



The workforce delivering translational and applied health research: A cross sectional survey of their characteristics, studies and responsibilities



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ABSTRACT

Background: Translational and applied health research, and the workforce needed to deliver it, have grown substantially in the last 10 years and this growth is likely to continue. However, there are few good empirical studies of the workforce and only limited evidence on which to base future policy and practice.

Aim: To provide a better understanding of the workforce that delivers translational and applied health research by exploring who delivers studies, what types of studies are delivered and what delivering them entails and whether this varies across employment contexts.

Methods: A link to an on-line questionnaire was sent to 280 non-medical researchers in England funded by the National Institute for Health Research to deliver translational and applied health research; 168 (60%) responded. Responses were analysed quantitatively.

Findings: Participants were from 11 occupational groups, with nurses (77%) the most common. Most (82%) had worked on clinical trials and almost as many (73%) on observational studies. A fifth had conducted studies outside hospital settings. Participants recruited from Community sites more often reported taking a medical history ($p=0.022$) and carrying out initial assessments ($p=0.028$) and less often reported managing other staff ($p=0.036$). Those recruited through the University Hospital more often reported contributing to development of new studies ($p=0.000$); to research governance ($p=0.001$) and protocols ($p=0.000$); and to writing publications ($p=0.005$).

Discussion: There is greater diversity in the workforce than previously identified, more variation in types of studies delivered and a wider range of settings. Responsibilities vary across employment contexts.

Conclusions: This diversity needs to be acknowledged in educational, training and career planning to sustain capacity for delivering translational and applied health research in the future.

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Problem

Little is known about the workforce that delivers clinical research, where they work and what they do.

What is already known

Research nurses are fundamental to the delivery of clinical trials in hospitals. The recent growth in clinical research has led to an increase in demand for a workforce to deliver more studies.

What this paper adds

The workforce is more diverse, and the types of studies and settings in which they are delivered are more varied, than previously reported. The institutional contexts in which research nurses work offer varying degrees of challenge and scope for developing further skills and experience.

1. Introduction

In the UK, translational and applied health research has grown substantially following the publication in 2006 of the Department of Health's research strategy, *Best Research for Best Health*. This document identified health research as playing 'a key role in the knowledge economy of our country through its contribution to

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international competitiveness and economic growth' and as providing a centrepiece for the UK government's determination 'to raise the level of research and development (R&D).' ([Research and Development Directorate, 2006: 1](#)). Later in 2006 the National Institute for Health Research (NIHR) was established to provide the framework through which this strategy could be implemented. In addition to funding high quality peer-reviewed research through its Research Programmes, NIHR supports translational and applied health research through an extensive research infrastructure which provides practical assistance in the design and conduct of commercial and non-commercial studies, a range of research training programmes which build research capability and capacity, and research information systems which ensure integration across the National Health Service (NHS) and partner organisations (<http://www.nihr.ac.uk/about/>). This extensive and multi-layered support has created a context in which translational and applied health research has thrived.

As in other countries (e.g. [Bell, 2009](#); [Rickard and Roberts, 2008](#); [Wilkes, Jackson, Miranda, & Watson, 2012](#)), the growth of translational and applied health research in the UK has seen a corresponding growth in the workforce needed to deliver it. 'Translational research' aims to turn the discoveries of basic science into new treatments, technologies, diagnostics and other interventions which will provide benefit to patients. It involves, for example, pre-clinical and early phase clinical trials and proof-of-concept studies in humans. 'Applied health research' addresses specific clinical, health services, public health or policy questions. It includes, for example, epidemiological studies, case series and case-control studies, cohort studies, later phase clinical trials, outcomes research and health services research ([Rubio, Schoenbaum, Lee et al., 2010](#); [University of California San Francisco, n.d.](#)). 'Delivering' (or 'supporting') a study, whether translational or applied health research, entails implementing the study protocol on behalf of the Chief and/or Principal Investigators and their collaborators so that the study can be completed successfully and on time. Key features include recruiting the minimum number of participants agreed for the study and collecting and entering research data, all in keeping with Good Clinical Practice (<https://www.crn.nihr.ac.uk/can-help/funders-academics/>). 'Implementing' results is also an important aspect of translational and applied health research but the time taken to establish study results and to test their robustness through publications and peer review means that putting findings into practice is largely outside the scope of research nurses.

The NIHR has been a major funder of those who deliver research in England: in 2015 the NIHR Clinical Research Network alone provided funding for almost 10,000 posts (J. Patterson, personal communication, 13 January 2016) while many more posts were funded through NIHR Biomedical Research Centres, NIHR Clinical Research Facilities and other NIHR infrastructure organisations (<http://www.nihr.ac.uk/about/nihr-infrastructure.htm>). The continued growth of translational and applied health research, reinforced more recently by the UK government's Plan for Growth ([Department for Business, Innovation and Skills, 2011](#)), is likely to create a continuing demand for this workforce in order to deliver studies 'to time and target' in both the commercial and non-commercial sectors ([Spilsbury, 2008](#)). However, there are few good empirical studies of this workforce and only limited understanding of what they do.

2. Literature review

Nurses have been by far the largest group employed to deliver research, although studies have reported other health professionals as also employed in this role ([Eastwood, Roberts, Williams, & Rickard, 2012](#); [Rickard, Roberts, Foote, & McGrail, 2006](#); [Rickard](#)

[et al., 2011](#); [Scott, White, & Roydhouse, 2013](#); [Wilkes et al., 2012](#)). There is now a substantial body of literature on research nurses, also commonly referred to as clinical trials nurses, clinical research nurses or research co-ordinators (e.g. [Barthow, Jones, Macdonald et al., 2015](#); [Castro, Bevans, Miller-Davis et al., 2011](#); [Hill and McArthur, 2006](#); [Rickard et al., 2011](#); [Spilsbury, Petherick, Cullum et al., 2008](#)). While this literature has provided valuable information on the workforce delivering health research, it has a number of limitations. Much is comprised of commentaries rather than empirical studies (e.g. [Bird and Kirshbaum, 2005](#); [Gibbs & Lowton, 2012](#); [Gordon, 2008](#); [Hastings, Fisher & McCabe, 2012](#); [Ledger, Pulfrey, & Luke, 2008](#); [Stephens-Lloyd, 2004](#)) and most of the empirical studies have focused on those who work on clinical trials (e.g. [Spilsbury et al., 2008](#); [Wilkes et al., 2012](#); [Yanagawa, Akaishi, Miyamoto et al., 2008](#)) in a hospital setting (e.g. [Hill & MacArthur, 2006](#); [Rickard et al., 2011](#); [Roberts, Eastwood, Raunow et al., 2011](#)) or on research within a single specialist area (e.g. [Catania, Poiré, Bernardi et al., 2012](#); [Eastwood et al., 2012](#); [Nagel, Gender, & Bonner, 2010](#); [Rickard et al., 2006](#); [Roberts et al., 2011](#)). Translational and applied health research, however, encompasses a much wider range of studies than clinical trials and studies may be undertaken in settings other than hospitals. In addition, as the number of studies continues to grow, the demand for research nurses may exceed the supply available and it may become more difficult to recruit experienced nurses to deliver research ([Pharmaceuticals & Biotechnology Branch, 2006](#)). Relatively little is known about these developments and their implications for the composition of the future research workforce and the nature of their roles and responsibilities. In addition, there are significant methodological limitations to the research nurse literature, with most studies based on small scale convenience samples that have been recruited through a single organisation (e.g. [Catania et al., 2012](#); [Nagel et al., 2010](#); [Rickard et al., 2006](#); [Spilsbury et al., 2008](#)), or through snowball sampling (e.g. [Eastwood et al., 2012](#); [Rickard et al., 2011](#); [Wilkes et al., 2012](#)).

Clearly, only limited evidence is available on which to base future policy and practice in the delivery of health research. This paper presents a study intended to provide a better understanding of the workforce that delivers translational and applied health research. It addresses three main questions: who delivers studies; what types of studies are delivered; and what does delivering them entail? In addition, it explores whether their responsibilities vary across the different contexts in which they are employed.

3. Study design, ethics and participants

3.1. Study design

The study was designed as a cross-sectional, mixed methods study comprising a questionnaire and focus groups. However, topics discussed in the focus groups were not relevant to the questions addressed in this paper and are not presented here.

3.2. Ethics and Approvals

The research protocol was reviewed and approved by the University Research Ethics Committee of Oxford Brookes University (UREC Registration Number 130703). NHS Trust approvals were sought and received from their R&D Department. The work described in this paper was carried out in accordance with the Code of Ethics of the World Medical Association's Declaration of Helsinki ([World Medical Association, 2001](#)).

3.3. Participants

The population of interest was defined by the following criteria:

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