Detailed project description: 11/2004/10

Full title of project

Mobilising knowledge to improve UK health care: learning from other countries and other sectors

Aims and objectives

The overarching **aim** of this study is to inform how the NHS uses research-based information for improved services and better patient care. Specifically, we are interested in how large-scale knowledge mobilisation (KM) strategies are designed and implemented to bridge between research effort and research application. We will do this by collating, analysing and making readily available learning from KM strategies developed and applied in health care (in the UK and internationally), as well as analogous UK experience in social care and education.

Three key **objectives** with associated **research questions** (RQs) are as follows:

1. ***Mapping the knowledge mobilisation (KM) landscape –***
    a. What knowledge mobilisation strategies have been *developed in health care* (in the UK and internationally) to better promote the uptake and use of research?
    b. What analogous knowledge mobilisation strategies have been developed *in social care and education* within the UK?
2. ***Understanding the models, theories and frameworks that underpin approaches to knowledge mobilisation –***
    a. What models, theories or frameworks have been used explicitly – or can be discerned as implicit underpinning logics – in the development of the knowledge mobilisation strategies reviewed?
    b. What evidence is available from existing reviews and secondary sources on the mechanisms of action of these models, theories and frameworks?
3. ***Learning from the success or otherwise of these enacted strategies –***
    a. What evaluative data are available on the success or otherwise of enacted strategies, and what do these data suggest are the most promising approaches to successful knowledge mobilisation?
    b. What formative learning has accumulated through the practical experience of the programmes as implemented?

Background

Achieving a healthcare system of the highest quality depends on making the most effective use of research-based knowledge (Cooksey 2006; Department of Health 2006). Around the globe, huge expenditure supports a growing industry of research to underpin evidence in health care. Studies on diagnostics, prognostics and therapeutics provide fine-grained understandings about the nature of ill-health, its assessment, potential causal pathways, likely trajectory and scope for amelioration through health care intervention. Epidemiological and clinical epidemiological studies are augmented and complemented by a wide variety of health services research – research aimed at exploring the lived experience of ill-health, understanding healthcare-seeking behaviours, and predicting responses of patients to service encounters (including, for example, clinic attendance/re-attendance and concordance with treatment regimes).

Knowing what to do, how to do it, and the likely consequences of clinical interventions are only one part of the knowledge picture to which research contributes. Substantial bodies of research contribute to important policy questions by, for example, mapping health inequalities and healthcare disparities and the dynamics of these, tracking the consequences of system incentives, and clarifying the challenges and opportunities of various performance and regulatory frameworks.

But macro policy and frontline practice are not the only domains in which research has much to offer: on managerial and organisational matters too there is now a large and growing research resource that explores, for example: the dynamics of change and leadership in healthcare organisations; the development and composition of multidisciplinary teams; and the costs/consequences of different models of service design.

An important subset of this work is that devoted to understanding quality and safety issues in health care (improvement science). In this area, many diverse models of quality improvement have been developed or (more often) imported from industry, models such as 'lean', 'six sigma' or 'business process reengineering'. Many of these now have associated research literatures offering insights and evaluations as to their impacts, challenges, pre-requisites and (more rarely) costs (Powell et al. 2008; Boaden et al. 2008).

Despite this explosion of research activity, and despite the considerable attempts to focus and prioritise research effort on areas of greatest knowledge needs (Lomas et al. 2003), few would argue that the linkages between research effort, knowledge enhancement and informed action are yet working to best effect (Lavis et al. 2006; Tetroe et al. 2008; Nutley et al. 2010). *Better understanding of how research-informed knowledge can be shared and applied remains a key challenge.*

Traditional thinking has tended to characterise the use of research as a rational, linear and instrumental process. Research-based 'evidence' – often of the kind that can inform key decisions – is seen as being created in research environments. Such evidence is then passed for application to various 'user' environments, invoking a 'knowledge transfer' model (Davies et al. 2008). What follows from such thinking is an emphasis on dissemination, research 'pipelines' and translation 'gaps'. Yet such models often fail to fit the messy, contested and dynamic nature of much research use (Nutley et al. 2007). Instead, research use is frequently better conceived of as a dynamic, complex and mediated set of interactions between many actors, including policy makers, managers, practitioners, patients, the public and researchers. Such interactions involve multi-way rather than unidirectional flows of knowledge, in which researchers and (potential) research users each bring their own experience, values and understanding to bear in interpreting research and its meaning for local contexts.

Building on this interactive, social and situated understanding of how research-based knowledge actually influences, more sophisticated models of knowledge engagement strategies have been developed. In health care, recent reviews of these (Graham et al. 2006; Mitton et al. 2007; Ward et al. 2009; Best and Holmes 2010; Contandriopoulos et al. 2010) have identified the diverse languages used to describe new models – such as knowledge translation, knowledge exchange, knowledge interaction, knowledge intermediation and knowledge mobilisation – and have begun to map out the empirical support for various mechanisms thought to promote effective knowledge sharing. The work by Ward et al. (2009), for example, identifies five common domains where attention has been paid by those developing new strategies and which could be used to examine case studies of such strategies: (i) problem identification and communication; (ii) research development and selection; (iii) analysis of context; (iv) formulation of specific knowledge interaction activities or interventions; and (v) clarification of the nature of research uptake and use.

Review work and theoretical mapping have therefore provided a terminology and some basic frameworks for describing approaches to knowledge sharing, and many countries have made considerable investments in a variety of knowledge mobilisation (KM) infrastructures and processes (Tetroe et al. 2008; Nutley et al. 2010). What is largely missing however is any systematic research effort to discover, map, conceptualise and learn from the wide variety of knowledge mobilisation strategies that have been developed in health care and other analogous public services. This is not entirely unexplored terrain and there are some existing reviews on which we can build – for example, an earlier review of research use and knowledge mobilisation strategies found in the social care field (Walter et al. 2004) and the work of the Strategic Forum for Research in Education (www.sfre.ac.uk) which has explored the process of creating, mediating and applying evidence about education in the four countries of the UK (Pollard and Oancea 2010). It is to capitalise on this initial review work and the growing variety of knowledge mobilisation strategies internationally that this new work is proposed. The study focuses on knowledge mobilisation strategies at the 'macro' level: that is, the activities undertaken by key research funders, major research producers and various research intermediaries. It therefore complements the scoping review of knowledge mobilisation at the 'meso' (organisation) level recently conducted for the SDO programme (Ferlie et al. 2010), and the recent call by NIHR HS&DR for new empirical work on knowledge transfer and innovation (Research Brief 12/5002).

Need

Despite significant investment in targeted and prioritised health research (Cooksey 2006; National Institute for Health Research 2010), much health research either fails to make an impact on service provision or its impact is patchy or delayed. This is particularly so for those forms of health research which are not about clinical effectiveness (e.g. drug A or drug B) but are concerned with how services are provided (e.g. what organisational arrangements are conducive to effective teamwork across different professions), and the quality and effectiveness of NHS care are poorer as a result. Moreover, the research effort within and for the NHS that is of an instrumentalist kind (most notably, the Health Technology Assessment Programme) has obvious mechanisms in place to ensure such research gets collated and applied (e.g. NICE). In contrast, much other research funded by, or developed within, the NHS, by funders such as the NIHR, the MRC, the ESRC and others, produces findings that do not readily lend themselves to easy dissemination and application. It is to explore approaches that increase the impacts of these investments especially that this application is aimed.

It is recognised that to increase the impact of health and organisational research on service provision there is a need for new approaches that view knowledge creation, sharing and use as social, interactive and dynamic processes (Nutley et al. 2007). There is increasing UK and international experience of such approaches in health care, social care and education but the knowledge and evidence to emerge from this experience has not yet been collated and analysed in a systematic manner. This study will pull this knowledge and evidence together and, working with key NHS stakeholders, will draw out practical lessons that can be used to make current and future NHS initiatives around research use more effective. This will help to close the gap between what is known and what happens in practice and thus contribute to more effective services and improved health (Graham et al. 2006; Woolf 2008).

The study thus meets the following categories of research need:

- ***Expressed need*** *and* ***Organisational focus consistent with HS&DR mission:*** A workshop of senior opinion leaders in the health service management and research community held at the end of 2011 identified research on knowledge mobilisation as a key priority for the HS&DR programme;
- ***Sustained interest and intent:*** Making the most effective use of research-based knowledge to achieve a health care system of the highest quality is a key concern for the NHS both now and in the future as economic, demographic and technological challenges increase;
- ***Building on existing work:*** This study focuses on knowledge mobilisation at the 'macro' level (key research funders, major research producers and research intermediaries). It therefore complements both the scoping review recently conducted for the SDO programme (Ferlie et al 2010) and the current HS&DR research call on knowledge transfer and innovation (12/5002), both of which focus on the 'meso' (organisation) level.

Methods

The overall approach is pragmatic and multi-method. We will use a combination of desk research, telephone and face-to-face interviews, a web-based survey and interactive workshops to address each of the research questions (RQs). The primary outputs will be oriented towards practical application within the NHS and related research agencies (including various intermediaries), although expected outputs will also include contributions to the international peer-reviewed literature. Explanations of the various strands of work are set out below. However, given the interlinked nature of the work, and the need to involve partners and experts in on-going discussions as data emerge, some flexibility around the relative emphasis across components and their timings is to be expected.

A core aim of our analysis is to produce a concept map (Creswell 2009) of KM strategies. This would set out visually the dimensions or clusters of dimensions identified by our review and would provide the first cut of a broad classification of KM strategies. The concept map would draw on and extend existing typologies by bringing these typologies together and combining them with an analysis of the *'theories in*

use' by key agencies. The concept map would be accompanied by a corresponding table of the key underlying assumptions associated with the main concepts and dimensions. We will test the conceptual soundness and completeness of the map and accompanying table in discussions with the international Advisory Board, in the interviews, at the first workshop, and via the web survey. Thus we will revisit and refine the concept map during the different strands of the study.

Study strands

Desk research: We will begin to construct the concept map by making full use of the array of research reviews of KM produced to date (e.g. Graham et al. 2006; Mitton et al. 2007; Tetroe et al. 2008; Ward et al. 2009; Best and Holmes 2010; Contandriopoulos et al. 2010) which draw mainly on published work. Based on our current knowledge of such reviews and some initial keyword searching of key databases we envisage that this meta-review will draw on no more than 30-40 existing reviews. Some of the existing reviews are health, education or social care specific, but most have searched across sector-specific boundaries in their quest to set out the main KM models. An initial scoping of the scale of this task suggests that there is a great deal of overlap in the models reviewed by different authors and that we will quite quickly reach a saturation point where additional reviews do not reveal any significantly new models or ways of thinking about KM. We are also aware that there are significant fault lines in this literature, with different review perspectives containing embedded assumptions about, for example, how they conceive of knowledge, practice or policy processes. It will be important that our concept map captures and highlights such diversity.

At the same time as our initial exploration of the key KM research reviews, we will carry out careful mapping of the key research funders, major research producers and key research intermediaries (e.g. research collation agencies, think tanks, charities, professional and membership organisations). Email engagement with knowledgeable contacts, requests through bulletin boards and list-servers, snow-ball techniques and existing reviews will all be used to identify the main players internationally (in health care) and in the UK (in health care, social care and education). For example, in social care and education we will draw on existing reviews (e.g. Walter et al. 2004; Pollard and Oancea 2010) of the key players in these fields and will work with two key contacts from each of these two sectors to identify a purposive sample of education and social care agencies for both the desk research and interview stages of this study. Review of these materials and compilation of a 'key contacts' database will provide a sampling frame on which future work will be based. Throughout, our focus will be on key agencies that have substantial investment in programmes of knowledge mobilisation (e.g. funders, research producers and intermediaries) rather than on the delivery units, policy settings or other sites of research application. Requests to key contacts in these agencies will solicit documentation regarding institutional knowledge mobilisation activities and any associated evaluative work. Analysis of these documents will further add to the concept map (addresses RQs 1a & 1b).

We will analyse the KM strategies using a range of criteria including: perspective on the nature of the task, focus of KM activities, any apparent complementarities and contradictions within an agency's KM strategy, and complementarities and contradictions across a range of agencies working in the same field.

Any evaluations uncovered of existing knowledge mobilisation work in the agencies will be summarised taking a realist synthesis approach (Pawson et al. 2004); that is, looking for evidence of the impacts of mid-range context-mechanism interactions that provide some explanatory power for why effects are seen. Realist evaluation and synthesis assume that programmes and interventions will work only in particular circumstances and that the purpose of the evaluations and syntheses is to tease out those conditions. The aim is to understand the 'mechanisms' by which an intervention works (or does not) and to explore how those mechanisms work under what conditions: what are the relationships between different mechanisms (m) in different contexts (c) with what outcomes (o)? (Rycroft-Malone et al. 2011). The broad question asked in a realist approach can be summed up as: *"What is it about this kind of intervention that works, for whom, in what circumstances, in what respects and why?"* (Pawson et al 2005: 31). A realist approach does not seek to make overall judgements about success or failure and does not assume that there will be 'one size fits all'

approaches to complex problems. Instead it aims at explanations as to why programmes work in particular ways in particular contexts. Realist evaluation and realist synthesis across multiple evaluations can offer nuanced findings that are useful to policy-makers and potential implementers of similar programmes: not simply whether to invest in a programme or not, but if so, at which sectors or groups to target it, how best to improve implementation and how to increase a programme's impact (Greenhalgh et al. 2011). Thus it is a particularly helpful approach for fields of enquiry like this study in which the aim is not so much to explore which approaches to knowledge mobilisation in health, social care and education work, but what is it about those approaches that works and in what contexts and circumstances and how. It is this detailed exploration and exposition that will make the findings much more usable to others grappling with similar challenges in what are inevitably different contexts. We will be recording and reporting on the evaluative methods and criteria used by the agencies themselves in their assessments (and the implications for the robustness of the conclusions). For example, is the impact of KM strategies assessed using one or more of the following criteria: 'user' awareness, changed attitudes and intentions, changed behaviour, impact on health and social outcomes?

In laying out the theoretical and empirical underpinnings to the concept map of knowledge mobilisation activities, we will link to relevant research reviews and summaries that relate to postulated mechanisms of action (addresses RQ2b). That is, the mapping will have added value by not just being descriptive of theoretical underpinnings but by linking to evaluative summaries of empirical findings and other key resources in those areas. By combining syntheses of published research with the grey literature on knowledge mobilisation practices, unpublished evaluations, and key informants' perspectives on the lived experience of implementation, we hope to build a much richer picture of activity and evidence in the field. Throughout, the guiding principle is to enable rapid learning so that future knowledge mobilisation work can be informed by the widest array of 'evidence': conceptual; formal, research-based empirical; and informal experience. In addition to impact considerations, the analysis will consider the practicalities of mobilisation implementation from these diverse experiences, and a narrative review approach (Mays et al. 2001) will be used to summarise the story-lines of success and pitfalls.

Interviews: From the sampling frame developed as above we will devise an interviewing strategy (telephone and face-to-face, augmented as necessary with email dialogue) to elicit clearer understandings about the models, theories and frameworks that (explicitly or implicitly) underlie the development of specific strategies (addresses RQ 2a). In developing a sampling strategy for the interviews we will pursue first those respondents responsible for a significant *scale* of activity, and those highlighting especially *innovative approaches*. Interviewing will also be used to identify formal and informal evaluative work, as well as to tease out the local learning from implementation challenges (addresses RQs 3a & 3b). The interviews will allow us to revisit and refine the concept map and associated tables.

Given our current understanding of the relevant bodies and agencies (one of the applicants has already compiled a list of some 40 key agencies as part of other work), and given the likely saturation of data as interviews proceed, we would expect to conduct *around 50-60 major interviews* augmented by follow-up conversations and email dialogue. Interviews will be semi-structured and will therefore follow a topic guide while allowing scope for participants to raise other issues. The main topics to be covered will be: the history, origin and development of the knowledge mobilisation approaches used; any models, theories and frameworks that have been used in developing and using these approaches; the nature of and results from any formal or informal evaluations that have been carried out by the agency or of which the agency is aware; any formative learning or practical experience that has accumulated through the agency's use of the approach; the interviewee's assessment of the conceptual soundness and completeness of the concept map and its associated tables. Interviews will be taped and transcribed for ease of use but will not be subject to formal thematic qualitative analysis. Instead the interviews will be analysed for their information content in relation to the three research questions and in particular to research questions 2a and 3a and 3b. All three members of the project team (Professor Davies, Professor Nutley and Dr Powell) will be involved in

conducting the interviews and in data analysis; this will both make the interviewing task manageable within the timescale and will contribute to the richness and robustness of data collection and analysis.

Web-based survey: As key propositions emerge from the mapping work and interviews (e.g. helpful models, theories and frameworks; key challenges and pitfalls; evaluative insights) we will develop a short e-questionnaire (using Survey Monkey or similar) and use this to capture wider perspectives in a more systematic way, drawing on the sampling frame as elaborated above. While the interviews will focus on those agencies responsible for a significant scale of activity and those using particularly innovative approaches, the web survey will be broader and will be sent to *all* of the identified players. The web survey will therefore be more akin to a census than to a sample. Web surveys are a relatively new form of survey but emerging research literature suggests that they have comparable and often higher quality results than traditional surveys and that they have the additional benefits of speed of data collection and reduced potential for human error (Shah et al. 2006; Matteson et al. 2011). A range of strategies will be used to ensure a good response rate (Burns et al. 2008) and we would hope to achieve a response from over 70% of those contacted. The web survey will provide some assessment of the degree of consensus and contention about the emerging findings on key directions in knowledge mobilisation work and its underpinnings. Analysis of these data will involve descriptive statistics (e.g. frequency counts of model applications; extent of agreement/disagreement) as well as thematic content analysis of free text for additional insights (addresses RQ3b).

Workshops: Congruent with the thinking behind this work (that there is no neat separation between knowledge production and knowledge use) workshops will not just be used as 'dissemination tools' but instead will form an integral part of the enquiry methods. Two formal workshops, aiming for 35-40 participants at each, one early in the process (month 6) and one later (month 16), will be used to share the research thinking, preliminary data and analysis, and future empirical and analytic directions. From these we hope to identify (a) areas for refined data gathering, (b) clearer articulation of the mapping domains and supporting literatures, (c) creative ways of presenting findings and insights from our data, and (d) mechanisms for encouraging key actors in the UK to interact with our emerging findings. By actively engaging with and harnessing the insights of the potential research users in this way, we aim to enhance the impact of the research by ensuring that our explorations and the outputs from the study are meaningful to, relevant for and readily usable by these organisations. Participants will be invited from organisations which are key research funders, major research producers and key research intermediaries in health care in the UK (for example NIHR, MRC, ESRC, the King's Fund, the Nuffield Trust, The Health Foundation.) To promote continuity, we hope that in many cases the same individuals will attend both workshops.

The workshops will be facilitated by experienced facilitators who will use a range of interactive methods and processes to ensure the active engagement of all participants. Participants will be actively encouraged to explore and critique the findings from their own organisational standpoints. To enable productive use of the workshop time, participants will be provided with preparatory reading material prior to the workshop. Workshop data will be captured through a range of methods (e.g. audio recording, written notes).

Engagement of an international Advisory Board: The project will recruit from the study team's existing network of professional contacts an Advisory Board of international experts in the field of knowledge mobilisation to provide additional expertise and 'insider' knowledge throughout all stages of the study (n=6). Members will advise on the theoretical aspects of the research, provide insights into the knowledge mobilisation strategies in their own countries, and assist with access to key agencies and individuals. Main consultations here will be via teleconferences, arranged every 3-4 months throughout the project. Such consultation will be in addition to (and will inform) the workshops described above.

Contribution to collective research effort and research utilisation

In the short- and medium- term, the findings from this study will be of benefit to those agencies working in knowledge mobilisation activities at all levels, both within the UK and internationally (including research

funders, major research centres, charities, think-tanks, and professional and membership organisations). Findings should have particular relevance to the NIHR, the MRC, the ESRC, and major health-related foundations such as the King's Fund, The Nuffield Trust and The Health Foundation. The findings from this study will enable such bodies to allocate scarce research resources more effectively; to develop more effective strategies and approaches to knowledge mobilisation; to tailor approaches more closely to the organisational conditions; and to conduct more robust ongoing evaluation of these activities. In the longer-term, more effective use of research-related knowledge will contribute substantially to the delivery of high-quality cost-effective services, producing better health outcomes, improving patient experience and enhancing productivity.

Underpinning the whole research study is the belief that research use is best understood as a dynamic process that is interactive and iterative, collective and social (Nutley et al. 2007). Members of the main bodies to whom the research relates will be actively involved in different stages of the study. They will be contacted in the mapping exercise, for the interviews and for the web-based survey. The two interactive workshops (one at month 6 and one at month 16) will be used to share the research thinking, preliminary data and analysis and future empirical and analytic directions with them. One of the key aims of the workshops will be to identify creative ways of presenting findings and insights from our data and mechanisms for encouraging key actors in the NHS to interact with our findings. We will therefore be discussing with workshop participants the emerging findings, how they map on to the organisations' existing approaches and the communication approaches that could best be used to enable wider awareness and use of the study's findings. In doing so we will enhance the impact of the research by ensuring that the findings, our further explorations and the outputs from the study are meaningful to, relevant for, and informed by, the potential users.

In addition to the major research funders, research producers and research intermediaries who are the main audience for our findings, the findings will also have relevance to those bodies like the NHS Confederation and the CLAHRCs that are supporting research 'pull' and linkage and exchange approaches (Lavis et al. 2006; Lomas 2007) within the NHS. We will work with the NHS Confederation and with the CLAHRCs to ensure that our findings are disseminated in a way that is accessible to managers and others who have responsibility for knowledge mobilisation at the 'meso' (organisation) level.

Approval by Ethics Committees

Full ethical review will be provided by the University of St Andrews Research Ethics Committee. A large part of the work will involve accessing publications and collating information which is already in the public domain (e.g. on websites) or gathering data in the public setting of workshops. Moreover, interviews with major stakeholders will be seeking information about activities that are carried out in the public domain. As such, no significant ethical issues apply to this project beyond the standard considerations common to all research (informed consent; voluntary participation; safeguarding confidentiality).

Plan of investigation and timetable

The various strands of this work (as described above), likely time-scales, and inter-relationships are shown in the table below. The strong inter-linkage between the various strands means that data gathering will need to proceed flexibly to ensure that each aspect is carefully informed by parallel developments. Strong project management will be required to ensure that tasks undertaken are achievable within the time and resource constraints.

Project timetable and key milestones: January 2013 – June 2014[1]

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Desk research	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Interviews				X	X	X	X	X	X	X	X	X						
Workshop 1						X												
Web survey													X	X	X			
Workshop 2																X		
Final report																X	X	X
KM[2] and dissemination																X	X	X

1. *We will seek University of St Andrews ethical approval ahead of the proposed project start date of January 2013.*
2. *As explained above in the Methods section, knowledge sharing activities from this project are an integral part of the research design: Workshop 1 and the web-based survey will provide opportunities to share, refine and test our emerging findings. This line of the table therefore refers only to the activities towards the end of the project, including Workshop 2, other events for key stakeholders, the dissemination of results through such means as the HSRN and other networks, and preparation for presentations at the HSRN annual Symposium.*

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