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Facilitating knowledge exchange between health care sectors, organisations and professions: studying 'boundary spanning' processes and their impact on health care quality

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PROJECT PROPOSAL

1. Full title of project

Facilitating knowledge exchange between health care sectors, organisations and professions: studying 'boundary spanning' processes and their impact on health care quality.

2. Aims and objectives

The primary objective of this research proposal is to explore the processes by which 'boundary spanning' can support horizontal and vertical health care integration through enabling knowledge exchange (as well as knowledge creation) between different sectors, organisations and professions. We will undertake an in-depth, longitudinal case study of a demonstration project that is taking place in four specific topic areas in a deprived area of a Primary Care Trust during the period 2010-2012 and assess whether such processes lead to improvements in the quality of health care.

Our research hypothesis is that boundary spanning processes will stimulate the exchange and creation of knowledge between sectors, organisations and professions and that this will lead to service improvements as measured both by a range of quality indicators as well as patient and carer experience. We will describe and assess the perceived value of boundary spanning processes in each of the four topic areas by posing the following overall question: to what extent - and by what vertical and horizontal processes - has boundary spanning facilitated knowledge exchange and creation across sectoral, organisational and professional boundaries, and what impact has this had on the quality of patient care?

Our proposed study responds to the NIHR HSR call for research to inform policy and practice regarding the development and implementation of effective mechanisms and processes for knowledge exchange.

3. Background

In the health care sector it has been recognised since the 1970s that high quality services, particularly for patients with complex needs, cannot be provided by one healthcare discipline alone or by a single sector. Consequently, there has been a variety of initiatives to promote inter-sectoral and inter-professional working; collaborative multi-professional team working has become a major policy objective of successive governments and an international trend. These initiatives have included:

- the organisation of professionals into multi-disciplinary teams (e.g. community mental health teams);

- geographical co-location of services;
- shared geographical boundaries and/or merger of health and social care agencies;
- initiatives to promote a better understanding of each others' roles (e.g. interprofessional education); and
- the blurring of professional role boundaries in the interests of generic flexible working.

Most recently in the NHS, many of the policy recommendations and deliberations arising from the Next Stage Review *High Quality Care for All* (e.g. Integrated Care Organisations, Polyclinics, Polysystems, social enterprises) and other approaches aimed at increasing integration (e.g. models based on health maintenance organisations in the United States) are reliant to a significant extent upon successful working between different sectors, organisations and professional groups. In the health care context boundaries typically include those between different professional groups (e.g. doctors and nurses, generalist and specialists), as well as between organisations (e.g. acute Trusts and community health service providers), and sectors (e.g. voluntary and social service sectors). For the ambitions of the *Next Stage Review* to be realised, processes of knowledge exchange have to improve across such boundaries. However, sectoral, organisational and professional boundaries can present significant barriers to the exchange of knowledge (Currie & Suhomlinova, 2006) and thereby undermine attempts to integrate health care systems, and ultimately efforts to improve quality and efficiency. For instance, a recent review of current policy frameworks for supporting evidence-based health care specifically argues for greater attention to be paid to fostering 'new boundary spanning mechanisms to encourage knowledge flow across professional boundaries' and attention paid to the means by which different professions can share and debate their 'knowledge' and then embed it into local practice (Ferlie et al, 2009).

In the contemporary challenging economic climate there is an even greater imperative for health care systems to find ways to improve both the efficiency and quality of service provision. A recent review has highlighted that quality improvement can in some cases lead to lower costs (Ovretveit, 2009) and, as Crump & Adli (2009) have pointed out, the work of key pioneers of quality (like Deming, Juran, and Kano) has shown the scope for improving quality and reducing cost in many sectors. As one of the applicants on this proposal (Thomas) has argued, whole system - or comprehensive - integration aimed at reducing healthcare costs and bringing care closer to home requires that vertical and horizontal integration develop in tune with each other (Thomas, 2006; Thomas, 2008; Thomas et al, 2008). The terms 'vertical' and 'horizontal' relate to the idea that diseases are treated at different (vertical) levels of specialisation, whereas environments that more broadly support health require co-ordinated effort and collaborative planning at the (horizontal) level of whole people and communities. Vertical integration involves patient pathways to treat named medical conditions, connecting generalists and specialists (Ramsay et al, 2009), whereas horizontal integration involves broad-based collaboration to improve overall health (De Maeseneer et al, 2008); comprehensive integration includes a good balance of both. As part of the ongoing policy debate about how best to enable cross-boundary working there is increasing interest in the NHS in designing patient pathways coupled with routine monitoring of patient flow, satisfaction and clinical outcomes as a recipe for a high quality and cost-effective health service. Many think a model of vertical integration can be applied in the NHS by means of organisational innovations such as Polyclinics and Polysystems to increase the speed of referral from primary to specialist care. Whilst contemporary policy initiatives in the NHS - such as practice-based commissioning or Integrated Care Organisations - aim for combined vertical and horizontal integration, dominant ways of thinking about how to achieve these, coupled with inadequate training of NHS clinicians and managers and the existence of sectoral, organisational and professional boundaries, are nonetheless likely to emphasise the vertical dimension.

More generally, the ability of collaboration and other network forms to achieve higher quality at lower cost is seriously questioned by the substantive literature (not least because there has not been an easy transition to collaborating across traditional sectoral, organisational and professional boundaries). Collaboration places considerable demands on professionals as they learn to work for purposes other than their personal or their organisation's interests (Huxham & Vangen, 2000a, 2000b). Disparities of objectives and positions of power, as well as diverse organisational cultures and ontological frameworks, distort collaboration (Eden & Huxham, 2001; Lubben et al, 2002) and inhibit learning and change (Thomas et al, 2002). Strategically-orientated networks may increase organisational advantage amongst partner organisations, but often do so at the cost of excluding other communities of interest (Hardy, 1994; Hardy & Phillips, 1998). So it is that studies of public services networks find that, even after successfully achieving new modes of working, governing organisations may simply 'revert to type', re-establishing traditional hierarchical control (Addicott et al., 2007). Indeed, after many years of long-term research in the field, some of scholars conclude that the challenges of interorganisational collaboration are so formidable, and tendency towards collective *inertia* so strong that it should be avoided as far as possible (Huxham & Vangen, 2005).

Given this overall picture, the prospects for purposeful collaboration appear discouraging, to say the least. However, recently there is evidence that more effective, nuanced forms of collaboration may be emerging, not through explicit partnerships however, but from interacting networks of committed and deeply engaged participants (Hardy et al, 2003), and healthcare reforms in Europe now commonly emphasise community participation, interprofessional learning and collaboration across the public and independent sectors. In complex, pluralist domains such as health care, much of what constitutes useful work takes place in the micro-practices between practitioners, and in their interactions with service users. Often below the radar of official organisational scrutiny, a less visible aspect of collaboration takes place in these peripheral spaces, occupied by emotionally-invested participants (Fischer, 2007). And - unlike the strategic and political advantages that may occur in formal organisational relationships - a characteristic of informal collaboration is that it is not just a means of exchanging existing knowledge, but of creating new knowledge and innovation. Relatedly, the distributed leadership literature reveals a similarly promising perspective: groups that are deeply interconnected across formal organisational boundaries have considerable potential to achieve concerted action. Where leadership develops as a distributed property of a network of interacting individuals, the knowledge, initiative, and creativity that emerges between them has distinct advantages over traditional, hierarchal forms of leadership - particularly when tackling complex, interdependent problems that require innovation (Bennett et al, 2003; Pearce, 2004).

This proposal is premised on the basis that there is an urgent need to learn more about vertical and horizontal integration activities that aim, through ongoing whole-system inquiries and action, to allow the parts (care of specific diseases) and the whole (the health of individuals, communities and healthcare systems) to remain in tune with each other (Stange, 2002). The broader literature summarized above supports a fundamental assumption of our proposal which is that organisational and cultural factors are crucial in understanding how knowledge is exchanged and services can be successfully integrated, and therefore that 'quality' should be largely seen as a human (rather than solely technical) accomplishment. This is the role that boundary spanning processes - of the type we will study - seek to fulfil.

3.1 Boundary spanning

'Boundary spanning' interventions have the potential to promote such integration in the interests of quality of care, but the processes through which they can produce improved co-ordination between different sectors, organisations and professionals have not been studied in the contemporary health care context. 'Boundary Spanning' describes individuals who

work in groups but have ties across boundaries that divide their colleagues (Ehrlich & Horvath, 1999). Such individuals have been described as organisational liaisons and 'key nodes in information networks' in theories introduced by Adams, (1976, 1980) and Tushman (1977, 1981a, 1981b). The boundary spanning role has been described as dually serving to process information and provide external representation, as delineated from the role of the formal authority in an organisation (Aldrich & Herker, 1977).

In an extensive systematic review of the diffusion of innovations in health care organisations (undertaken by the lead applicant (Robert) and colleagues covering the period up to early 2005), empirical studies exploring the role of boundary spanners were extremely sparse (Greenhalgh et al. 2005). Of those studies that had been undertaken the majority explored knowledge exchange across single (e.g. profession to profession) rather than multiple (e.g. between professions in different organisation and sectors) boundaries. One notable exception studied barriers to the spread of innovation in multi-professional health care organisations in the UK, and found that strong uni-professional communities of practice block external input from other groups and retard innovation (Ferlie, et al., 2005). A later case study of how knowledge was shared between two NHS teaching hospitals, district general hospitals, Primary Care Trusts, a Strategic Health Authority and a university medical school took a neo-institutional organisational sociological perspective. This study suggested that knowledge sharing could be enabled within similar organisations but that this was much more problematic across different organisations and professional groups (Currie & Suhomlinova, 2006). In this study hospital doctors were found to focus their knowledge sharing activity upon relationships with their peers within the hospital boundary and downplayed any contribution that GPs or commissioning managers might make to service development. Similarly, between professionals boundaries knowledge flows appeared one way - from hospital doctors to other professionals. In a study of the capacity for innovation in primary care, one of the current applicants (Thomas) noted that top-down processes to ensure best practice, and bottom-up facilitation efforts both failed to produce innovation (Thomas et al., 2005). Further US-based research confirms that professionals do not always contribute to the effective diffusion of innovation in medical practice, leading to both over- and under-utilization of certain innovations (Adler & Kwon, 2009).

Boundary role persons, or boundary spanners have been proposed as a means of overcoming such barriers. A further NHS primary care-based study, this time applying a survey-based social psychological framework, examined how boundary spanners' characteristics and behaviours related to the effectiveness with which dyads of groups jointly work together (Richter, et al., 2006). The study found that the productivity of group collaboration was predicted by boundary spanners who had frequent intergroup contact and high organisational identification. Boundary spanning between diverse institutional sectors in mental health, rather than between members of multi-professional teams, has also been studied utilizing formative ethnographic methods (McMurray, et al., 2006). Other commentators have suggested that organisational forms like networks of health care professionals can cause fragmentation and power differentials that challenge work relationships (Currie, Finn & Martin, 2008). A recent study of knowledge sharing within NHS networks examined boundary spanning and found that managerialist and policy efforts towards structural change had limited effect on knowledge sharing. Rather, social and political relations between team members were identified as the medium for sharing knowledge in organisational change efforts (Currie, Finn, & Martin, 2007). Similarly, a study of the application of a diffusion of innovation framework for information systems research in NHS general medical practice, identified issues associated with professional cultures but facilitating conditions and individual roles were not examined in any depth (Wainwright & Waring, 2007).

Other reviews examining the links between external boundary activities, internal team processes and their interdependence have been explored in the UK public policy landscape (Williams, 2002), and in the broader management literature relating to team boundary spanning (Joshi et al., 2009). For example, facilitating knowledge exchange across project boundaries has been described in multidisciplinary teams (Ratcheva, 2008) and in knowledge teams in software development (Faraj & Yan, 2009). Another example is the use of 'translators' and 'knowledge brokers' (Hargadon and Sutton 1997) to spread knowledge, capture good ideas, and act as go-betweens for participating organisations (Brown and Duguid 1998). Through case studies in the UK public sector - and drawing on various disciplines - Willams' (2002) identified six themes or perspectives relating to the role of boundary spanners: networker, innovator, 'cultural broker', collaborator, leader and whether such individuals are 'born and not bred'. Yet Williams' literature review (2002) concluded that research evidence was 'weak on processes and effectiveness' and fails to explain the link between individual and team behaviour and outcomes.

And so, despite the emergence of the concept of boundary spanners in the fields of behavioural psychology (Adams) and organisation theory (Tushman, Aldrich & Herker) as long ago as the mid-1970s there is a paucity of empirical studies exploring the role of such individuals in health care systems and only very limited evidence exists about how such explicit attempts to improve cross-boundary knowledge exchange have an effect upon the quality of health care. Although a small number of studies of boundary spanning in the health care setting have been carried out, few have utilized rigorous empirical methods or have focused on the detailed processes by which such interventions have helped improve the vertical and horizontal integration of health care services, and on the quality of patient care. Furthermore, most studies have rarely taken the time to construct theories or explanations for what they observe or find in their analyses (see Grol et al, 2007, for a recent critique of the atheoretical nature of the vast majority of quality research in health care and a call to researchers to make more systematic use of theories in evaluating interventions). This proposal seeks to address this research gap by using mixed methods to study the role and impact of contemporary boundary spanning activities on the integration of health care services and the delivery of high quality patient care in four specific topic areas. Given the paucity of in-depth studies to date, we propose focusing on the precise mechanisms of everyday knowledge sharing activity.

4. Methods

4.1 Design and theoretical /conceptual framework

We will use an in-depth longitudinal, case study (see Box 1) approach. Our extensive fieldwork will encompass the four specific topic areas in which boundary spanning activities will be undertaken as part of the case study. Research methods will include ethnographic fieldwork through: non-participant observation, interviews centred on individuals in the boundary spanning groups, participant (boundary spanning individual) diaries, ongoing review of project documentation, and patient & carer focus groups. This qualitative fieldwork will be supplemented with a pre- and post-survey questionnaire and secondary analyses of routine datasets.

Organisational case studies are a preferred research method within complex and dynamic contexts where it is difficult to isolate variables or where there are strong interactions between variables (Yin, 1994). The case study can generate hypotheses from exploratory data which can then be tested in wider samples using different methods, and - particularly relevant to this proposal - they address questions of process as opposed to the input-output model of much quantitative research. Process research is characterised by the dynamic study of behaviour within organisations, focusing on organisational context, activity and

actions which unfold over time (Pettigrew, 1990; Langley, 1999). Making sense of processes will be especially useful for examining the role of boundary spanners in the dynamic context of cross-boundary working. Our case study research strategy is therefore particularly well suited for a detailed investigation of people in different organisations, in their local context, and over time.

BOX 1 Case study: the Southall Primary Care Development project

Our case study is a project designed to improve services through collaboration between general practitioners, community services, voluntary groups and acute specialists in the Southall area of London. The project includes the development of a network of leaders across organisational and community boundaries to facilitate knowledge exchange, and is directly linked with a programme of 'whole system' stakeholder conferences to create organisational learning and change, together with community development. The project is being led by one of the applicants (Thomas) as part of his role within Ealing Primary Care Trust where there is sustained political support and understanding for this way of working from local statutory organisations, in partnership with voluntary sector agencies. Four topic areas will be covered by the project which will form our case study:

1. Dementia
2. Child & Family Health
3. Depression & anxiety in people from black and ethnic minority backgrounds
4. Diabetes

The Southall Primary Care Development project itself is bringing people from all parts of the health care system in Southall together at 'stakeholder conferences' on four occasions (in May, July and November 2010, and in May 2011) to share their experiences, consider data, exchange views and agree actions to be completed as they relate to each of the four topic areas. Preparation for the project began in November 2009 with focus groups to understand different perspectives and a stakeholder conference to set the scene; these events were attended and observed by members of the research team (Thomas, Robert). The next stakeholder conference will take place in May 2010 with the aim of shaping the agreed priorities in each of the four topic areas (and will again be observed by the research team), with a final conference planned for May 2011 where the findings from the project will be disseminated.

A **multidisciplinary leadership group** in each of the four topic areas will be formed in Spring 2010 to include people from different backgrounds who have knowledge of what is happening in different parts of the wider health care system; the teams will be supported by a university course (starting in April 2010) to lead developments in each of the four topic areas. Members of the leadership groups will form an action learning set which will focus firstly, on accessing the research knowledge and organisational techniques needed to support and develop the work of networking across boundaries, and then, secondly, they will establish a programme of whole-system collaboration for public health and wellbeing, which the cohort will facilitate. Work and personal development within the action learning sets will be supported by members maintaining diaries and participating in member weblogs, which will facilitate communication and support between meetings. This network of leaders will work closely with the series of stakeholder conferences, identifying work streams and feeding back learning. The **stakeholder conferences** will bring together diverse groups of organisational and community representatives and service users, in a series of four day-long workshops. These events will inform the development of the work programmes in each of the four projects, enhance learning about systemic obstacles to integrating services and

initiatives, and facilitate communication and exchange between diverse groups. The first of these whole-system events will focus on developing a number of linked priority areas in each of the topic areas. Participants will identify existing strengths and opportunities for collaboration, and identify obstacles to integrating services and approaches. The second event will focus on reporting progress, feeding back learning from the network action learning sets, and identifying means of further developing and integrating services across the locality. The third event will be used to feed back progress from the network action learning sets, and will also identify key learning points for further collaboration and integration of services. A further focus of this event will be to identify next steps in further developing community integration and service delivery. The whole system events will be organised in conjunction with a public outreach campaign, with links to local media, and supported by a public health and wellbeing programme website. Both the multidisciplinary leadership teams and stakeholder conferences will be developed and are being funded from local organisational resources.

The four multidisciplinary leadership groups - and the individuals that comprise them - will be the focus of our research as they work as boundary spanners in the vertical dimension to improve care pathways and the horizontal dimension to facilitate inter-disciplinary collaboration and learning.

The proposed study will explicitly set out to explore the theoretical framework (theories, assumptions, key concepts) for boundary spanning that underpins the case study. For example, previous work involving the lead applicant (Robert) has presented different conceptual and theoretical bases for the spread of innovation in service organisations, ranging from unpredictable and emergent (bottom-up) processes, through negotiated and enabled facilitation, and onto the scientific and planned (top-down) interventions. Through our fieldwork we will seek to make the framework operating in the case study explicit and explore whether it is appropriate (based on our review of the research evidence and empirical data) to meet the agreed priorities in each of the topic areas. The rationale for highlighting the importance of these underlying frameworks is that - as a number of influential researchers have proposed (Argyris and Schön, 1978; Senge, 1990) - behaviour does not occur by chance but is guided by 'mental models' and intrinsic 'theories of action'. A key part of our assessment of the boundary spanning processes under study will therefore be to surface the mental models/theories in action that the participants are acting on. We will explore whether the models imparted during the case study have actually been translated into practice and are appropriate for facilitating knowledge exchange and leading, and spreading and sustaining high quality health care on the ground.

4.2 Strategy for reviewing literature

Phase I: Literature review (see flow diagram in attachment 2): our literature review of key management, organisation and knowledge management journals and books will update and extend the previous review undertaken by the lead applicant and colleagues (Greenhalgh et al, 2005) by identifying state of the art concepts, models and theories in relevant fields and establish the form and extent to which these are present in the selected case study. A search of the literature will be conducted using key electronic databases including Medline, the Applied Social Sciences Index and Abstracts (ASSIA), and the Web of Science. Searches will include a wide range of 'boundary spanning' synonyms in any team context in the health care sector, and also include hand-searching of the key management, organisation and knowledge management journals and texts. The search will then be extended to additional terms to include 'multidisciplinary', 'interprofessional' 'healthcare',

'teamwork', 'collaboration' and 'primary care' synonyms alone and in combination. Through the scoping phase search terms may be changed to provide the most relevant references for the health care context. In addition to this conventional literature review we would conduct a review and content analysis of other relevant NHS programmes or projects seeking to facilitate knowledge exchange and support vertical and horizontal integration of health care services; this will enable us to identify and compare key themes, focal knowledge and skills, and delivery methods. This will help reveal where our chosen case study is unique, and identify any differences in themes, focal skills and methods. This scoping review would be undertaken primarily through the relevant formal and informal networks of which one of the applicants (Thomas) is a leading member.

4.3 Data collection *(see flow diagram in attachment 2 for summary of six phases to the research)*

Our approach to data collection and analysis will be to use a preliminary theoretical framework (Miles, 1979) drawn from the literature review; data analysis will be a combination of induction (data-driven generalisation) and deduction (theory-driven exploration of hypotheses) (Langley, 1999). This approach has been used previously by organisational researchers in the NHS (for example, Fulop et al. 2005). Our fieldwork will seek to provide a 'close-to' record of what happens once the boundary spanning groups are working in the four topic areas. In order to capture this we will (a) study the cohort of boundary spanning groups throughout the project by means of a combination of all of the various qualitative data collection methods described below, and (b) assess the value of the constituent parts of the project (for example, the leadership training, opportunities for joint reflection on amalgamated data, cycles of inquiry and action, and work on identified quality improvement projects) from the perspective of the participants themselves by means of semi-structured interviews and participant diaries. We will pay equal attention to capturing instances of (a) knowledge creation and exchange between different sectors, organisations and professions and then prospectively track how these lead (or not) to the implementation of improvements in the quality of service provision, and (b) the barriers to such processes.

Phase 2: Induction, familiarisation and relationship building: firstly, we would make contact and meet with the formal leaders of the Primary Care Development project in Southall and identify early 'key informants' (Bate & Robert, 2007a) associated with each of the four topic areas - including voluntary and community groups and service users - to help get an early 'lie of the land' and begin to develop relationships and clarify expectations and fruitful lines of inquiry. We would also conduct a contextual inquiry (Raven & Flanders, 1996; Beyer & Holtzblatt, 1998; Coughlan & Prokopoff, 2004) to gain an appreciation of the socio-organisational environment within which the boundary spanning processes we will be studying are situated and embedded. This will include discussions with participants to recapitulate on the history, origins and rationales of the project and understand the contexts within which it has unfolded to date. It should be noted that we would anticipate that much of this familiarization and relationship building will have been completed before a research grant may be awarded through our ongoing attendance at the management team meetings for the project from November 2009 onwards. Secondly, we would undertake a content analysis of the documentation relating to the Primary Care Development project in Southall to: a) identify aims and objectives, key terms (Bolden & Gosling, 2006), themes and methods being employed, and b) begin to surface, describe and make explicit the 'espoused' theories and models (Argyris & Schon, 1978) underlying the chosen approach to boundary spanning (assumptions, values, concepts). As argued earlier, making the (often) implicit explicit in this way will be crucial to the evaluation process. As part of this first phase we will be able to draw on secondary data provided by NHS Ealing, including routine data, business plans, previous related schemes and any evaluation reports.

Phase 3: *Scoping Observation and Tool Design:* to help inform our overall study of the impact of boundary spanning processes we will begin our scoping observations as soon as ethics is approved. Individuals involved in the boundary spanning intervention under study will be conducting focus groups with their own established patient reference groups in Ealing to collect the perceptions of services provided for patients and their informal carers. As part of the intervention, focus groups will also be initiated with staff and practitioners in local GP surgeries to determine what service improvements may be worth developing and delivering. Discussions between team members at these focus groups, and at their team meetings, will be observed, and it is expected that this will be an iterative process throughout the intervention . Further, our research interviews (*see phase 4)* with team members who conducted and participated in focus groups will deepen our understanding of how sectoral, organisational and professional boundaries impact upon the lived experiences of staff and practitioners, and how efforts to enable vertical and horizontal integration of services might improve those experiences; the findings from the focus groups that are undertaken as part of the boundary spanning intervention under study will therefore help us both refine our overall research approach (including assisting with the design of several of our later research tools) and inform our final evaluation of the project. We will conduct a short Knowledge, Attitudes and Practices (KAP) questionnaire survey relating to the four topic areas which will be sent to a stratified, random sample of named staff (including GPs, nurse practitioners and other staff groups) in (a) each of the 26 general practices in Southall, (b) the remaining practices elsewhere in NHS Ealing, and (c) practices in neighbouring primary care trusts in West London. KAP studies are highly focused and seek to measure changes in what is known, believed and done in relation to a particular topic. In this vein the questionnaire will be designed to assess: what respondents know about available local services relating to the four topic areas; what they think about these services; and the ways in which they demonstrate their knowledge and attitudes through their actions (in terms of, for example, making referrals, advice-seeking, collaboration and giving information to patients). The questionnaire will also directly explore respondents' views as to the nature and extent of the vertical and horizontal integration of services in relation to the four topic areas, the formal and informal networks of which they are part relating to each topic area, and any specific knowledge exchange activities in which they are already involved. The questionnaire will be designed by the core research team in conjunction with the advisory reference group for the project (ensuring a wide range of perspectives) and piloted with staff from 3 general practices in NHS Ealing and a neighbouring PCT.

Phase 4: Programme engagement and immersion ('deep dive') and 'thick/rich description': following our baseline assessment and the design of our research tools, our in-depth qualitative fieldwork will comprise: non-participant observation, participant interviews, participant diaries, and ongoing collation and analysis of project-related documentation. All of our qualitative research will be grounded in the real-life experiences and events of the boundary spanning individuals and groups, and the participants in the wider project in each of the four topic areas; this 'actor centred' approach will allow us to focus on the interactive, pedagogic and political processes which shape the individual (and collective) development and impact of the boundary spanning individuals and teams (thereby taking in the 'facts on the ground'). Given that knowledge is mainly tacit knowledge and is shared face-to-face in real time as problems arise, it will be necessary to complement a standard interview-based approach with **observation** of knowledge exchange and creation within the case studies (Currie & Suhomlinova, 2006). This would involve observing the boundary spanning individuals and groups *in situ;* two members of the research team (Robert & Nasir) would therefore attend the (a) action learning sets and (b) stakeholder conferences to observe them in action and to interact informally and get 'live commentary' from those who are participating in them. Contemporaneous fieldnotes would be supplemented by the use of an audio diary by the researchers immediately after each observation 'event'. These fieldnotes and audio diaries will be analysed (see section 5.5

below) as part of the overall research evaluation. In parallel to the observational fieldwork we would undertake tape-recorded, semi-structured **participant interviews** in order to compare what was/is being provided in terms of support for cross-boundary knowledge exchange and creation (and the way it was/is provided) with what participants felt they needed and wanted. The specific questions to be asked at these interviews will be developed and refined as the data collection process unfolds and will, wherever possible, be 'grounded' in critical incidents and the real-life experiences and events of participants. Questions will however largely focus on the 'how' and 'why' to elicit rich information about boundary spanning and knowledge exchange processes targeted at the improvement priorities identified in each of the topic areas, and will include exploration of the interactions of stakeholders with each other, and highlight any barriers to knowledge sharing between stakeholders. Selecting participants to be interviewed will be via a '360-degree' approach for systematic coverage of the whole system; the four leaders of the boundary spanning groups in each of the topic areas would be the focus of the approach and the first to be interviewed. The '360-degree' method for gathering feedback is often associated with annual performance appraisals of staff by seeking input from all members of an individual's work group, including those with both higher and lower levels of line authority and those serving in different roles (Ward, 1997). For the purposes of this research, we will apply the concept of '360-degree' to identify participants to interview across the sectoral, professional and organisational boundaries represented within the project; in this way all participants being interviewed are considered key stakeholders in the boundary spanning group work. This will mean that any individuals who come into contact with one or more of the four boundary spanner leaders as a direct consequence of the boundary spanning group work during the case study would be invited to participate; this might include hospital consultants, GPs, nurses, managers and voluntary sector workers. Where relevant we would conduct repeat interviews with key individuals and members of the groups at various points in order to monitor any change of attitudes or experiences over time. The qualitative fieldwork will also include in-depth, embedded case studies of four individual boundary spanners (the leader and two other members) drawn from each of the four topic areas to enable an assessment of (a) the impact of the project on the individual development of the participants, as well as (b) the impact of the boundary spanning activities on a sample of specific quality improvement priorities pertaining to their specific topic area. We will adopt an 'autoethnography'/narrative autobiography (Cortazzi, 2001) approach that will draw largely on the self-completed **diaries** that members of the boundary spanning groups will be asked to maintain as part of their training and activities throughout the project. Diaries as a research method are ideal for capturing details that exist in complex social structures, beyond so-called technical work or formal procedures. As an ethnographic method, diaries can provide scientific observations in situations where a researcher cannot be present (Elliott, 1997) and capture reflections upon interpersonal processes (Bolger et al, 2003). Other than the nominated leaders of the four groups, the remaining two boundary spanners from each of the four topic areas who will be invited to complete a diary will be identified by their roles which cross across known organizational, sectoral and/or professional boundaries; each will be asked to record weekly to fortnightly diaries which address knowledge, attitudes and practices in their work and how they perceive these to be changing (or not) as a result of the project (with specific reference to improving the vertical and horizontal integration of services). Diaries will be brief and semi-structured, directing responses to a few specific questions about progress towards self-defined goals over time, reflection about knowledge exchange and creation processes within and across groups, and include an open-ended question allowing for subjective narrative. Professional time spent recording diaries will be kept brief to ensure on-going involvement of participants. Further, at the onset of the study, and in an effort to decrease attrition due to time burden, respondents will be invited to collaborate in formalizing the diary design to ensure the most convenient format and timing for diary recording. Finally, as part of the

qualitative fieldwork we will collect and analyse relevant **documentation** such as the minutes of meetings and email discussion lists on an ongoing basis.

Phase 5: End of project evaluation*:* this will comprise a repeat of the earlier questionnaire survey, secondary analyses of routine datasets and patient & carer focus groups. We will repeat our **questionnaire survey** in (a) each of the 26 general practices in Southall, (b) the remaining practices elsewhere in NHS Ealing, and (c) practices in neighbouring primary care trusts in West London, and observe any differences in responses from each of - and between - these three groups compared to the baseline assessment (see above). As an integral part of the project NHS Ealing will be monitoring on a PCT-wide basis the following **routine datasets** with regard to patient contacts in each of the four topic areas: (a) EMIS/Vision (software systems used for practice management and patient records in primary health care), (b) RiO (a clinical information system for community staff which is being deployed throughout London as part of the National Programme for IT), (c) Adastra (a patient management system for unscheduled care across England that includes episodes of patient care in, for example, GP Out-of-Hours, Walk-in Centres, Minor Injuries Units, and Community Nurse Teams), and (d) Secondary Uses Service (SUS) including Hospital Episode Statistics (HES) which allows practices to see how the way they commission services and refer patients compares with other practices locally and nationally, and also enables them to see how they care and treat on patients with particular conditions compares to other practices. The data to be monitored by the PCT will be determined by the priorities for improvement identified by participants in the project once the work in the topic areas begins in spring 2010 but may, for example, include measuring impact on diagnosis, treatment, patient flow and clinical outcomes. One of the applicants (Thomas) currently holds a grant from the North-West London CLAHRC to test and refine the data generating methods and database interrogation planned for the Southall project. We will conduct secondary analyses of these datasets which will focus specifically on indicators that we would hypothesise - as a result of the boundary spanning processes that we observe during our fieldwork - should see improvements in the quality of patient care over the course of the project in the participating general practices in Southall (compared to the PCT as a whole). However, whilst knowledge exchange can empower an individual to avoid costly referrals it can also potentially raise awareness of hidden problems and precipitate referrals; our secondary analyses of the datasets will examine both of these scenarios. Finally, we will undertake **focus groups** at the end of the project with patients & carers from each of the topic areas. These focus groups will explore the perceptions of the patients & carers as to the real (or perceived to be likely) impact of the improvements made and reported as part of the project on their own experiences of care and treatment in Southall (with particular regard to the impact on patients & carers of specific attempts to improve the vertical and horizontal integration of services).

4.4 Data Analysis

As stated in the 'aims and objectives' above, our research hypothesis is that boundary spanning processes will stimulate the exchange and creation of knowledge between sectors, organisations and professions and that this will lead to service improvements (as measured by a range of quality indicators including patient and carer experience). We will describe and assess the perceived value of boundary spanning processes in each of the four topic areas by posing the following overall question: to what extent - and by what vertical and horizontal processes - has boundary spanning facilitated knowledge exchange and creation across sectoral, organisational and professional boundaries, and what impact has this had on the quality of patient care? In seeking to test our hypothesis we will undertake four specific and related activities (details of which are provided above): (i) provide a rich ethnographic account of all the boundary spanning processes (horizontal and vertical) that occur within each of the four topic areas as we observe and follow them throughout the duration of the

overall project; (ii) monitor a range of routine datasets and quality indicators pertaining to the three topic areas across the whole PCT, including making comparisons between (a) the 26 general practices in Southall and (b) practices from the remainder of the PCT; (iii) undertake a pre- and post-project questionnaire survey of selected staff in (a) each of the 26 general practices in Southall, (b) practices elsewhere in NHS Ealing, and (c) practices in neighbouring PCTs in West London; and (iv) conduct post-project focus groups with patients and carers in each of the topic areas as to their experiences of care and treatment.

The research team will iteratively analyse the data from the four activities above and share our evolving interpretations as the research unfolds (Isabella, 1990), jointly exploring the significance of the findings and building theory from our qualitative, quantitative and secondary data along the lines described by Eisenhardt (1989). In terms of our final findings our intention is to generalize in a theoretical/analytical rather than statistical manner (Eisenhardt, 1989; 1991; Yin, 1994). The research team is experienced in the use of framework analysis as a means of managing and organizing complex qualitative datasets and we will use this approach in order to assist our development of key themes reflecting the perceptions of interviewees from the various sources described above, our observational data and issues evident in documentation. Transcripts, fieldnotes and document content analysis will be entered into 'Framework' software to assist data interpretation. In presenting our findings, temporal bracketing and narrative strategies will be utilized in a holistic analysis so that data remains contextualized. Our interpretation of the data will be checked through feeding back our initial findings to the leaders and participants in the project. Completion of this process is essential if the proposed combination of (largely) case study-based research is to result in more than interesting vignettes from each of the topic areas and boundary spanning groups. Our overall aim is to make a wider contribution to the theory and practice of implementing quality improvements through the vertical and horizontal integration of services.

7. Plan of investigation and timetable

Attachment 2 to this proposal presents an overview of the research timetable and its six constituent phases. The milestones in column one in the table below provide an overview of activities over the duration of the Southall project. Column two in the table indicates when the various research activities will be undertaken but is not intended to reflect the ongoing observational work, or sharing and sense making of emerging findings between the research team that will characterise the work throughout. The Southall project began in Autumn 2009 with focus groups led by NHS Ealing to understand different perspectives and a Stakeholder Conference to consider these different perspectives; this latter event was attended and observed by two members of the proposed research team (Robert, Thomas) and the proposed full-time researcher on the proposal (Nasir) is now an invited observer of the management team for the Southall project and will be attending all their meetings in the period December 2009 to spring 2010. An application for NHS research ethics approval was initially submitted March 2010 and approved in July 2010.

Southall project milestones	Planned research activities (excluding ongoing observational fieldwork and sensemaking)
2010 Spring	

Rapid Appraisals for deep understanding Systems modelling. Set up database searches Learning Events Stakeholder Conference to shape pilot changes (22 April) Residential workshop (28 - 30 April)	Update and extend literature review Map contemporary projects Induction and familiarization: - scoping interviews - confirm boundary spanning groups & leaders - identify research participants
2010 Summer/Autumn/Winter	
Focus groups with stakeholders Stakeholder Conference to agree plans (8 July) Pilot changes Stakeholder Conference to feedback conclusions and start a new cycle of inquiry and action (18 Nov)	Baseline assessment and tool design: - design and field survey - co-design participant diaries Project engagement and immersion: - observation - interviews - diaries - documentation
2011 Spring	
Learning Events & Web-based Educational materials Stakeholder Conference to disseminate findings (April)	End of project evaluation: - repeat survey - dataset analyses - focus groups
2011 Autumn/Winter	
	Analysis, writing up and dissemination: - framework analysis - sense-making - sharing of findings

8. Service users/public involvement:

Appropriate means of access for exploring patient experience will be consistently discussed in the field and within the research team, always with consideration of ethical parameters. The boundary spanning intervention under study (through four multidisciplinary teams) will design and implement their own service user involvement thorough invitations to attend topic specific focus groups and local stakeholder events. Our field-based researcher will collect data pertaining to patient and public involvement in the intervention through non-participant observation. The Southall project will be evaluated for its ability to include services users in their iterative cycles of service improvement by each of the four topic groups. Additionally, at

the end of our study we will conduct focus groups with patients and carers in the local area to qualitatively explore their experience of efforts to integrate care across sectoral, organisational, and professional boundaries.

8. References

Adams, J.S. 1980, "Interorganisational processes and organisation boundary activities", *Research in organisational behavior,* vol. 2, pp. 321-355.

Adams, J.S. 1976, "The structure and dynamics of behavior in organisational boundary roles", *Handbook of industrial and organisational psychology,* pp. 1175-1199.

Addicott, R., McGivern, G., Ferlie, E. & Surrey, T.W. 2007, "The distortion of a managerial technique? The case of clinical networks in UK health care", *British Journal of Management,* vol. 18, no. 1, pp. 93-105.

Adler, P.S. & Kwon, S.W. 2009, "Unreliable Allies: The Diffusion of Innovations Among Professionals" Available at SSRN: http://ssrn.com/abstract=1329141.

Aldrich, H. & Herker, D. 1977, "Boundary spanning roles and organisation structure", *The Academy of Management Review,* vol. 2, no. 2, pp. 217-230.

Argote, L. 1999, *Organisational learning: Creating, retaining, and transferring knowledge,* Kluwer Academic Publishers.

Argyris, C. & Schon, D.A. 1978, *Organisational learning: A theory of action perspective.* Addison Wesley, Reading, MA.

Bate SP and Robert G. 2007, *Bringing user experience to health care improvement: the concepts, methods and practices of experience-based design*. Oxford; Radcliffe Publishing.

Bennett, N., Wise, C., Woods, P.A. & Harvey, J.A. 2003, "Distributed leadership: a review of literature", National College for School Leadership.

Beyer, H. & Holtzblatt, K. 1998, *Contextual design: defining customer-centered systems,* Morgan Kaufmann.

Bolden, R. & Gosling, J. 2006, "Leadership competencies: time to change the tune?" *Leadership,* vol. 2, no. 2, pp. 147.

Bolger, N., Davis, A. & Rafaeli, E. 2003, "Diary methods: Capturing life as it is lived", *Annual Review of Psychology*, vol. 54, no. 1, pp. 579-616.

Brown, J.S. & Duguid, P. 1991, "Organisational learning and communities-of-practice: Toward a unified view of working, learning, and innovation", *Organisation science,* vol. 2, no. 1, pp. 40-57.

Coughlan, P. & Prokopoff, I. 2004, "Managing change, by design", *Managing as designing,* pp. 188-192.

Crump, B., & Adli, M. 2009, “Can quality and productivity improve in a financially poorer NHS?”, *BMJ,* vol. 339, pp.

Currie, G., Finn, R. & Martin, G. 2008, "Accounting for the ‘dark side' of new organisational forms: The case of healthcare professionals", *Human Relations,* vol. 61, no. 4, pp. 539.

Currie, G., Finn, R. & Martin, G. 2007, "Spanning boundaries in pursuit of effective knowledge sharing within networks in the NHS", *Journal of Health Organisation and Management,* vol. 21, no. 4/5, pp. 406.

Currie, G. & Suhomlinova, O. 2006, "The impact of institutional forces upon knowledge sharing in the UK NHS: the triumph of professional power and the inconsistency of policy", *Public Administration,* vol. 84, no. 1, pp. 1.

Darzi, A. 2008, "High quality care for all: NHS Next Stage Review final report", *London: Department of Health*.

De Maeseneer, J., van Weel, C., Egilman, D., Mfenyana, K., Kaufman, A. & Sewankambo, N. 2008, "Strengthening primary care: addressing the disparity between vertical and horizontal investment", *The British Journal of General Practice,* vol. 58, no. 546, pp. 3.

Eden, C. & Huxham, C. 2001, "The negotiation of purpose in multi-organisational collaborative groups", *Journal of Management Studies,* vol. 38, no. 3, pp. 373-391.

Ehrlich, K. & Horvath, J. 1999, "Management of expertise", *Institute for Knowledge Management*.

Eisenhardt, K.M. 1991, "Better stories and better constructs: The case for rigor and comparative logic", *Academy of Management Review,* pp. 620-627.

Eisenhardt, K.M. 1989, "Building theories from case study research", *Academy of management review*, pp. 532-550.

Elliott, H. 1997, "The use of diaries in sociological research on health experience", *Sociological Research Online*, vol. 2, no. 2.

Faraj, S. & Yan, A. 2009, "Boundary work in knowledge teams", *Journal of Applied Psychology,* vol. 94, no. 3, pp. 604-617.

Ferlie et al. 2009, “Renewing policy to support evidence-based healthcare”, *Public Administration*, vol. 87, no.4, pp. 837-852.

Ferlie, E., Fitzgerald, L., Wood, M. & Hawkins, C. 2005, "The Nonspread of Innovations: the Mediating Role of Professionals", *Academy of Management Journal,* vol. 48, no. 1, pp. 117-134.

Fischer, M D. 2007, *An ethnographic study of turbulence in the management of personality disorders: An interorganisational perspective*. PhD thesis. Imperial College London, University of London.

Fulop, N., Protopsaltis, G., King, A., Allen, P., Hutchings, A. & Normand, C. 2005, "Changing organisations: a study of the context and processes of mergers of health care providers in England", *Social science & medicine,* vol. 60, no. 1, pp. 119-130.

Greenhalgh, T., Bate, P., Peacock, R., Robert, G., Kyriakidou, O., MacFarlane, F. & Donaldson, L. 2005, *Diffusion of innovations in health service organisations: A systematic literature review,* BMJ Books.

Grol, R.P.T.M., Bosch, M.C., Hulscher, M.E.J.L., Eccles, M.P. & Wensing, M. 2007, "Planning and studying improvement in patient care: the use of theoretical perspectives", *The Milbank quarterly,* vol. 85, no. 1, pp. 93-138.

Hardy, C. 1994, “Underorganized interorganizational domains: The case of refugee systems”, *Journal of Applied Behavioral Science*, 30(3): 278-296.

Hardy, C. & Phillips, N. 1998, "Strategies of Engagement: Lessons from the Critical Examination of Collaboration and Conflict in an Interorganisational Domain", *Organisation Science,* vol. 9, no. 2, pp. 217-217-230.

Hardy, C., Phillips, N. & Lawrence, T.B. 2003, "Resources, knowledge and influence: The organisational effects of interorganisational collaboration", *Journal of Management Studies,* vol. 40, no. 2, pp. 321-348.

Hargadon, A. & Sutton, R.I. 1997, "Technology brokering and innovation in a product development firm.", *Administrative Science Quarterly,* vol. 42, no. 4.

Huxham, C. & Vangen, S. 2000, "Ambiguity, complexity and dynamics in the membership of collaboration", *Human Relations,* vol. 53, no. 6, pp. 771.

Huxham, C. & Vangen, S. 2000, "Leadership in the shaping and implementation of collaboration agendas: How things happen in a (not quite) joined-up world", *Academy of Management journal,* , pp. 1159-1175.

Huxham, C. & Vangen, S.E. 2005, *Managing to collaborate: The theory and practice of collaborative advantage,* Routledge.

Isabella, L.A. 1990, "Evolving interpretations as a change unfolds: How managers construe key organisational events", *The Academy of Management Journal,* vol. 33, no. 1, pp. 7-41.

Joshi, A., Pandey, N. & Han, G.H. 2008, "Bracketing team boundary spanning: An examination of task-based, team-level, and contextual antecedents", *Journal of Organisational Behavior,* 30: 731-759.

Langley, A. 1999, "Strategies for theorizing from process data", *Academy of Management Review,* vol. 24, no. 4, pp. 691.

Lubben, M., Mayhew, S.H., Collins, C. & Green, A. 2002, "Reproductive health and health sector reform in developing countries: establishing a framework for dialogue", *Bulletin of the World Health Organisation,* vol. 80, pp. 667-674.

McMurray, R. 2006, "From partition to partnership", *International Journal of Public Sector Management,* vol. 19, no. 3, pp. 238-249.

Øvretveit, J. 2009, *Does improving quality save money? A review of evidence of which improvements to quality reduce costs to health service providers*, London: Health Foundation.

Øvretveit, J. & Staines, A. 2007, "Sustained improvement? Findings from an independent case study of the Jonkoping quality program", *Quality Management in Healthcare,* vol. 16, no. 1, pp. 68.

Pearce, C.L. 2004, "The future of leadership: combining vertical and shared leadership to transform knowledge work", *Academy of Management Executive,* vol. 18, no. 1, pp. 47-57.

Pettigrew, A.M. 1990, "Longitudinal field research on change: theory and practice", *Organisation science,* vol. 1, no. 3, pp. 267-292.

Ramsay, A., Fulop, N., & Edwards, N. 2009, “The evidence base for vertical integration in health care”, *Journal of Integrated Care*, vol. 17, no. 2, pp. 3-12.

Ratcheva, V. 2008, "The knowledge advantage of virtual teams-processes supporting knowledge synergy", *Journal of General Management,* vol. 33, no. 3, pp. 53.

Raven, M.E. & Flanders, A. 1996, "Using contextual inquiry to learn about your audiences", *ACM SIGDOC Asterisk Journal of Computer Documentation,* vol. 20, no. 1, pp. 1-13.

Richter, A.W., West, M.A., Van Dick, R. & Dawson, J.F. 2006, "Boundary spanners' identification, intergroup contact, and effective intergroup relations", *Academy of Management Journal,* vol. 49, no. 6, pp. 1252.

Senge, P. 1990, *The Fifth Discipline: The art and practice of the learning organisation,* Doubleday, New York.

Stange, K.C. 2002, "The paradox of the parts and the whole in understanding and improving general practice", *International Journal for Quality in Health Care*, vol. 14, no. 4, pp. 267.

Thomas P, Meads G, Moustafa A, Nazareth I, Stange K. (2008) “Combining horizontal and vertical integration of care: a goal of practice based commissioning”. *Quality in Primary Care*, 16(6):425-432

Thomas, P. 2008, "The professor lord Darzi interview", *London Journal of Primary Care,* vol. 1, pp. 17-22.

Thomas, P. 2006, *Integrating primary health care: leading managing, facilitating,* Radcliffe Publishing Ltd., Oxon.

Thomas, P., McDonnell, J., McCulloch, J., While, A., Bosanquet, N. & Ferlie, E. 2005, "Increasing capacity for innovation in bureaucratic primary care organisations: a whole system participatory action research project", *The Annals of Family Medicine,* vol. 3, no. 4, pp. 312.

Tushman, M.L. 1977, "Special boundary roles in the innovation process", *Administrative Science Quarterly,* vol. 22, no. 4, pp. 587-605.

Tushman, M.L. & Scanlan, T.J. 1981, "Boundary spanning individuals: their role in information transfer and their antecedents", *Academy of Management Journal,* pp. 289-305.

Tushman, M.L. & Scanlan, T.J. 1981, "Characteristics and External Orientations of Boundary Spanning Individuals", *The Academy of Management Journal,* vol. 24, no. 1, pp. 83-98.

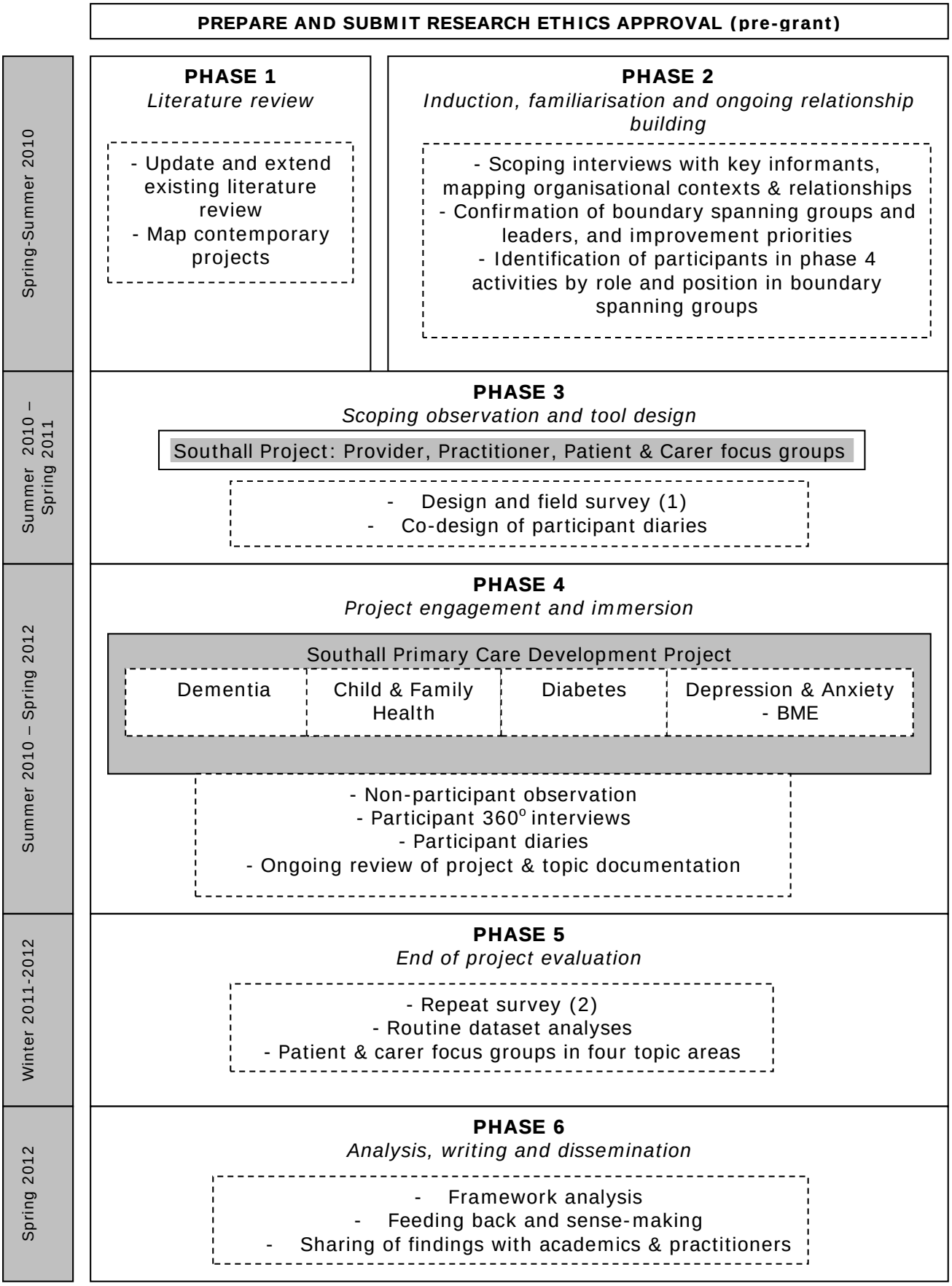
Wainwright, D.W. & Waring, T.S. 2007, "The application and adaptation of a diffusion of innovation framework for information systems research in NHS general medical practice", *Journal of Information Technology,* vol. 22, no. 1, pp. 44-58.

Ward, P. 1997, *360-degree feedback*, Institute of Personnel & Development.

Williams, P. 2002, "The competent boundary spanner", *Public Administration,* vol. 80, no. 1, pp. 103-124.

Yin, R.K. 1994, *Case Study Research: Design and Methods,* Sage, London.

Attachment 1: Flow diagram



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