Innovation Cultivation: When Did We Lose the Art of Innovation and How Can We Get It Back?

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Abstract

The National Health Service (NHS) has a rich history of innovation, producing life-changing advancements such as *in vitro* fertilisation (IVF) and portable defibrillators. However, recent years have seen a decline in its innovative capacity, hindering the ability to tackle emerging challenges like antimicrobial resistance. This article explores the barriers impeding innovation within the NHS and highlights innovation driving initiatives such as the establishment of innovation hubs. By fostering a culture that embraces creative thinking and collaboration, the NHS can reclaim its innovative spirit and deliver transformative solutions for the future of healthcare.

Key words: innovation; NHS; healthcare systems; paediatrics; antimicrobial resistance; healthcare technology

Submitted: 2 December 2024   Revised: 15 January 2025   Accepted: 5 February 2025

Introduction

From *in vitro* fertilisation (IVF) to the first portable defibrillators, the National Health Service (NHS) has produced lifesaving and life-changing medications, devices, and systems since its inception. These tools are so integral to clinical practice that it's easy to forget they haven't always existed. Instead, they are the products of innovation.

Yet in recent years, the NHS has been criticised for lagging in the creation and deployment of healthcare technology (Kraindler and Gershlick, 2019). Innovation is no longer a secondary interest; it has become a necessity. This is especially true in the fight against antimicrobial resistance (AMR), which the World Health Organization (2020) identifies as one of the top global health threats. AMR poses a significant risk to paediatric patients, who rely heavily on antibiotics for everything from treating simple infections to prophylaxis during major surgeries. While promising projects, such as rapid diagnostics in emergency departments, offer hope, without a robust culture of innovation in the NHS, we risk reverting to a pre-antibiotic era with devastating health consequences. Now, more than ever, we must recapture the innovative spirit that founded the NHS but has diminished over time.

What Changed?

As the NHS faces increasing pressures year after year, it seems we've lost sight of what it means to be innovative. Let's remind ourselves: innovation is the implementation of fresh ideas to achieve value. This can range from advanced tools, such as generative artificial intelligence (AI) or robotic process automation, to simple yet transformative measures, like the World Health Organization (WHO) surgical checklists. These seemingly basic pen-and-paper lists have reduced post-operative complications by 30%, showing that even the simplest ideas can lead to life-changing outcomes when implemented on a system-wide scale (World Health Organization, 2010).

Barriers to Innovation

We live in a world driven by financial concerns, and as a government-funded healthcare system, the NHS is no stranger to financial constraints. Widespread departmental cutbacks often lead individuals with innovative ideas to stay silent, believing resources are too limited to bring their concepts to life (Quirk et al, 2018). However, governments and governing bodies are increasingly recognising the importance of innovation.

For instance, the Royal College of Paediatrics and Child Health has identified innovation as fundamental to the future of child health. Their vision includes fostering an improved landscape for innovation, equipping the workforce with the expertise to leverage new technologies, and enhancing the implementation of innovative tools by 2040 (Royal College of Paediatrics and Child Health, 2020). Time will tell whether this vision creates the ecosystem needed for innovation to thrive.

Universities and NHS Research and Development (R&D) offices play a pivotal role in bridging the gap between innovative ideas and real-world patient benefits. While the NHS has been a traditional driver of innovation, academic institutions often lead in early-stage research. Unfortunately, this synergy is underutilised, with many breakthroughs failing to translate into tangible outcomes for patients. By fostering closer collaboration between universities, R&D offices, and healthcare providers, the NHS can better harness academic advancements for practical application.

The NHS's commitment to quality patient care has also resulted in an abundance of guidelines designed to standardise and maintain care. However, this has inadvertently created an environment where deviation from established protocols is often discouraged due to fear of error (Health Foundation, 2015). Yet, the freedom to make mistakes in a safe environment is the bedrock of innovation.

The persistent reliance on pagers highlights the NHS's struggle to embrace innovative approaches despite clear evidence for the benefits they promise. These outdated devices not only contribute to staff stress and disrupt workflow efficiency but also incur a substantial annual cost of £6.6 million (1 GBP = 1.29 USD), prompting the Health and Social Care Secretary to announce a planned ban by 2021 (Department of Health and Social Care, 2019). However, three years beyond this deadline, many NHS trusts continue to depend on these antiquated systems, despite

promising outcomes reported by the few trusts that have successfully transitioned to modern digital alternatives.

Innovation often stems from bold ideas and, at times, chaos. New solutions come with uncertainty, leading to inevitable failures. But it is through this trial-and-error process that we learn, adapt, and ultimately produce transformative tools and methods that reshape clinical practice. Strict adherence to rigid procedures can stifle this creativity. Instead, by fostering flexibility and openness to new processes, we can enable safe experimentation and the emergence of innovative pathways that maintain patient safety while driving progress (Editorial Team HR Fraternity, 2024).

Innovation often stems from passionate individuals with bold visions, regardless of background. While this article focuses on how the NHS as an organisation can foster innovation, it's critical to recognise that individuals—be they NHS employees, academics, or private-sector entrepreneurs—are the true drivers of change. Organisations, including the NHS, primarily serve as enablers, providing resources, frameworks, and platforms for these innovators to thrive. Acknowledging this dynamic ensures that innovation initiatives empower individuals to act on their ideas, while organisations focus on creating the infrastructure to support them. With this in mind, clear guidance around intellectual property (IP) ownership are crucial to fostering innovation. Innovation hubs play a vital role here, helping founders to navigate the complex world of copyrighting, patenting, and securing capital effectively, ultimately driving both personal and organisational success with an equal distribution of rewards.

Harnessing Innovation

To restore the innovation-focused mindset upon which the NHS was built, we must cultivate a culture that encourages individuals to think differently and embrace failure as part of the creative process. Too often, we hear the phrase, "But I'm not an innovator." Yet, anyone who identifies a problem can be an innovator. All that's needed are the right people and environment to transform an issue into an effective solution.

In response to these barriers, several hospitals across the UK have established dedicated innovation teams to champion creative solutions within the NHS. For example, Alder Hey Innovation (AHI) is now a leading NHS Innovation Hub, collaborating with other teams as part of the Innovation Network as well as helping support the next generation of innovators via the Insights Program for the Clinical Entrepreneur Program. AHI has developed a structured process to drive change and remove barriers for NHS innovators (Alder Hey Innovation, 2024a).

By creating an open forum for problem submission, AHI collaborates with individuals to explore their challenges, connect them with experts, and identify funding opportunities. While this structured approach provides a framework, flexibility remains key to delivering clinically beneficial innovations. People are the true drivers of innovation, and hubs like AHI create spaces where collaboration and creativity can thrive.

This approach has consistently delivered impressive results. For example, the Little Hearts at Home remote monitoring platform was developed by AHI to help young patients with complex cardiac conditions spend more time at home while receiving necessary care. This innovation reduced emergency admissions by 50%, saved £102,000 per patient, and most importantly, allowed children to enjoy a better quality of life at home with their families (Alder Hey Innovation, 2024b). What once seemed unattainable is now a transformative advancement in standard care, made possible through the power of innovation.

Conclusion

The establishment of innovation hubs across the UK signals a promising shift in the NHS, recognizing the transformative role of innovation in shaping its future. However, for innovation to succeed and drive meaningful improvements in healthcare, engagement must occur at every level—from NHS staff to the broader community. By investing in dedicated physical spaces for innovation, we create environments where ideas can safely develop, take risks, and ultimately become reality. These hubs offer proximity to clinical challenges, fostering deeper understanding while also enabling collaboration with external corporations. These partnerships bring fresh perspectives, industry expertise, and valuable connections that drive progress.

Crucially, these spaces serve as neutral zones, uniting patients, NHS staff, and industry leaders to co-create solutions. Without such collaborative environments, we lose the unique opportunity to bridge diverse perspectives and tackle healthcare challenges holistically.

Innovation belongs to everyone. By empowering healthcare workers to see themselves as both problem-identifiers and problem-solvers, we can unlock the untapped potential for innovation embedded in every corner of the NHS. Together, we can shape a healthcare system that thrives on creativity and collaboration, delivering lasting benefits for all.

Key Points

- Identifying and addressing the barriers to innovation is essential for unlocking its full potential.
- By examining how existing innovation teams have successfully navigated these challenges, others can draw inspiration and refine their own processes with greater ease.
- This collaborative learning is crucial to ensuring the continued growth and evolution of our NHS, paving the way for a more innovative and resilient healthcare system.

Availability of Data and Materials

All the data of this study are included in this article.

Author Contributions

FB and SK contributed to concept and design of the manuscript. Both authors drafted the manuscript. Both authors contributed to the important editorial changes in the manuscript. Both authors read and approved the final manuscript. Both authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

Not applicable.

Acknowledgement

Not applicable.

Funding

This research received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

References

Alder Hey Innovation. About Us – Our Process. 2024a. Available at: https://www.alderheyinnovation.com/about-us (Accessed: 27 November 2024).

Alder Hey Innovation. Little Hearts At Home. 2024b. Available at: https://www.alderheyinnovation.com/little-hearts-at-home (Accessed: 27 November 2024).

Department of Health and Social Care. Health and Social Care Secretary bans pagers from the NHS. 2019. Available at: https://www.gov.uk/government/news/health-and-social-care-secretary-bans-pagers-from-the-nhs (Accessed: 27 November 2024).

Editorial Team HR Fraternity. Navigating resistance: strategies for encouraging innovation in healthcare teams. HR Fraternity. 2024. Available from: https://www.hrfraternity.com/health-excellence/navigating-resistance-strategies-for-encouraging-innovation-in-healthcare-teams.html (Accessed: 6 March 2025).

Health Foundation. What's getting in the way? Barriers to improvement in the NHS. 2015. Available at: https://www.health.org.uk/sites/default/files/WhatsGettingInTheWayBarriersToImprovementInTheNHS.pdf (Accessed: 27 November 2024).

Kraindler J, Gershlick B. International comparisons of capital in health care. Health Foundation. 2019. Available at: https://www.health.org.uk/sites/default/files/2019-10/20191024%20-%20Long%20read%20-%20International%20comparisons%20of%20capital%20in%20health%20care%20-%20Web%20version_0.pdf (Accessed: 27 November 2024).

Quirk H, Crank H, Carter A, Leahy H, Copeland RJ. Barriers and facilitators to implementing workplace health and wellbeing services in the NHS from the perspective of senior leaders and wellbeing practitioners: a qualitative study. BMC Public Health. 2018; 18: 1362. https://doi.org/10.1186/s12889-018-6283-y

Royal College of Paediatrics and Child Health. Paediatrics 2040: Our vision for the future of paediatrics in the UK. 2020. Available at: https://paediatrics2040.rcpch.ac.uk/our-vision/#page-section-2 (Accessed: 27 November 2024).

World Health Organization. Antimicrobial resistance. 2020. Available at: https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance (Accessed: 27 November 2024).

World Health Organization. Checklist helps reduce surgical complications, deaths. 2010. Available at: https://www.who.int/news/item/11-12-2010-checklist-helps-reduce-surgical-complications-deaths (Accessed: 27 November 2024).