

Facilitating knowledge exchange between health-care sectors, organisations and professions: a longitudinal mixed-methods study of boundary-spanning processes and their impact on health-care quality

L Nasir,¹ G Robert,^{1*} M Fischer,² I Norman,³ T Murrells¹ and P Schofield⁴

¹National Nursing Research Unit, Florence Nightingale School of Nursing and Midwifery, King's College London, London, UK

²Saïd Business School, University of Oxford, Oxford, UK

³Florence Nightingale School of Nursing and Midwifery, King's College London, London, UK

⁴Department of Primary Care and Public Health Sciences, King's College London, London, UK

*Corresponding author

Declared competing interests of authors: L Nasir received an honorarium and travel expenses for a presentation relating to this research at Case Western Reserve University, Cleveland, OH, USA. Outside this submitted work L Nasir received payment for related lectures from the School of Nursing, University of North Carolina at Chapel Hill, NC, USA and from ZHAW, Department Gesundheit, Institut für Pflege, Winterthur, Switzerland. M Fischer declared a consultancy fee from the primary care trust in which the research took place for preparation, including stakeholder consultation, in 2009 of an (unsuccessful) National Institute for Health Research (NIHR) research proposal, which predated and informed the boundary-spanning intervention researched in the present work.

Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published October 2013

DOI: 10.3310/hsdr01070

Scientific summary

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Health Services and Delivery Research 2013; Vol. 1: No. 7

DOI: 10.3310/hsdr01070

NIHR Journals Library www.journalslibrary.nihr.ac.uk

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Background

The concept of 'boundary spanning' potentially brings many insights relevant to contemporary challenges relating to the vertical and horizontal integration of health-care services. Vertical integration involves connecting generalists and specialist health-care professionals to provide care for specific conditions as part of patient pathways, whereas horizontal integration involves broad-based collaboration to improve overall health; comprehensive integration includes a balance of both. Yet despite a rich collection of theoretical and empirical studies from outside the health-care sector, relatively little is known about how people and groups who function in boundary-spanning positions in health-care systems contribute to improved quality of care and clinical outcomes.

The specific boundary-spanning intervention under study (the WI) sought to improve health-care services through collaboration between general practitioners (GPs), community services, voluntary groups and acute specialists in a part of 'Coxford', an inner-city area in England. The WI was formally launched in October 2009 and included the development of a network of leaders across organisational and community boundaries to facilitate knowledge exchange in four topic areas. It was directly linked to a programme of 'whole-system' stakeholder conferences to create organisational learning and change, together with community development, and used an annual cycle of service improvement that was led by a local GP who held a senior management position in the (then) primary care trust.

Objectives

The primary objective of this study was to explore the impact of a 'boundary-spanning' intervention – the Westpark Initiative (WI) – on knowledge exchange processes between different sectors, organisations and professions in support of horizontal and vertical health-care integration. We assessed the impact of the intervention under study on health-care quality as implemented in four topic areas in a diverse inner-city area of England.

Our research hypothesis was 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 both a range of quality indicators and patient and carer experience.

Methods

To establish an understanding of the findings of previous empirical research examining boundary-spanning activities in health-care settings we identified relevant studies through multiple search methods. Empirical studies meeting our inclusion criteria were analysed using the seven iterative steps of meta-ethnography for evidence synthesis.

A longitudinal nested case study design using mixed methods was then employed to explore the extent to which the formation and facilitation of four multidisciplinary boundary-spanning teams – the core component of the WI – enabled the integration of services relating to (1) anxiety and depression in black and minority ethnic (BME) populations, (2) dementia, (3) child and family health services and (4) diabetes. Following ethical approval for the study our formal fieldwork began in July 2010 and continued until early 2012. Before this – and from the formal launch in October 2009 – an embedded clinician-researcher was closely involved in all aspects of the development of the WI.

During our fieldwork period we collected a range of qualitative and quantitative data in order to study the process of implementing the boundary-spanning intervention in its local context and explore whether or not it enabled knowledge exchange across sectoral, organisational and professional boundaries that led to the improved integration of services in the four topic areas. Our methods comprised:

- semistructured interviews with a range of health-care practitioners (42 interviews)
- observations of team meetings and community stakeholder events (361 hours)
- online diaries (36 completed by 11 participants)
- a staff survey (103 responses)
- patient focus groups (two)
- pre- and post-intervention secondary data analyses of relevant Quality and Outcomes Framework (QOF) and other indicators comparing primary care practices in Westpark ($n = 24$) and in the remainder of the wider Coxford area ($n = 55$).

Using thematic analysis and NVivo 9 software (QSR International, Southport, UK), qualitative findings were examined to identify the facilitators of and barriers to integration and the impact of each of the four 'boundary-spanning' teams on the quality of patient care. Nonaka's SECI (socialisation → externalisation → combination → internalisation) framework was used to explore how tacit and explicit knowledge was exchanged across sectoral, organisational and professional boundaries.

Results

Four important themes identified by a meta-ethnography of 38 empirical studies of boundary spanning in the health-care sector were:

- the need for individual boundary spanners to possess a wide range of communication skills
- negotiating formal and informal boundary-spanning roles
- recognising and responding to social and political influences on knowledge exchange processes
- demonstrating evidence of the impact of boundary spanning on the quality of patient care.

Previous studies of vertical boundary spanning provide clear descriptions of how people at different levels of a health-care system relate to each other but are weak on process and evidence-based patient outcomes. Only one of the 38 studies reported the impact on clinical outcomes and none measured care quality through patient experiences or safety or reduced costs. Research appears to provide stronger support for horizontal boundary-spanning interventions. Furthermore, although boundary spanning is regarded as a potential solution to issues of integration, the existing literature has a normative emphasis, i.e. it appeals as an 'obvious' solution to problems of poor collaboration across sectors, organisations and professions. A minority of studies suggest that boundary-spanning processes may be problematic, not just failing in implementation but also hindering and even jeopardising intended facilitation and integration. Relatively little attention has been paid to the core focus of our study, the impact of boundary spanning on health-care services and the processes by which such interventions enable knowledge exchange to support horizontal and vertical health-care integration.

Dementia rated lowest of the four topic areas for all five questions relating to the knowledge, attitudes and practices of survey respondents in both Coxford and Westpark, whereas the topic area of diabetes was consistently rated the highest. In addition, working relationships with dementia care teams were rated poorly, whereas working relationships with diabetes specialists were rated reasonably highly. Responses in relation to the two other topic areas – anxiety and depression in BME populations and child and family health services – fell somewhere between these two extremes, with no clear pattern emerging. The results illustrate general practice staff views on collaboration and partnership working in the study setting and help situate our stories of each of the four boundary-spanning teams in a broader local context.

The anxiety and depression in BME populations team reported reaching their self-defined goal of increasing referrals from Westpark practices to the local well-being service. Innovative solutions to increase access to mental health care were evident in a variety of local efforts to increase awareness of services among patients and providers. These included information dissemination, placing link workers in GP surgeries, and educational training sessions. Informal (internal) and formal (external) support for frequent team meetings and time to reflect on the impact of their outreach efforts on referral rates enabled this team to improve horizontal integration with local general practices. A key difference between this and the other three teams was the successful application (in 2 successive years) for Collaboration for Leadership in Applied Health Research and Care (CLAHRC) funding, which ensured consistent activity and self-evaluation. Our analysis shows that, from October to December 2010 onwards, referrals were generally higher in the six practices with a link worker than in those without, although our comparative analysis of three relevant QOF indicators found that the performance of the Westpark and Coxford practices did not differ significantly.

The second multidisciplinary team focused on trying to improve dementia care, but struggled to enable horizontal and vertical integration of services. This team was not able to create systemic knowledge assets to facilitate the transfer of explicit information across boundaries, nor was it able to develop local measures to understand the impact of their boundary-spanning efforts. Despite positive individual and within-team experiences, missed opportunities for sharing disciplinary expertise were observed. Performance on the two dementia QOF indicators did not vary significantly between Westpark and Coxford, but there was some evidence of variability. Most of the improvement in Coxford happened between 2008/9 and 2009/10, whereas in Westpark improvement occurred between 2009/10 and 2010/11.

One early enabling characteristic of the child and family health services team included having a leader with knowledge of the local area and the ability to network across a wide range of services. Potential team members attended various stakeholder meetings to engage with community services for school-aged children, refugees, asylum seekers and women struggling with domestic violence. An early success included talking to GP receptionists about disseminating a resource guide developed by the team. A training module for receptionists, including a very wide selection of health promotional topics, was developed and surgeries were contacted for training; however, only three in Coxford responded. As of early 2012, attempts to create either intranet or extranet versions of the signposting module were still under way, but not resourced with funds or personnel. When short-term funding for the team leader ended in early 2011 she retired and, although a few team members continued to attend stakeholder events, they appeared more motivated by opportunities to represent their own services than to achieve the wider goals that had been set out. Ultimately the goals of the team remained amorphous.

As a focus of clinical concern for many practitioners in different settings, diabetes is commonly recognised as a priority for integrated care initiatives, but this fourth team was the last to develop within the WI and diabetes was not initially a priority topic determined from the early stakeholder meetings. Professionals from many disciplines involved in providing diabetic care took part in this group. There were additional opportunities for multidisciplinary discussions relating to diabetic services at forums focusing on other health conditions. The original aims included working in a smaller cluster of six practices in Westpark to provide cross-practice training events for GPs, develop out-of-hours services and integrate hospital- and community-based care with diabetes specialist nurses. All of these ideas were acted on in some form in the next year, despite profound system changes at the PCT. Profiles across the three QOF reporting periods varied significantly between the three groups (six practices in the diabetes cluster, 18 Westpark practices and 55 Coxford practices) for 2 of 17 indicators and the difference approached statistical significance for two others. The time profiles differed significantly between the three groups for elective admissions and bed-days and emergency admissions and bed-days (all adjusted for deprivation scores).

The results of the online diaries show that interactions with primary health-care professionals were the most commonly reported by members of each of the four teams (although number of interactions was also high with patients/carers for the anxiety and depression in BME populations team and with social care for the child and family health services team). The 35 diaries recorded a total of 290 interactions and, overall,

participants reported approximately eight boundary-spanning interactions as a result of their efforts as part of the WI in each 2-week period for which they completed a diary; diabetes team members reported the highest number of interactions ($n = 10.6$). Professional boundaries were most likely to have been crossed at least once in each 2-week period (compared with sectoral, organisational and geographical boundaries) and such boundaries were also most likely to have been crossed multiple times; there was no noticeable difference in the types of boundaries crossed by the different team members. Respondents were generally less certain that the WI would impact on staff motivation but more confident that their work would improve the quality of patient care, with the anxiety and depression in BME populations and diabetes team members being the most confident in this regard.

Key stakeholders identified four 'key success factors' relating to the WI (senior leadership support, measuring impact, structure, and patient and public involvement); all of these were highlighted in terms of their absence from the initiative and offered as explanations for why it had not, in the views of senior interviewees other than the WI founder, achieved as much as they had hoped.

Discussion

Although the four teams participated in the same boundary-spanning intervention they varied in their ability to exchange knowledge across boundaries and then implement improvements to integrate services. Any evaluation of the impact of interventions such as the WI must take into account the broader policy context, which in this case led to environmental uncertainty that persisted throughout the study period. Both Coxford and the WI experienced conditions of flux and uncertainty in which known horizontal and vertical structures underwent considerable change.

We conducted a cross-case analysis of our qualitative data relating to the four multidisciplinary teams using the SECI model as part of our evaluation framework to try to explain the differences that we observed between the teams. A detailed analysis of each of the stages of the SECI model – using illustrations and examples drawn from across the four teams – helped to highlight both the knowledge exchange processes by which the WI successfully enabled integration of health-care services and the barriers to such integration. The SECI model proved useful, not only because it enabled the study of interactions across different system levels (from individual to organisation) but also because it was particularly sensitive to nuanced interactions between and across these system levels: the boundary-spanning 'spaces' where knowledge exchange takes place. SECI was therefore important not primarily for its explanatory potential (although it was helpful in this regard) but for how it helped in the empirical study of boundary-spanning processes.

Conclusions

Our findings highlight the difficulties of implementing programmatic change more broadly, particularly in complex and turbulent conditions and especially in a context of low organisational support.

We found that, although knowledge exchange was initiated and some solutions implemented by the four boundary-spanning teams that we studied, other problems were merely described but not addressed. Horizontal and vertical integration (described by one participant as like 'knitting smoke') were not routinely accomplished outside of the efforts of a minority of individual boundary spanners. Nonetheless, there are examples from our fieldwork of two of the teams moving beyond just 'dialogue' and towards creating or changing systems and processes. We did not, however, find any evidence of improvement on quality indicators or in patient and carer experiences as a result of the boundary-spanning intervention under study.

Our analysis also suggests taking particular notice of one of the four boundary-spanning teams as a positive case. Boundary-spanning interactions in that team created important 'spaces' in which knowledge exchange could potentially take place. Although the WI was later destabilised (and eventually abandoned),

when in its early stages it was sometimes successful at creating these spaces team development was both impressive and resilient. In particular, this occurred where micro–meso interactions were especially conducive to planned local developments. In the case of the anxiety and depression in BME populations team, effectiveness appeared to hinge on its ability to both internalise and mobilise a ‘shared context’ for exchanging knowledge while integrating this with internal team skills and external organisational resources to enable its movement through the stages of the SECI model. In doing so the WI helped create impetus and support internal resilience and change but it was not alone sufficient to do this in the remaining three teams.

Based on our findings we conclude that successful boundary-spanning interventions are likely to require three interacting elements:

- the generation of shared contexts for knowledge creation and exchange at the individual practitioner level
- formal organisations in the health community providing background resources and structure to facilitate and embed improved integration of services
- boundary-spanning teams that are able to draw on external structuring ‘resources’ and adapt to external constraints.

Future research should evaluate the direct, measurable and sustained impact of boundary-spanning processes on patient care outcomes (and experiences), as well as further empirically based critiques and reconceptualisations of the SECI model, so that the implications can be translated into practical ideas developed in partnership with NHS managers.

Funding

Funding for this study was provided by the Health Services and Delivery Research programme of the National Institute for Health Research.

Health Services and Delivery Research

ISSN 2050-4349 (Print)

ISSN 2050-4357 (Online)

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: nihredit@southampton.ac.uk

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The research reported in this issue of the journal was funded by the HS&DR programme or one of its proceeding programmes as project number 09/2001/25. The contractual start date was in May 2010. The final report began editorial review in August 2012 and was accepted for publication in January 2013. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HS&DR editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

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