



OPEN ACCESS

Moving improvement research closer to practice: the Researcher-in-Residence model

Martin Marshall,^{1,2} Christina Pagel,³ Catherine French,⁴ Martin Utley,⁵ Dominique Allwood,² Naomi Fulop,⁶ Catherine Pope,⁷ Victoria Banks,⁸ Allan Goldmann⁹

¹UCL, London, UK

²Improvement Science London, London, UK

³Clinical Operational Research Unit and Department of Applied Health Research, UCL, London, UK

⁴Department of Applied Health Research, UCL, London, UK

⁵Clinical Operational Research Unit, UCL, London, UK

⁶Department of Applied Health Research, UCL, London, UK

⁷Faculty of Health Sciences, University of Southampton, London, UK

⁸Great Ormond Street Hospital for Children, London, UK

⁹Cardiac Critical Care Unit, Great Ormond Street Hospital for Children, London, UK

Correspondence to

Professor Martin Marshall,
UCL Partners, 3rd Floor,
170 Tottenham Court Road,
London W1T 7HA, UK;
martin.marshall@islondon.org

Received 20 December 2013

Accepted 13 May 2014

Published Online First

3 June 2014



Open Access
Scan to access more
free content



CrossMark

To cite: Marshall M, Pagel C, French C, et al. *BMJ Qual Saf* 2014;**23**:801–805.

ABSTRACT

The traditional separation of the producers of research evidence in academia from the users of that evidence in healthcare organisations has not succeeded in closing the gap between what is known about the organisation and delivery of health services and what is actually done in practice. As a consequence, there is growing interest in alternative models of knowledge creation and mobilisation, ones which emphasise collaboration, active participation of all stakeholders, and a commitment to shared learning. Such models have robust historical, philosophical and methodological foundations but have not yet been embraced by many of the people working in the health sector. This paper presents an emerging model of participation, the Researcher-in-Residence. The model positions the researcher as a core member of a delivery team, actively negotiating a body of expertise which is different from, but complementary to, the expertise of managers and clinicians. Three examples of in-residence models are presented: an anthropologist working as a member of an executive team, operational researchers working in a front-line delivery team, and a Health Services Researcher working across an integrated care organisation. Each of these examples illustrates the contribution that an embedded researcher can make to a service-based team. They also highlight a number of unanswered questions about the model, including the required level of experience of the researcher and their areas of expertise, the institutional facilitators and barriers to embedding the model, and the risk that the independence of an embedded researcher might be compromised. The Researcher-in-Residence model has the potential to engage both academics and practitioners in the promotion of evidence-informed service improvement, but further evaluation is required before the model should be routinely used in practice.

BACKGROUND

A broad consensus is emerging that established approaches to getting health services research into practice are not radically changing the extent to which management decisions are influenced by scientific evidence.^{1 2} Neither the traditional model of ‘pushing’ evidence from the academic producers of research, nor the model of ‘pulling’ evidence by potential users have managed to move potentially useful research findings from the academic journals into the consciousness of managers and clinicians on the ground.³ Conventional linear models of evidence transfer do not seem to adequately reflect real differences in the ways in which people from academia and the health service think about evidence, the nature of their training, and the complex process of management decision making.^{2 4}

As a result, over recent decades academics have become increasingly interested in alternative models of creating and utilising research evidence. A common feature of these models is the concept of ‘co-creating’ knowledge between researchers and practitioners, using a range of different participatory approaches.^{5–8} In the health sector such approaches have rarely moved beyond small scale projects and few have been integrated into routine practice. In this paper we describe an emerging model of participatory research, the Researcher-in-Residence, which has the potential to engage both practitioners and academics in the concept of evidence-informed improvement.

OVERVIEW OF PARTICIPATORY RESEARCH

Over the years, different approaches to the broad concept of participatory

research have emerged, including community based participatory research,⁹ action research,⁶ engaged scholarship,⁷ and insider academic research.¹⁰ In practice they share a number of common features, including a desire to solve practical problems in a collaborative way, and an emphasis on reflection and collective inquiry.

Underpinning these features is a set of beliefs about the position of researchers in relation to the topic being researched. Positivists and constructivists, operating at different ends of the epistemological spectrum, have long debated the relative merits of different ways of conceptualising or representing what they are investigating.¹¹ An alternative philosophical tradition, *Pragmatism*, focuses on thought as a way of solving practical problems. Derived from the Greek word 'to achieve', pragmatism started as a movement in the USA in 1870s, led by Peirce and colleagues.¹² It postulates that thinking adds value only when it can be demonstrated to change practice. As such it could be regarded as a useful common ground for practitioners and researchers, as well as an appropriate philosophical basis for participatory research.

A small number of participatory initiatives have been established over the last decade, such as the Community Participatory Researchers of the Robert Wood Johnson Clinical Scholars Programme in the USA,¹³ Knowledge Brokers in Canada,³ and Diffusion Fellows from the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) scheme in the UK.¹⁴ Despite their promise, most managers, clinicians and academics remain stuck in a traditional model in which powerful incentives in the academic and service sectors keep the researcher and practitioner communities apart.² If the concept of co-creation through participation is to engage a wider group of decision makers in the health services, then alternative models are required.

ORIGINS OF THE 'IN-RESIDENCE' MODEL

The 'in-residence' model has emerged to address the tendency of people with expert knowledge to socialise and work with like-minded people. This tendency can distance the expert from the wider society within which they operate, rarefying the expertise and excluding others from it. Over recent decades we have seen increasing attempts to share that expertise more widely across society. This is manifest in many walks of life including a Poet-in-Residence at Barnsley Football Club, an Artist-in-Residence at Heathrow Airport, and an Entrepreneur-in-Residence at the British Library.

A model of Researchers-in-Residence was introduced into the field of education in the UK in the early 1990s.¹⁵ University researchers such as physicists and geographers were encouraged to go into schools in a scheme funded initially by the UK Department for Education and later by Research Councils UK and

the Wellcome Trust. The aim was to give the researchers an opportunity to share their knowledge and to engage and enthuse school children. The original national scheme ceased in 2012 after 17 years and has been replaced by a range of locally driven initiatives.

THE RESEARCHER-IN-RESIDENCE MODEL IN THE HEALTH SECTOR

The model has been much slower to progress in the health sector and initiatives that have been put in place are usually small in scale and short-lived. Three examples illustrating the emergence of different types of in-residence models are discussed below.

An anthropologist as a member of an executive team

In the late 1990s a social scientist was appointed to a senior leadership role as an Anthropologist-in-Residence in a large teaching hospital in England. The researcher worked as a member of the executive team, bringing academic expertise in organisational change to the institution. Once established in his role, the researcher was asked by the chief executive to help address a problem of poor engagement of clinical staff in the management of the organisation. Drawing upon his knowledge of the international literature and on robust social theory, the researcher helped design and implement a new clinically led management system into the hospital.¹⁶ More than a decade later, this system is still in place and has served as a model for other hospitals in the UK.

Operational researchers as members of a front-line delivery team

Since 2009 two operational researchers have been working as Modellers-in-Residence in an internationally renowned children's hospital in London, England. In close partnership with clinicians and managers, the researchers have used novel mathematical models and analysis tools to help address operational problems. For example, the researchers worked with managers and clinicians from the cardiac intensive care unit to develop a user-friendly tool that provides a forecast of patterns of demand over the coming week, giving the team a more systematic understanding of demand for beds than the established approach of 'informed guesswork' among experienced members of staff. Preliminary findings from a qualitative evaluation of this work indicate that the in-residence way of working went beyond traditional models of consultancy, drawing on the broader theoretical and analytical expertise of the modellers, and building a level of trust that the staff claimed was rarely experienced with management consultants.

A Health Services Researcher working across an integrated care organisation

In 2013, a public health doctor trained in health services research worked for 1 year in an integrated care

organisation, which provided acute and community services to a diverse urban population. The fellow was part of a service improvement team and worked closely with managers and front line clinicians undertaking a range of quality improvement initiatives in the women's and children's and acute medical directorates of the organisation. Projects included an evaluation of an ambulatory emergency care centre, the development of an evidence-based strategy for integrated paediatric care, and the creation of a scorecard to support improvement in gynaecology services. For each project the doctor helped the teams by undertaking reviews of the relevant literature, discussing the relevance of the literature to the projects in question, and advising on how best to use data both for improvement and evaluative purposes. Since the doctor was a core member of the teams, this research skill set was readily accessible to the practitioners.

In each of these examples, the in-residence model places the needs of the decision makers and practitioners at the centre of the participatory process. The researcher becomes a core member of a delivery team, with a sense of shared responsibility for the success or failure of an improvement initiative. They bring expertise which is different from but potentially complementary to that of other team members, as described in [box 1](#).

The meaning and utility of this expert knowledge is negotiated with other members of the team, rather than being 'imposed' on them or 'transferred' to them. Inevitably this is an iterative process, based on

Box 1 Expertise that a Researcher-in-Residence might bring to a team of practitioners

Understanding of the established research evidence in a specific field (such as how to improve the integration of care services) and a willingness to interpret that evidence in a way that is applicable to the local context

Understanding of the effectiveness of interventions and implementation methods

Theory-based expertise in models of change and an ability to present theory in an accessible way to practitioners

Understanding of the unintended consequences of interventions and an ability to explain the trade-offs which are often inherent between the benefits and risks of improvement interventions

Expertise in how to assess whether interventions are working and how to make them work more effectively

Expertise in encouraging practitioners to undertake rigorous self-evaluation of their work

A sophisticated understanding of how to use data to guide improvement

the development of a trusting relationship which will take time and will require both emotional skills and willingness to negotiate and sometimes compromise.¹⁷ This willingness to both give and take, and to make concessions, is central to the co-production of knowledge.¹⁴

THE CHARACTERISTICS OF AN EFFECTIVE RESEARCHER-IN-RESIDENCE

The Researcher-in-Residence model is presented as a practical way of addressing the traditional barriers which often prevent health service researchers and health service decision makers from sharing their expertise for the benefit of patients. The model adds value to other participative initiatives by emphasising a 'meeting of equals' between researchers and practitioners, by building on learning from outside the health sector, and by having a robust historical, conceptual and philosophical foundation. In addition, it frames a complex process in a way that is attractive to the participants and to funders.

It is likely that the kind of researcher who might be effective in an in-residence role is someone with content credibility and also with an ability to listen, negotiate and agree solutions. Utilising established research evidence and collaboratively creating new knowledge is a relational endeavour as much as a technical one¹⁸ and is therefore likely to require a high level of social skills on the part of the researcher. Dialogue between the research and service teams helps to build trust and encourages the participants to rethink the frameworks which shape how practical challenges are conceptualised and operationalised.¹⁹

NEXT STEPS

While the model has promise, there are a number of unanswered questions which merit rigorous evaluation. First, the three examples given in this paper describe different types of in-residence researchers, the first bringing specialist sociological skills, the second specialist mathematical and computational skills, and the third generalist health services research skills. Further work is required to understand the relative merits of different areas of specialisation (including other disciplinary expertise such as health economics or psychology, and subject expertise such as implementation, integration, patient and public involvement, governance or informatics). Since most health service problems cross disciplinary and subject boundaries, this begs a question about whether embedded generalist researchers, drawing on specialist skills and knowledge as required, might be most useful to front line teams.

Second, a deeper understanding is required of the institutional facilitators and barriers in the health service delivery and academic sectors that might impact on the effectiveness of the model, as summarised in [table 1](#).

Table 1 Facilitators and barriers to establishing a Researcher-in-Residence model

	Facilitators	Barriers
Health service	<p>The imperative to address major organisational funding and quality improvement challenges</p> <p>A desire to form outward-looking partnerships to address broader challenges of population health improvement</p> <p>A need to understand whether and how an intervention is making a difference (health and economic benefits)</p> <p>A desire to allocate resources to interventions and service development in an evidence-informed way</p>	<p>Creating the time to engage with and help develop the model</p> <p>Willingness and/or ability to fund the model</p> <p>Concerns that academics may not recognise the nature of decision making in practice</p>
Academia	<p>Growing need for academic institutions to demonstrate their utility to government and other funders</p> <p>Opportunity to meet the desire of some academics to 'make a real difference'</p> <p>Opportunity to address the desire of universities to engage with their local communities</p> <p>Changes in university funding mechanisms which are starting to reward 'impact'</p>	<p>Academic measures of success (peer reviewed publications, grant income, research training fellowships) may not be met by engaging with the model</p> <p>Risk that an embedded researcher may feel that their independence is compromised</p> <p>Willingness of major research funders to support highly applied work</p> <p>Concerns about compromising scientific integrity and willingness to accept that the most successful solution is not necessarily the 'best' solution from an academic point of view</p> <p>Concern that practitioners are not interested in empirical evidence</p>

Third, the 'middle ground' space between the established academic and service sectors that a Researcher-in-Residence would occupy is not currently well defined.⁴ An embedded researcher would need to understand the institutional drivers of different partners—peer reviewed publications, grant income and research studentships might be vital for universities, but demonstrable local population health improvement, financial balance and target achievement would be goals for the health sector. These incentives are not necessarily mutually compatible and there is a risk that an embedded researcher would fail to satisfy either master, or only partially satisfy both. There is also a risk that the independent judgements of academics might in some way be comprised by the proximity of the researcher and practitioner roles, particularly if their findings conflict with an organisation's short-term political interests.²⁰ These issues might lead to problems with the recruitment and retention of in-residence academics. The problem would need to be addressed through an on-going robust training and mentorship programme and up-front discussions about the scale of the programme, how long it will have to operate if it is to address some of the deep-seated cultural differences between the two sectors, and how the success of the initiative will be judged by both partners.

We believe that the Researcher-in-Residence model has the potential to make a significant contribution to the challenge of applying health services research in practice by helping researchers to share their expert academic knowledge and by helping decision makers in the health service to make greater use of that expertise. Nevertheless, the model requires further development and evaluation before a judgement can be made about the value of embedding it as a routine way of working in the academic and health service sectors.

Acknowledgements We would like to thank the staff at each of the three organisations described in this paper for their contribution to developing the in-residence model, in particular

Kate Brown for her contribution to the Modeller-in-Residence example.

Contributors MU and CPa designed the in-residence model that led to this paper and AG and VB made a significant contribution to its implementation. MM had the original idea for the paper and wrote the first draft. CPo evaluated the children's hospital example. All authors contributed to the development of the ideas and to drafting the paper.

Funding This study was funded by Great Ormond Street Hospital for Children, the Health Foundation and the Healthcare Quality Improvement Partnership. The charity for the children's hospital funded the Modellers-in-Residence programme and The Health Foundation funded an evaluation of the programme. DA was funded by the Healthcare Quality Improvement Partnership.

Competing interests None.

Ethics approval Great Ormond Street Hospital Research Ethics Committee approved this study.

Provenance and peer review Not commissioned; internally and externally peer reviewed.

Data sharing statement The qualitative data derived from the evaluation by CPo are available from CPo.

Open Access This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

REFERENCES

- Rycroft-Malone J, Wilkinson JE, Burton CR, *et al.* Implementing health research through academic and clinical partnerships; a realistic evaluation of the Collaborations for Leadership in Applied Health Research and Care (CLAHRC). *Implementation Sci* 2011;6:74.
- Walshe K, Rundall TG. Evidence-based management: from theory to practice in health care. *Milbank Q* 2001;79:429–57.
- Lomas J. The in-between world of knowledge brokering. *BMJ* 2007;334:129–32.
- Marshall M, Mountford J. Developing a science of improvement. *JRSM Open* 2013;106:45–50.
- Jagosh J, Macaulay AC, Pluye P *et al.* Uncovering the benefits of participatory research: implications of a realist review for health research and practice. *Milbank Q* 2012;90:311–46.

- 6 Lewin K. Action research and minority problems. *J Soc Issues* 1946;2:34–46.
- 7 Van De Ven AH. *Engaged scholarship; a guide for organisational and social research*. Oxford: Oxford University Press, 2007.
- 8 Cornwall A, Jewkes R. What is participatory research? *Soc Sci Med* 1995;41:1667–76.
- 9 Catalani C, Minkler M. Photovoice: a review of the literature in health and public health. *Health Educ Behav* 2010;37:424–51.
- 10 Brannick T, Coghlan D. In defense of being ‘Native’: the case for insider academic research. *Organ Res Methods* 2007;10: 59–74.
- 11 Denzin NK, Lincoln YS, eds. *Handbook of qualitative research*. Thousand Oaks, CA, USA: Sage Publications, 1994.
- 12 Misak Ce. *The new pragmatists*. Oxford: Oxford University Press, 2007.
- 13 O’Brien MJ, Whitaker RC. The role of community-based participatory research to inform local health policy. *J Gen Intern Med* 2011;26:1498–501.
- 14 Rowley E, Morriss R, Currie G, *et al*. Research into practice: collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Nottinghamshire, Derbyshire, Lincolnshire (NCL). *Implementation Sci* 2012;7:40.
- 15 Wellcome Trust. Researchers in Residence: Could you inspire pupils with your scientific research? *Wellcome Trust*; 2010 [cited 28 October 2013]. <http://www.wellcome.ac.uk/Education-resources/Engagement-with-your-research/Case-studies/WTDV026892.htm>
- 16 Bate P. The role of stories and storytelling in organizational change efforts: the anthropology of an intervention within a UK hospital. *Interv Res* 2004;1:27–42.
- 17 Schon DA. *Beyond the stable state*. London: Norton and Company, 1971.
- 18 Mannion R, Konteh F, Davies H. Assessing organisational culture for quality and safety improvement: a national survey of tools and tool use. *BMJ Qual Saf* 2009;18:153–6.
- 19 Bushe GR, Markshak R. Revisioning organization development: diagnostic and dialogic premises and patterns of practice. *J Appl Behav Sci* 2009;45:348–68.
- 20 Frenk J. Balancing relevance and excellence: organisational responses to link research with decision making. *Soc Sci Med* 1992;11:1397–404.