survey in WP3 until after we had conducted the interviews with the key stakeholders. This was so that we could use data from the interviews to help design the questionnaire survey. The second revision was to WP5 which we had to revise due to the COVID-19 crisis. Both revisions were agreed with the Steering Group and approved by the University of Kent ethics committee.

*Figure 3: Study work packages*



### **Work-package one: Scoping review of the evidence and knowledge on research engagement support in health care organisations.**

We undertook a scoping review<sup>94,95</sup> of the evidence and knowledge on research engagement support in health care organisations. The aim was to identify the current extent of knowledge about initiatives/interventions/policies that support successful research engagement. The main objectives were:

1. To map the range and type of initiatives.
2. To scope the literature on supporting research engagement by health service staff and identify gaps in the evidence base.

We undertook a rapid literature review of the extant literature and conducted scoping interviews with 12 key informants from national funding and professional agencies and NHS Trusts/Health Boards. For the interviews we adopted a semi-structured with questions designed to identify key issues related to supporting increased practitioner engagement in research and identify any relevant reports or published literature. Interviewees were asked about their involvement in supporting research capacity, views on what was successful or not successful and personal ideas about how health service staff could be supported to become more involved in research. For the literature review we focused on literature and evidence that

highlighted potential practice and policy solutions in the UK and other high-income countries that examined supporting health service staff engagement in research.

For the scoping review we did not undertake a systematic review but rather sought to explore areas of current knowledge and evidence. An initial scan of the published literature identified two comprehensive reviews by Cooke et al (2018)<sup>96</sup> and Huber et al (2015)<sup>97</sup> and a report by RAND for The Healthcare Improvement Studies Institute.<sup>98</sup> The aim was to identify potential initiatives for increasing and supporting health service staff engagement in research activities so we were primarily interested in examples of interventions, strategies and policies, including any evidence of effectiveness if available.

These were then supplemented with additional papers published from 2015 onwards that would not be included in the Cooke et al and Huber et al reviews. We searched MEDLINE and Web of Science for grey literature (reports, policy documents etc.). We used key terms drawn from the existing reviews (including research capacity, career development, researcher development, research engagement AND human resources). We also identified examples of initiatives in other countries where relevant to the UK context. The papers and reports consulted drew from a diversity of literature ranging from original primary research, evaluation, local studies, systematic reviews, measurement and survey tool validation and a study protocol. As the aim was not to assess the effectiveness of any strategy or intervention but to rather inform later stages of the research papers were selected for topic relevance even if commentary pieces or editorials. Each paper was reviewed by a research team member with a focus on examples of successful initiatives to increase health service staff engagement using our framework of micro, meso and macro level initiatives.

### **Work-package two: Analysis of secondary data on research activity.**

The aim of this work-package was to obtain an overview of research activity by organisation and staff group/speciality to help provide a national picture of activity and to help identify locations for work-packages three and four. We undertook an analysis of secondary data on research activity. We analysed data from the CRN Open Data Platform to identify and compare levels of staff research activity across institutions, geographical areas, specialities, health service settings and by disease/demographic indicators. We supplemented this with data on research funding, academic outputs and workforce data.

Three different data sources were used as measures of health research activity in NHS organisations:

- Clinical Research Network supported studies from the CRN Open Data Platform
- Health research grants active in 2014 from UK Health Research Analysis (UK Clinical Research Collaboration)
- Clinical and health research fellowships active in 2017 from the UK Wide Survey of Clinical and Health Research Fellowships (MRC)

The CRN data showed that out of 506 NHS organisations in the UK, 462 (91%) had CRN supported studies in 2018/19. The UK Health Research Analysis dataset identified a total of 155 NHS organisations that held active health research grants in 2014. From the fellowships dataset we identified 44 NHS organisations that held between 1 and 5 active fellowships in 2017.



From this analysis we identified a longlist of potential sites. These were presented to the Steering Group with the supporting analyses. The Steering Group then selected and agreed the case study and survey sites.

**Work-package three:** Survey of research active and research non-active staff in health care providers. The aim of this work-package was to identify the views of health service staff on issues related to what enables them to become more involved in clinical research, with a specific focus on what drivers and incentives support research activity and capacity. We undertook a survey of health service staff from different professional groups and specialities across a number of NHS health care providers. Survey questions were developed based on data from interviews with 14 research funder representatives and 25 R&D directors and leads, combined with data from Work-package one. The deductive framework approach was applied for the analysis of work-packages one and three interviews. It is based upon the development of a matrix based method of analysis suited to policy based research in which research objectives are pre-determined.<sup>71,72</sup> The analysis framework focused on four key areas: motivation, challenges, funding, and overall reflections in relation to the engagement and capacity of healthcare staff to conduct research (Appendix 2).

The survey was created using Qualtrics software and consisted of up to 42 questionnaire items (the number of questions seen by participants depended on the responses given). The questions asked about:

- current role
- research engagement and activity
- motivations, enablers and barriers to research activity
- organisational support for research activities
- strategic questions for senior level staff.

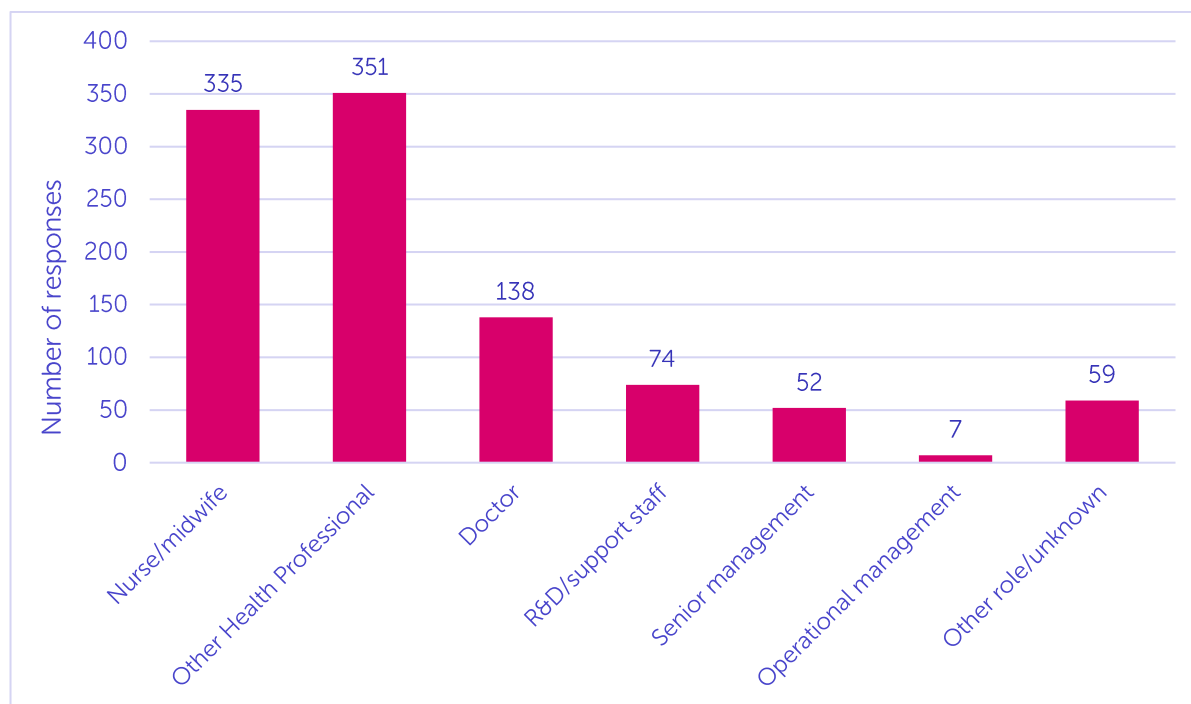
The survey was piloted with NHS staff from community and acute Trusts.

The CRUK online survey was launched in November 2019 and staff members of 11 diverse NHS health care providers were invited to complete it. Participating NHS organisations included seven English Trusts (five Acute Trusts, one Community Trust and one Mental Health Trust), two Scottish Regional NHS Health Boards, a Welsh Local Health Board and a Northern Ireland Health & Social Care Trust. Survey locations were selected in discussion between the research team and the Steering Group. The survey locations varied in size with staff headcounts from 4,600 to over 24,000. Research activity within Trusts/Health Boards ranged from low (<28 Clinical Research Network (CRN) supported studies in 2018/19) to very high (>1100 CRN supported studies in the same year).

We closed the survey on 9th April 2020 for analysis with 1235 responses made by that date. Of these 1,016 responses were included for analysis after exclusions, with 805 being fully completed and 292 completed at least 30% (see [Supplementary Survey Report](#) for details). Three quarters (n=751) of responses were from English Trusts (who made up 45% of participating organisations) with 11% (n=112) from Scottish Health Boards, 10% (n=106) from Welsh Health Boards and 4% (n=47) from Northern Ireland. In England over 80% of responses were from acute Trusts with 19% from Community/Mental Health Trusts. Of those responding, 86% were qualified healthcare professionals and 51.5% had reported postgraduate research

training (See Figure 1.2).

Figure 1.2 Role of survey participants



In addition to responding to survey questions we analysed 181 open text responses using the same coding framework used for WP3 interviews (Appendix 2). This data has been incorporated into the qualitative data analysis in WP4.

**Work-package four: Case study research in selected health care providers.** The aim of this work-package was to gain an in-depth understanding of the context at an individual and organisational level of initiatives to support health service staff engagement in research activities. We adopted a multi-site case study methodology to provide an in-depth exploratory and explanatory analysis.<sup>69</sup> We interviewed 51 staff in six NHS organisations in four countries (3 in England, 1 in Wales, 1 in Scotland and 1 in Northern Ireland). Case study sites represented a mix of locations, specialities/staff groups and disease areas. The Study sites are shown in Table 1.1.

In each case study we interviewed and audio recorded interviews with key research support staff, active and inactive researchers/potential researchers, senior managers, other local research stakeholders (e.g. RDS, CRN), health service staff in different roles and staff on research development programmes (e.g. ICAPs/PCAFs). Data was coded with NVivo and thematically analysed.<sup>73,74</sup> Through thematic analysis, we examined the interviewees' viewpoints and compared them for cross case themes, drawing out the policy initiatives and recommendations they described (Appendix 3).

*Table 1.1: Work-package 4 case study sites*

Trust	Region	CRN studies 18/19 <sup>a</sup>	Research activity quintile	Number of staff	Type of Trust	Number of interviewees
<b>Guy's and St Thomas' NHS Foundation Trust</b>	London	1104	1	15,966	Acute, teaching trust	9
<b>Sandwell and West Birmingham Hospitals NHS Trust</b>	West Midlands	183	2	6548	Acute, District General Hospital	4
<b>Kent Community Health NHS Foundation Trust</b>	South East	28	5	4,681	Community provider	8
<b>Betsi Cadwaladr University Health Board</b>	Wales	183	2	18,291	Welsh Local Health Board, Teaching hospital	15
<b>NHS Lothian</b>	Scotland	616	1	24,431	Scottish Regional NHS Board, large health authority	9
<b>South Eastern Health and Social Care Trust</b>	N Ireland	42	5	10,217	NI Integrated Trust	6

<sup>a</sup>. Source: NIHR CRN Open Data Platform, 2018/19

**Work-package five: Assessment and prioritisation of interventions.**<sup>70</sup> The aim of this phase of the research was to assess actions identified in the course of the research that potentially could increase health service staff involvement in research. Key initiatives identified from interviews and survey responses as well as from the scoping study were extracted. We planned to use a structured RAND/UCLA approach to evaluate and prioritise these initiatives and develop policy and practice initiatives that are considered viable and sustainable for supporting greater health services staff involvement in research.<sup>70</sup> This was to involve two rounds of prioritisation by “experts” - the first online individual assessments and then a face-to-face prioritisation panel.

However, during the first stage of initiative evaluation the NHS was beginning to respond to the COVID-19 pandemic. While we had recruited a panel of over 20 “experts” (drawn from national agencies, funders, industry and local health care providers) to review suggested initiatives identified from our survey and interviews, many people were unable to complete the exercise. It was also intended to hold a second “expert” group to undertake the priority and feasibility assessment from which to draw up a list of policy recommendations.

This was not possible and instead we held a meeting of the Steering Group to discuss the full list of initiatives drawn from our findings and provide guidance on priority. The research team then revised a list of initiatives and these were subsequently reviewed again by the Steering Group leading to an agreed set of recommendations set out in this report.

# Appendix 2: Coding framework for work-package one and work-package three interviews

Themes	Key topics
<b>Motivations</b>	What motivates a healthcare professional to undertake research?
	How does research fit with their clinical work in the NHS?
	How does your organisation Support / Attract healthcare professionals who decide to undertake research as part of their career
	Added value to NHS organisation if healthcare professionals become more research active?
	How does your organisation use and value research activities by healthcare professionals?
<b>Challenges</b>	key challenges for HCPs want to be more research active
	How could an NHS organisation enable HCP to address the challenges?
	What activities does your organisation do to support research active professionals?
	What knowledge and skills provisions are made by your organisation for staff to conduct research?
	What additional resources and knowledge do you think your organisation needs?
	How can your organisation influence change to ensure that HCP are well supported to be research active?
<b>Funding</b>	How is the funding linked to the employment contract of HCPs?
	How does the funding support research costs as well as clinical time?
	Changes to the funding model
	examples of good practice for funding from other countries/organisations
<b>Overall reflections</b>	Overall value of promoting and funding research engagement?
	Do you have research development as a main strategic priority within your overall organisational strategy?
	How does your organisation evaluate the impact of HCPs' engagement in research?
	Will your organisation continue to fund/train HCPs to engage in research activities over the next 10 years?
	What will success look like?
	What are the main factors that individuals, organisation, funders/regulators can do to support research activities by HCPs?

# Appendix 3: Coding framework for work package 4 (case study) interviews

<b>Themes</b>	<b>Sub-themes</b>
<b>Motivations</b>	Organisational culture, expectations, requirements, benefits
	Patients experience and outcomes
	Personal interests / development
<b>Challenges</b>	Time & workload
	Opportunities for practical support not clearly communicated
	Communicating with and recruiting patients
	Lack of (awareness of) formal or informal routes to progress research
	Culture and leadership – focusing on service delivery instead of research; insufficient support from middle management and board levels
	Funding (individual, professional, department or directorate differences)
	Inequalities (between roles, specialties, regions, settings)
	Insufficient staff for clinical & research work
	Lack of confidence and awareness of support options
	Lack of different pathways into research
	Research skills capacity in team/department
	Wider health and social care context
<b>Funding</b>	Availability of funding or schemes
	Job contract & payment
	Mechanisms of funding allocation
	Examples of good practice for funding
<b>Strategic reflections</b>	Embed, promote and celebrate research success
	Organisational or universal approach to support staff to undertake research
	Organisational awareness
	Research as strategy on paper but not turn into action, or not priority compared to clinical and other strategies
<b>Recommendations &amp; Solutions</b>	Macro level Recommendations
	Meso level Recommendations
	Micro level Recommendations

# Appendix 4: Full list of policy Recommendations

We recommend DHSC and the Devolved Administrations should be given responsibility for ensuring this report's recommendations are implemented as an integrated package of policy solutions to the systemic challenges afflicting NHS research.

## Theme One: Supporting health service staff and resourcing research infrastructure

1. NHS Trusts and Health Boards should increase the visibility and accessibility of dedicated time for research in order to expand research engagement amongst staff, especially under-represented professions. 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.
2. 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.
3. The UK Government and Devolved Administrations should uplift long-term funding for the NIHR, CSO, HCRW and HSC R&D. 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.

## Theme Two: Regional and professional disparities

4. 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.
5. National and local research funders should increase the funding that is targeted towards under-represented professions. This should include increasing the number of structured opportunities for these professions to participate in research (e.g. Clinical Studies Groups and NIHR Specialty Clusters focusing more on involving under-represented professions).
6. 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.
7. The UK Government and Devolved Administrations should invest more in under-served

specialties and engage with their networks (e.g. CSGs) to identify opportunities to unlock research capacity.

## Theme Three: Pathways to research

8. 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.
9. Local NHS R&D Offices, with support from their NHS organisations, should establish mentorship programmes that pair prospective researchers with established researchers. These programmes should be available to all health service staff and be designed to support staff's professional development and engagement with research.
10. The onboarding process for all NHS staff should include an induction on their Trust/Health Board's research strategy, how it is being operationalised (e.g. research time applications, funding opportunities, secondments, etc.), and the role staff can play in delivering that strategy.
11. 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.

## Theme Four: Strengthening research culture

12. 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.
13. 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.
14. Local NHS R&D Offices and universities should establish integrated research offices in order to facilitate the exchange of research expertise and build research capacity. These integrated research offices should be responsible for the local implementation of our recommendations (below) to increase formal opportunities for inter-profession learning.
15. NHS Trusts and Health Boards and local universities should increase the number of formal opportunities available to their staff to work in academic/clinical settings. These secondments should formally focus on building research capacity and be available to all health service staff.
16. Universities should increase the number of opportunities for students (across all health service professions) to undertake research projects in clinical settings. These projects should formally focus on developing students understanding of the exchange between

research and clinical practice.

17. Local NHS R&D Offices should frequently showcase and promote their research using events, reading groups, consultations and other active methods of engagement in order to raise awareness and encourage wider participation amongst NHS staff and the public.



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