Navigating the research landscape in cardiology. Part 4: beyond the finish line

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In this four-part editorial series, we have looked at the significance of research within cardiology training in the UK. The first three instalments explored the impact of research on a career in cardiology, identified the diverse research avenues, and provided guidance on navigating the application process. In the final part of this series, our focus shifts to post-higher degree opportunities within the field, and discuss the skills developed in research that can be applied to clinical practice.

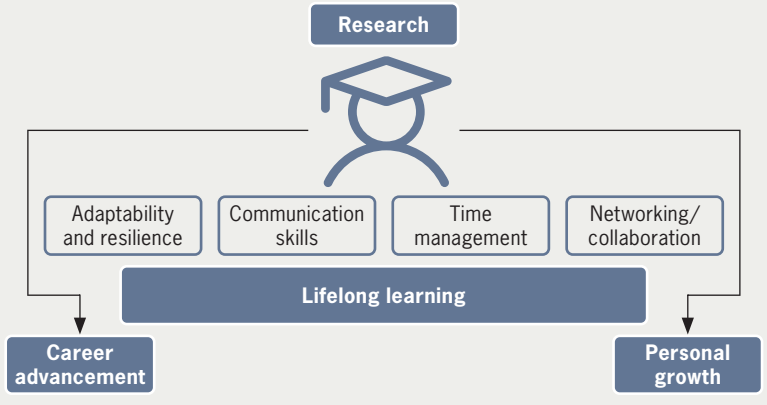
Introduction

This four-part editorial series has been designed to navigate UK cardiology trainees and cardiovascular professionals through the pivotal stages of early career research. Beginning with an overview of how research can enhance a cardiologist's career trajectory in Part 1,[1] and moving through the identification of diverse research opportunities in Part 2,[2] we have aimed to provide a comprehensive guide for those embarking on or considering a research path. Part 3 took a practical turn, shedding light on the roles of funders, sponsors, and regulatory bodies, while clarifying the often-complex terminology associated with research logistics.[3]

In this final instalment, "Part 4: beyond the finish line," our focus shifts to the aftermath of completing a research degree, such as a PhD or MD, and the broad spectrum of opportunities and benefits that await. This piece aims to offer insights into how the skills, experiences, and networks developed during research training can be applied in the long term, both within and outside of academia. We will explore the tangible impacts of research on career advancement, the continued value of a research mindset, and the personal growth that accompanies this journey (**figure 1**).

As we conclude our series, we seek to equip cardiology trainees with the knowledge to not only navigate the immediate challenges of research, but to also appreciate and leverage the enduring benefits of their research experiences.

Figure 1. Summary of skills, both professional and personal, acquired through working towards a research degree



The value of research experience

For many, the conclusion of their designated out-of-programme research period does not coincide with the completion of their research degree. This realisation underscores that, while the formal research time may have ended, the journey to finalise the thesis often extends into clinical training. Navigating the demands of clinical responsibilities while dedicating time to thesis writing presents a significant challenge, yet it remains a feasible task with careful planning and commitment. Indeed, it is vital that those completing their out-of-programme time prioritise completing their research degree; without such prioritisation it is quite possible for the thesis to remain incomplete indefinitely.

Reflecting on this experience, it becomes evident that the research phase cultivates critical thinking and analytical skills to a degree that is seldom achievable amid the fast-paced environment of frontline National Health Service (NHS) work. These skills, honed during the research period, are invaluable, offering a depth of insight and a methodical approach to problem-solving that enhances clinical practice and decision-making.

The journey through a research degree is a transformative experience that equips cardiology trainees with a suite of invaluable skills and perspectives. Beyond the development of critical thinking and analytical abilities, this period of scholarly inquiry fosters a range of competencies that are essential for a successful career in cardiology and beyond. These are described below and summarised in **table 1**.

Table 1. An overview of skills acquired during research and their impact

Skills/experience	Description	Impact on career
Critical thinking/ analytical skills	Developed through the process of research design, data analysis, and interpretation	Enhances decision-making and problem-solving abilities
Adaptability/resilience	Cultivated by navigating the challenges and uncertainties inherent in research	Prepares for the dynamic nature of healthcare, enabling effective response to clinical and operational challenges
Effective communication	Honed through writing papers, presenting findings, and collaborating with peers	Improves patient care and collaborative efforts with multi-disciplinary teams
Time management/ organisation	Necessary for balancing research activities with clinical responsibilities	Facilitates efficiency and productivity in clinical and research settings
Networking/ collaboration	Expanded through interactions with mentors, peers, and professionals at conferences and within research projects	Opens doors to collaborative opportunities, mentorship, and career advancement
Lifelong learning	Instilled by the continuous quest for knowledge and staying abreast of the latest advancements	Encourages ongoing professional development and ensures up-to-date clinical practices

Adaptability and resilience

Research demands adaptability and resilience, qualities that are equally critical in clinical practice. The unpredictable nature of research, from experimental setbacks to revising hypotheses, teaches perseverance and flexibility. These traits are indispensable when facing the uncertainties and challenges inherent in patient care and healthcare delivery.

Effective communication

The ability to articulate complex ideas clearly and persuasively is another hallmark of the research experience. Whether it is writing a thesis, presenting at conferences, or publishing papers, researchers learn to communicate effectively with both scientific and lay audiences. This skill is crucial for cardiologists, who must explain complex medical information to patients, and collaborate with multi-disciplinary teams.

Time management and organisation

Balancing research with clinical duties requires exceptional time management and organisational skills. Researchers learn to prioritise tasks, set realistic goals, and manage their time efficiently – a skill set that is directly transferable to the demanding environment of the NHS and private practice.

Networking and collaboration

Engaging in research opens doors to a global community of scholars, clinicians, and mentors. These connections can lead to future collaborations, career opportunities, and a support network that spans the entirety of one's career. The collaborative nature of research also underscores the importance of teamwork, an essential component of effective clinical practice.

Lifelong learning

Perhaps most importantly, a research degree instils a commitment to lifelong learning. Those in academia continuously strive to keep updated with the latest advancements and evidence-based practices in cardiology to further knowledge and innovation. This ethos of ongoing education is critical for maintaining excellence in patient care and contributing to the advancement of the field.

Career advancement

A research degree in cardiology is a catalyst for career advancement, offering a competitive edge in job markets and paving the way for diverse professional pathways. The rigorous training and critical thinking developed during research are highly valued by employers, enhancing prospects in both clinical and academic settings. This background not only opens doors to prestigious positions but also equips cardiologists for leadership roles, where they guide evidence-based practices and influence treatment protocols. It also allows for broader engagement in leadership and mentorship.

Moreover, the innovative mindset nurtured during research encourages entrepreneurship, leading to the development of new treatments and healthcare solutions. This capacity for innovation extends to policy and advocacy, where researchers use their expertise to influence healthcare decisions and standards, benefiting the wider community.

Research experience also facilitates global engagement, offering opportunities to contribute to international health projects and collaborations. This not only broadens the impact of one's work but also enriches the professional experience with diverse perspectives.

An academic career beyond a higher degree

Cardiology trainees wishing to pursue an academic career beyond a higher degree can consider applying for a National Institute for Health and Care Research (NIHR) clinical lectureship as part of the integrated academic training pathway.[4] This provides funding for registrars to spend 50% of their time in clinical training and 50% of their time undertaking research, the purpose of which is to develop academic independence and start leading a portfolio of research. Funding is available for up to four years or until certificate of completion of training (CCT), whichever is soonest, although funding can be extended post-CCT if the four-year maximum has not been reached. A clinical lectureship will provide a salary, but not funding to support the costs of research – several grants are available to cover the cost of research consumables, including the Academy of Medical Sciences starter grants. In addition to nationally funded NIHR clinical lectureship posts, a number of local initiatives are available that can offer similar opportunities. Following the completion of specialty training, clinical lecturers would normally apply for an externally funded post-doctoral training award to support continued research.

Beyond the NIHR clinical lectureship, other funding opportunities are available to those nearing the end of their training. The British Heart Foundation (BHF) provide an intermediate clinical research fellowship for up to five years, including a salary and funding for research costs, available to registrars and new consultants.[5] The Medical Research Council (MRC) provide a clinician scientist fellowship for trainees or consultants interested in developing independence in an area aligned with the MRC's scientific remit.[6] These fellowships usually do not allow for more than two sessions a week to be spent on clinical work not directly applicable to research, and so may not be appropriate for those with significant clinical training requirements.

NHS consultants without a university contract can consider applying for a BHF consultant research award, providing funding for up to two years full-time equivalent salary support and research costs to support a programme of research lasting up to five years.[7]

Personal growth and reflection

The journey through a research degree in cardiology is as much about personal transformation as it is about academic and professional achievement. This path, marked by its challenges and demands, fosters a profound sense of resilience and perseverance. Researchers often recount moments of significant struggle – whether navigating experimental setbacks or facing the daunting task of thesis writing. Yet, it is within these moments that the seeds of personal growth are sown. Stories of overcoming these hurdles, not only serve as a testament to the researcher's determination, but also inspire a culture of resilience within cardiology.

Central to the research experience is the cultivation of a lifelong learning mindset. The essence of research – continuous inquiry, questioning, and exploration – becomes a fundamental approach to, not only scientific endeavours, but life itself. This intellectual curiosity drives ongoing professional development and keeps cardiologists at the forefront of their field, ensuring that their practice is informed by the latest evidence and innovations.

Moreover, the demanding nature of research underscores the importance of work-life balance. Navigating the rigors of research alongside clinical duties teaches valuable lessons in time management, self-care, and setting boundaries. Strategies, such as prioritising tasks, scheduling downtime, and seeking support from peers and mentors, are not just survival tactics; they are essential skills for a balanced and fulfilling career and life. These practices, honed during the research years, lay the groundwork for wellness and productivity throughout one's career.

In reflecting on the research journey, it becomes clear that the challenges faced are not merely obstacles but opportunities for growth. The resilience, lifelong learning, and balance achieved through this process enrich the personal and professional lives of cardiology trainees and researchers, shaping them into well-rounded individuals capable of leading with empathy, insight, and a deep commitment to their own well-being and that of their patients.

Key messages

- **The enduring value of research:** research in cardiology transcends academic achievement, instilling critical thinking, resilience, and a commitment to lifelong learning. It transforms trainees into leaders capable of navigating the complexities of cardiovascular care with innovation and empathy
- **A launchpad for diverse careers:** a research degree opens diverse career paths in cardiology, enriching the profession and advancing cardiovascular health. It marks the beginning of a journey characterised by growth, exploration, and significant contributions to the field
- **A call to continued engagement and mentorship:** the completion of a research degree is a call to action for ongoing inquiry and mentorship. By engaging in lifelong learning and supporting the next generation, we can ensure the vitality and advancement of cardiology

Beyond the finish line

As cardiology trainees step beyond the threshold of their research degrees, they find themselves at the beginning of a profound journey into the heart of their profession. This pivotal moment, far from signifying an end, heralds a multitude of opportunities for application, expansion, and dissemination of the wealth of knowledge and skills they have amassed. The landscape that unfolds 'beyond the finish line' is rich with avenues for continued growth, contribution, and exploration.

The journey ahead beckons for a sustained engagement with the world of research. The end of a degree does not equate to the cessation of inquiry; rather, it marks the commencement of a lifelong commitment to scientific exploration and innovation. Cardiologists are encouraged to weave research activities into the fabric of their careers, whether that involves undertaking part-time projects, engaging in collaborative

endeavours, or keeping pace with the latest advancements in their field.

Equally important is the role of mentorship in this next chapter. The act of guiding the next generation of researchers and trainees is both a privilege and a responsibility. It is an opportunity to give back to the community that has fostered one's growth, to share the lessons learned, and to inspire a future generation with the passion for cardiology research. This can help nurture a culture of support, excellence, and collaborative spirit within the cardiology community.

The paths that diverge from the finish line of a research degree are as varied as they are rewarding. The narrative of cardiology is replete with professionals who have leveraged their research backgrounds to venture into diverse roles. Some have made their mark in industry, collaborating with pharmaceutical and medical device companies to pioneer innovations that push the boundaries of what is possible in cardiovascular care. Others have found their calling in academia, dedicating their lives to teaching and conducting research that adds new chapters to the cardiology canon. And there are those in clinical practice, who seamlessly integrate research findings into patient care, enhancing outcomes and setting new standards of excellence.

In essence, the completion of a research degree is not merely a milestone, but a launching pad for a fulfilling and impactful career in cardiology. 'Beyond the finish line' is a realm of endless possibilities, where the skills, knowledge, and networks forged during research training illuminate the path forward. It is a call to action for cardiology professionals to continue exploring, innovating, and leading in their field, shaping the future of cardiovascular health

Conflicts of interest

None declared.

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Editors' note

This is the fourth and final part of a series of articles on Research in Cardiology. Part 1 is available at: http://doi.org/10.5837/bjc.2023.027. Part 2 is available at: http://doi.org/10.5837/ bjc.2024.011. Part 3 is available at: http://doi.org/10.5837. bjc.2024.025

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