

Networked innovation in the health sector: comparative qualitative study of the role of Collaborations for Leadership in Applied Health Research and Care in translating research into practice

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Scientific summary

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Background

The Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) initiative was developed by the National Institute for Health Research (NIHR) in response to a new research and development strategy in the NHS: 'Best Research for Best Health'. This response focused on the 'second gap in translation' identified by the Cooksey review, namely the need to translate clinical research into practice. As specified by the NIHR's briefing document on CLAHRCs, a crucial stage in translating research into practice was seen to be 'the evaluation and identification of those new interventions that are effective and appropriate for everyday use in the NHS, and the process of their implementation into routine clinical practice'.

The research presented in this report was funded by the NIHR as one of four different projects aimed at evaluating the CLAHRC initiative. The 'external evaluation' reported here was designed to complement the internal evaluations being carried out within each CLAHRC. Its particular focus was on CLAHRCs as a new form of 'networked innovation'. Following a start-up meeting of the evaluation projects in October 2009, our study commenced January 2010.

Objectives

The broad aims of our study were specified as follows:

1. to provide an independent, theory-based evaluation of CLAHRCs as a new form of networked innovation in the health sector
2. to support the organisational learning and improvement of CLAHRCs by providing comparative evidence on, and insights into, their innovation capabilities within both a national and an international context
3. to support improved patient outcomes by adding to the evidence base on networked innovation within the UK health sector, especially with respect to management and governance mechanisms, and how this compares with leading international examples
4. to increase the NHS's capability for networked approaches to innovation by developing a more comprehensive theoretical framework
5. to make recommendations on improving the evaluation of knowledge translation (KT) through greater appreciation of the role of networks; and
6. to contribute to the international knowledge base on research use through cross-national comparisons, and the cross-fertilisation of academic literatures.

To pursue these aims within our empirical study, we established a number of specific research objectives. These were to:

1. identify the micro-level relationships between researchers, intermediary groups and practitioners which enable the translation of knowledge from research into practical settings
2. map the evolving structure of social and interorganisational networks that underpin CLAHRCs, including the emergence of boundary-spanning groups and gatekeeper individuals, and brokering across 'structural holes' between communities
3. examine the impact of policy and governance arrangements within which such networks are situated on translations of knowledge between research and practice; and

4. compare the UK CLAHRC initiative with similarly intentioned networked innovation initiatives in the USA and Canada, with a view to learning from these experiences while also recognising their distinctive institutional contexts.

Methods

The overall study design involved a comparative case study approach. This encompassed a temporally phased data collection process conducted across three case sites based in the UK and three sites in North America over a period of 36 months. The three CLAHRCs involved in the study are identified as Bluetown, Greentown and Browntown. The North American sites are identified as Canada-Coordination, Canada-Translation and US-Health. The organisations involved have been given pseudonyms to protect confidential and sensitive information.

The UK fieldwork was conducted over two partially overlapping phases of work in order to support our research objectives of mapping the evolving structure and social relationships that underpinned the development of the CLAHRCs over time (objectives 1 and 2, above), as well as the impact of different models of governance and management implemented by the CLAHRCs (objective 3, above). The two phases allowed us to identify how, under ostensibly the same policy initiative, the CLAHRCs developed different types of structures, relationships and activities and to trace the ways in which these supported or engendered different elements of their vision(s) and the KT process.

The fieldwork in North America was conducted in one phase. The data collection here was designed to meet objective 4, that is, to allow a comparison of the CLAHRC initiative with similarly intentioned networked innovation initiatives in the USA and Canada, with a view to learning from these experiences while also recognising their distinctive contexts.

Within this framework, to deepen our enquiry into different aspects of the CLAHRCs development, we applied three major types of research method:

1. Qualitative investigation based on a comparative approach and involving the use of semistructured interviews with key participants across cases.

This approach was considered appropriate as it supports the exploratory aims of this study, which are 'how' and 'why' questions related to the development of organisations over time through the interaction and relationships between individuals and communities within programmes of work. In particular, this approach allows evaluation of the contextual conditions (at both the micro and the institutional level) that influence the development of CLAHRCs. In total, 67 interviews were conducted in phase 1 (Bluetown, 24; Greentown, 21; Browntown, 22), and 42 in phase 2 (Bluetown, 16; Greentown, 12; Browntown, 14). In North America, we conducted 49 interviews (27 with Canada-Coordination, 11 with Canada-Translation, and 11 with US-Health).

2. Social network analysis via the use of survey instruments.

To identify the knowledge exchanges involved in CLAHRC work, we sought to construct an informal knowledge network for each CLAHRC organisation within the context of formal management structures. To do this, we used an online survey tool which was administered at two time periods to all members of each of our three CLAHRC partners, together (one time only) with members of one of our comparison case organisations in Canada. The following name generator question was used to yield a list of knowledge contacts: 'who are most important (people) for you to have contact with in order to be effective in your CLAHRC work?' We also investigated the type of knowledge resources provided by CLAHRC network contacts. Response rates for the survey were well over 60% across the two phases, though lower for the Canadian case. Social network analysis was conducted using UCINET (Analytic Technologie Lexington, KY, USA) software, with descriptive statistics in SPSS (SPSS Inc., Chicago, IL, USA) and Microsoft Excel (Microsoft Corporation, Redmond, WA, USA). Our analysis focuses on exploring the extent to which CLAHRC networks build networks and capabilities for spanning boundaries.

3. Analysis of cognitions via the use of a cognitive mapping tool.

This technique allows the identification of the frames, schemas, and mental paths that characterise individuals as well as groups of people. Causal maps (the tool adopted in this research) is a particular cognitive mapping method that highlights cause–effect relationships between a priori established ‘entities’ (or constructs) that play a role in a project/initiative. To identify individual and collective cognitive schemas relating to KT, we asked participants to select and specify relationships between inputs (i.e. drivers, factors or triggers) and outputs (i.e. aims, objectives or targets) of a KT initiative. We were able to identify 28 constructs using a content analysis method applied to official documents of the three CLAHRCs (the bids) and similar documents of the two Canadian initiatives supplemented with data drawn from initial interviews with those involved in the initiatives. We used these constructs to develop individual and then collective causal maps for each initiative, using Cognizer® (Mandrake Technology Limited, Leeds, UK), a software tool that manages the causal mapping exercise.

Results

The CLAHRCs were given extensive flexibility in interpreting the NIHR remit. Our study of three CLAHRCs highlights how it has been necessary for each to develop their own ‘vision’, that is to say a particular interpretation of the CLAHRC’s role in KT activities, which was enacted by senior management and leadership in response to the wider context. The vision of Bluetown CLAHRC was to produce high-quality scientific evidence through a rigorous methodological approach. Greentown CLAHRC drew on an explicit CLAHRC-wide organisational structure to facilitate KT activity. This structure emphasised a common operational management championed by the core leadership. The Browntown CLAHRC model depended to a large extent on ‘hybrid’ individuals occupying dual or overlapping roles between research and health sector organisations. This helped to support the fluid integration of different types of knowledge across all work programmes.

Each CLAHRC was also, however, required to evolve its original vision to adapt to a changing local and national policy context. Such change took different forms, including the development of new network relationships, the replacement of senior management, and the addition of new themes within an initiative.

The different and evolving ‘enactments’ of KT exhibited by the CLAHRCs represent an important departure from more universalist models. They are also reflected in, and shaped by, differing network patterns and sense-making cognitions. Our analysis is able to demonstrate how each CLAHRC has developed its own particular approach to KT, some aspects of which are managed and articulated at senior management level, while others (e.g. the implications of hybrid roles) make a more implicit contribution.

One characteristic of the different models enacted by the CLAHRCs was the way in which they sought to span the boundaries of different groups in translating knowledge from research to practice. In our analysis of the work of project teams within our case study sites, we identified two different types of boundary spanning – ‘bridging’ and ‘blurring’. With ‘bridging’ mechanisms to span boundaries, an intermediary (a person, event or object) acts as a facilitator for the translation of knowledge between one setting and another. In contrast, with the ‘blurring’ of boundaries, the differences in professional identities of particular communities were de-emphasised in favour of overlapping roles and common aspirations.

In relation to social networks, our analysis suggested that KT initiatives needed to be able to accommodate different network patterns to support networked innovation; that is, they needed to manifest both ‘closure’ with the strong, interconnected ties seen in established work teams or communities of practice, and ‘brokerage’, which is the potential for actors linking disconnected groups to connect and exchange new information. We found that, despite their different structures, all of the CLAHRCs had developed both brokerage and closure patterns in their social networks. We also found that these structures evolved

over time. Thus, in the initial phase of our study we found that the CLAHRCs adopted 'expansive' information search strategies which relied on external ties for access to new contacts and practical advice. Over time, however, these external knowledge ties became less important, as members drew on knowledge from CLAHRC colleagues.

Conclusions

Our study makes several contributions which build on and extend previous work in this area. First, our study highlights the specificity of the process of KT. It shows how this process is shaped by leadership and management practices, as well as by the 'visions' inculcated and spread through such practices. We found that where the vision for a CLAHRC framed KT as essentially involving the dissemination of high-quality evidence into practice (as with the Bluetown CLAHRC), 'bridging mechanisms' of KT were utilised to overcome the boundaries between research and practice. In contrast, where the vision placed greater emphasis on the integration of research practices with practical concerns (as in Browntown), 'blurring' of boundaries occurred to a much greater extent. Second, a further contribution of our study is our findings on the importance of 'ambidextrous' networks in supporting the process of innovation. Previous literature on KT has focused primarily on brokerage, but has not addressed the need for closure patterns in embedding knowledge within practices. Third, to integrate our findings we outline an analytical framework for identifying the development of innovation capabilities as a differentiated product of approaches to KT and the exploitation of social network resources.

Our study makes a number of suggestions for further research. One area for further work is to ground KT activities in particular settings. Our analysis could be usefully extended by a wider international study. Second, our work on changes in social networks over time suggests that future studies of KT could usefully incorporate a longitudinal dimension that would enable a greater understanding of the evolution of such networks. Third, future studies could usefully gather evidence on the long-term impact of KT initiatives so as to provide systematic evidence on the relative merits of different enactments.

Certain of the methods developed for this study, notably the social network survey instrument and the application of cognitive mapping techniques, represent valuable methodological contributions, which can be applied and developed in future studies.

As regards implications for policy and practice, our findings build on previous work to demonstrate that KT is not a linear process – translation, rather than 'transfer', involves the development of appropriate social ties and roles to enable the knowledge produced within one context to be effectively applied within the practices of groups in a different context. Importantly, in contrast to some previous work, we highlight the importance of the interpretive role played by leaders and managers in shaping the vision for each initiative. This had important effects on the way in which networks were formed (from narrowly directive to more open-ended and inclusive approaches), propensity to engage in particular KT practices ('bridging' vs. 'blurring' the boundaries between groups), and, ultimately, on the distinctive innovation capabilities acquired in each case.

In relation to network structures specifically, we found in broad terms that CLAHRCs in our study had developed 'ambidextrous' social networks, meaning that they were both loose and cohesive – demonstrating 'closure' (supporting the embedding of new knowledge within communities of practice) and 'brokerage' (supporting the linkage of disconnected groups to facilitate new learning). We also highlighted the value of boundary-spanning roles and individuals in enabling brokerage to occur. Our study suggests, however, that the value of explicit boundary-spanning roles is dependent on the wider social network structures in which they are embedded. Thus, we found that in more decentralised structures, confusion over role specifications may limit the effectiveness of boundary-spanning roles.

By highlighting the variation between different cases, our analysis also suggests that it is possible to identify different network configurations and KT practices which will lead to different capabilities, and hence be effective for particular settings and purposes. Here, we contrast the capabilities produced by centralised versus decentralised network structures, and the differing benefits of KT practices centred on the 'bridging' of boundaries (by an intermediary person or object) and the 'blurring' of boundaries (by overlapping roles). Specifically, we apply and extend the distinction between 'integrative capability' (the ability to move back and forth between scientific evidence and practical application) and 'relational capability' (the ability of groups and organisations to work together). Although both types of capability are relevant to realising networked innovation, they can be achieved in different ways with consequent implications for health-care outcomes. This analytical framework can help to inform future policy and practice as to the appropriate design of KT initiative needed to achieve different kinds of innovation capabilities.

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