

Optimising the impact of health services research on the organisation and delivery of health services: a mixed-methods study

Martin Marshall,^{1*} Huw Davies,² Vicky Ward,²
Justin Waring,³ Naomi J Fulop,⁴ Liz Mear,⁵
Breid O'Brien,⁶ Richard Parnell,⁷ Katherine Kirk,³
Benet Reid² and Tricia Tooman²

¹Research Department of Primary Care and Population Health, Medical School, University College London, London, UK

²School of Management, University of St Andrews, St Andrews, UK

³Health Services Management Centre, School of Social Policy, University of Birmingham, Birmingham, UK

⁴Department of Applied Health Research, University College London, London, UK

⁵Leeds Academic Health Partnership, University of Leeds, Leeds, UK

⁶Health Innovation Network, London, UK

⁷Independent patient and public involvement lead, Havant, UK

*Corresponding author martin.marshall@ucl.ac.uk

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Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

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Scientific summary

Research impact on health services organisation and delivery

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Scientific summary

Background

Research and researchers represent a rich source of empirical, theoretical and methodological knowledge that can help health and care organisations with some of their most pressing challenges. There are, however, persistent and well-documented disconnects between research-informed knowledge and the arrangements for everyday care. Many strategies have been developed to try to improve this, including a broadening of ideas from 'knowledge transfer' to 'knowledge co-production'. Co-production models of knowledge mobilisation are based on assumptions that research knowledge usually needs to be adapted if it is to have impact, and that all participants need to be involved in its creation, interpretation and use.

This project explored in depth one approach to more collaborative knowledge co-production: the 'embedding' of experienced researchers in service teams for sustained periods with the explicit goal of creating and mobilising actionable knowledge in context (sometimes called 'researchers-in-residence').

The approach is growing in popularity in many health sectors, and reports of individual initiatives and the precepts underpinning them have appeared in the literature. Such reports highlight the potential of the approach, but also point to significant challenges, and we know little about how initiatives unfold or to what effect. There is a need, therefore, to develop better theoretical and empirical underpinnings for embedded knowledge co-production, to help in the construction of practical tools and resources.

Study aims and objectives

The project aimed to increase the influence of health services research on decisions about the improvement and redesign of NHS services by:

- developing insights and understanding about the nature, challenges and effectiveness of knowledge co-production initiatives whereby researchers are embedded in service settings
- producing practical guidance on the design and implementation of embedded models of co-production for managers and clinicians in the NHS, their academic partners and service users.

In addressing these aims, the project focused on four objectives:

1. to review the theoretical and empirical health services, management and organisational literature relevant to embedded research initiatives and knowledge co-production, and identify the relationship(s) between the two (workstream 1)
2. to gather examples of embedded models in operation around the UK's health services and public health sectors, focusing on examples of embeddedness and co-production co-existing, and to describe their history, context, participants, scale, scope, content and other features (workstream 2)
3. to undertake in-depth case studies in four such examples, to understand their mechanisms, effectiveness and challenges (workstream 3)
4. to provide resources that aid the recruitment of embedded researchers and their training and development, customisable for the different ways in which embedded co-production may be framed and specified, thus allowing those interested in using such approaches to understand the design choices they face (workstream 4).

Methods

The four workstreams proceeded with staggered starts (early work being in the literature and scoping) and then continued in parallel, with separate methods but extensive interactions and cross-learning.

Workstream 1a consisted of a narrative literature review and framework analysis of the academic literature on knowledge co-production. It covered 87 articles from 2003 to 2018, from health and health-related studies ($n = 23$), management studies ($n = 15$), environmental science ($n = 15$), sociology and social policy ($n = 9$), and other disciplines. An initial read-through grouped and labelled concepts, which the wider team refined in discussion by exploring their face validity, coherence, completeness and overlaps.

To unpack the nature of embedded research, we combined a focused narrative literature review (workstream 1b) with a systematic scoping exercise of extant initiatives (workstream 2). These identified 47 published papers in 26 'clusters' (related groupings of publications), alongside 45 initiatives in operation in UK health settings. We assembled documentation on each of these 45 schemes and conducted in-depth interviews in 12 of the schemes (17 interviews). Analytically, we focused on surfacing and articulating the key features of embedded research initiatives in relation to their intent, structure and processes. We then tested and validated these findings during a workshop with embedded researchers and their managers.

Workstream 3 involved four intensive case studies in established embedded research initiatives. We gathered data through on-site observation, extensive interviews, reflective diaries, e-mail conversations and documentation reviews. Over 12 months, we completed 46 formal interviews with 31 participants across the four sites. Participants included embedded researchers and members of their wider networks. Informal interviews augmented the observation periods, which included attending a variety of events and more generalised shadowing of the embedded researchers. The analytic strategy sought to show how and why embedded researchers developed their roles, what activities they undertook to co-produce and translate knowledge, what types of relationships they developed and the boundaries they negotiated, and what types of impact they made on translating knowledge into everyday practice.

Workstream 4 consisted of a series of influencing and engagement activities to discuss the emergent findings with scheme participants and stakeholders. Discussions, workshops and creative work helped to translate the insights and frameworks from the research into practical tools, resources and supporting materials.

Findings

The two literature reviews (augmented by data from the scoping review) provided clear and structured language for describing and disentangling the diversity of approaches to knowledge co-production and embedded research. The case studies added insights into the dynamics and life cycles of such initiatives. Integration between the emergent research findings and the engagement and influencing work led to the development of tools and resources for embedded scheme designers, participants and stakeholders. Elaboration on each of these follows.

A language for knowledge co-production

Co-production has risen quickly to prominence as an approach to knowledge-making. Our review and synthesis of the literature (workstream 1a) offered a means of exploring and disambiguating the concept in a way that also provided practical tools and resources for collaborative conversations.

We found that issues and approaches in knowledge co-production could be thought of in five main domains of meaning: politics, knowledge, identity, space-time and aesthetics. Each domain yielded two subthemes, to provide a finer-grained analysis. It also became evident that each (sub)domain encompassed

tensions between different perspectives on knowledge co-production. A set of conceptual domains emerged then, overlaid with a continuum of perspectives: from a more conventional view of the knowledge-making process (whereby boundaries between different knowledges and roles are largely maintained and the goals are worthwhile but incremental changes), via provisional, moderate and committed modes to, finally, more radical approaches (whereby boundaries are more thoroughly dissolved, and goals include a substantial overhaul of previous priorities and possibilities). The exploration of meanings in each domain and across these spectrums, and the surfacing of very divergent examples of co-production, provided clear conceptual framings and precise language to aid the disambiguation of the rhetoric and practice of knowledge co-production.

Disentangling distinct conceptual concerns in this way will, we hope, generate further discussion and insights on the nature and role of co-production processes, and prompt more focused empirical and evaluative work. More pragmatically, we hope that the framework will be used by those involved in embedded initiatives (and, indeed, in knowledge co-production achieved through other means) to articulate their understandings of their own and each other's approaches. To date, many embedded research initiatives do not appear to have fully understood or engaged with this diversity. The conceptual groundwork laid out may clarify, and support discussion of, the implications of different stances, and facilitate better communication around the challenges of such collaborations.

The landscape of embedded research initiatives in the UK

Our review of published literature on embedded research (workstream 1b) and scoping of extant schemes in UK health settings (workstream 2) identified 90 potential embedded research initiatives. We narrowed these down to 45 initiatives using three main criteria: identity (were those 'embedded' in the initiative experienced in research and seen as researchers by service partners?), knowledge production (was the initiative designed to produce knowledge of direct relevance to the organisation?) and immersion (were the researchers physically located in the health setting for significant periods?).

A number of features became clear. First, schemes were in place across the UK, in primary, secondary and community settings. Second, the scale of embedded research initiatives was highly variable, ranging from single short-term projects to longer-term programmes of work or strategic partnerships, sometimes involving multiple embedded researchers. Third, about half the schemes utilised university-held contracts for their embedded researchers, around one-quarter used NHS contracts, and joint appointments were relatively unusual (only about 10% of schemes). Finally, although some initiatives were carefully planned from the start, many more were evolving and emergent, with changing intentions, structures and processes.

This work, when combined with the narrative literature review, led to the exposition of 10 domains (grouped under the headings 'intents', 'structures' and 'processes') that provided a comprehensive way of articulating the contours of embedded researcher initiatives. In doing so, the analysis exposed the substantial diversity of approaches.

The structured account of embedded research initiatives that emerged provides a robust theoretically and empirically informed tool to describe and analyse such schemes. The tool can be used for various purposes: for research, to delineate embedded researchers as interventions that can be compared and evaluated; for design, as an aid to the development of new schemes; and for management, by supporting dialogue between stakeholders.

The dynamics of embedded research initiatives

The four case studies (workstream 3) showed a marked difference in the embedded researchers' backgrounds, motivations and practices, with a common thread being a desire to 'make a real-world difference'. The design domains identified in the earlier work revealed much diversity in schemes' intentions, structures and processes. Taken together, these provided many insights into the wide range of embedded tasks and activities undertaken in the roles.

There were common themes across schemes in their basic intentions. Embedded researchers aimed to mediate between different forms of knowledge; negotiate organisational, cultural and epistemic boundaries; and so promote co-produced, shared and actionable understandings. There were also significant differences between schemes. The degree to which knowledge co-production was evident varied considerably: the approaches deployed were more usually provisional or moderate, with more radical intents largely absent. The degree of co-production often depended on the framing and structuring of the embedded researchers' roles: less bounded roles usually offered greater scope than roles with narrow, concrete goals.

Often, there was no single or sustained intent. Intentions evolved or fluctuated over time, sometimes crystallising only as the scheme matured. Most intentions related to creating situated knowing by brokering external knowledge and combining that with locally collected data, building local research capacity, and enhancing reputations for research-informed care. Embedded researchers were often left to juggle, prioritise or reconcile competing and changeable expectations.

Core to the operationalisation of embedded research schemes was creating opportunities for sustained interactions. Practical matters, such as contractual arrangements, line management and physical location contributed to proximity, visibility and perceived contributions. Structural arrangements also had implications for more nebulous concerns, such as a sense of belonging or the maintenance or blurring of professional identities. Embedded researchers expended much hidden emotional labour in negotiating these concerns.

Whatever the structural arrangements, embedded research initiatives delivered value through their activities and processes. These varied dramatically but included (to different degrees) the following: activities to develop research capacity, research activity itself and support for knowledge use and service improvement. Directly related to these 'goal-supporting activities', or more indirectly necessary to build visibility and support for the initiative, were diverse activities aimed at creating, maintaining or strengthening networks, communications and relational bonds.

Given the wide-ranging (and sometimes implicit) nature of embedded scheme intentions, and the varied and often informal nature of the processes used to achieve these, it was unsurprising that most schemes struggled to articulate or evidence success. Although the enthusiasm for, and belief in the potential of, such schemes was widely evident, systematic evidence of effectiveness was harder to come by.

Tools and resources to support embedded research schemes

We adopted a collaborative, creative and engaged approach to translating the research insights into practical tools and resources (workstream 4). This led to a design framework (with visual metaphors, dialogic questions and interactive web resources) and other supporting materials (e.g. an introductory animation, case studies of existing schemes and a recruitment resources pack). Collectively these tools and resources can support the development of new embedded research schemes, their ongoing management and evolution, and renewed efforts to examine their effectiveness formatively (through within-scheme learning) and summatively (as part of a wider research effort to assess impacts).

The tools and resources are readily available [www.embeddedresearch.org.uk (accessed 1 March 2021)] and will be maintained beyond the lifetime of the research project. In this way, we hope to ensure the enduring accessibility and application of the insights of this report.

Reflections on patient and public involvement in embedded research

The data presented a picture of rather patchy patient and public involvement in embedded research. Patient and public involvement was most often seen at project level (consistent with current research norms), but was rarely developed at the level of the embedded initiative itself. Moreover, the style of engagement varied from active participation in project work to more passive consultation.

Throughout, the patient and public involvement group met to explore what a more effective and comprehensive set of arrangements for patient and public involvement in embedded research initiatives might look like. The group used the findings from the project to outline a structured account of effective patient and public involvement, advocating a less passive/more active form of patient and public involvement underpinned by more demanding presumptions about the role of patients and public: a route map for implementing a more radical vision of patient and public involvement in embedded research initiatives.

Conclusions

The embedded co-production initiatives springing up across the NHS demonstrate the considerable enthusiasm among service personnel and embedded researchers alike, and a robust logic underpins their use. However, we found considerable diversity in the nature and understanding of embedded research and knowledge co-production, belying the apparently simple precepts. The relatively simple idea of placing research expertise at sites where research-informed knowledge is most needed is gainsaid by the complexity of the necessary structural and processual arrangements.

Understandings about embedding and co-production remain at an early stage. Judgements about success are likely to be highly variable between projects and contexts. Every embedded research initiative is an opportunity to learn more about the potential gains and implicit challenges. The insights and resources from this project are intended to support the NHS and other partners to develop such learning.

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