

Des innovations dans la pratique

Un modèle d'évaluation du partage de connaissances en contexte de réseau

James Conklin et Paul Stolee

Le recours à des réseaux pour faciliter le partage et le transfert de connaissances dans les milieux de la santé suscite de plus en plus d'intérêt. Le *Seniors Health Research Transfer Network (SHRTN)* [Réseau de partage des recherches dans le domaine de la santé des aînés] de la province de l'Ontario rassemblent des professionnels de la santé, des décideurs et des chercheurs qui œuvrent dans le domaine de la santé des aînés pour favoriser le partage des connaissances issues de la recherche et des meilleures pratiques. Dans le cadre d'une évaluation du SHRTN, les auteurs ont élaboré un modèle qui avait pour but d'évaluer l'efficacité des activités de partage de connaissances en contexte de réseau. Ce modèle tient compte des éléments clés caractérisant une application réussie des résultats de recherche, proposés dans le cadre de travail *Promoting Action on Research in Health Services (PARiHS)* [Promotion d'interventions fondées sur la recherche dans le milieu des soins]. Il tient compte aussi des résultats de ces efforts, pour ce qui est de trois paliers du fonctionnement en réseau. Ce modèle a été utilisé pour évaluer l'efficacité du SHRTN comme système de partage de connaissances. Les résultats suggèrent que ce cadre de travail pourrait possible-ment servir de modèle pour l'évaluation d'autres réseaux de connaissances.

Mots clés : réseau de connaissances, partage de connaissances, santé des aînés, PARiHS

Innovations in Practice

A Model for Evaluating Knowledge Exchange in a Network Context

James Conklin and Paul Stolee

There is growing interest in the use of networks to facilitate the exchange and transfer of knowledge in health-care settings. The province of Ontario's Seniors Health Research Transfer Network (SHRTN) brings together caregivers, policy-makers, and researchers working in the area of seniors' health to share knowledge derived from research and best practices. As part of an evaluation of SHRTN, the authors developed a model for assessing the effectiveness of knowledge exchange activities in a network context. The model considers the key elements of successful application of research evidence proposed in the Promoting Action on Research in Health Services (PARiHS) framework, as well as the results of these efforts, at 3 levels of network functioning. This model was used in a test of SHRTN's effectiveness as a knowledge exchange system. The results suggest that the framework has potential as a guide for evaluating other knowledge networks.

Keywords: knowledge network, knowledge exchange, knowledge translation, seniors' health, PARiHS

Introduction

There is growing interest in the use of networks to facilitate knowledge exchange in health-care settings (Canadian Health Services Research Foundation [CHSRF], 2005; Russell, Greenhalgh, Boynton, & Rigby, 2004). The Seniors Health Research Transfer Network (SHRTN) was formed in 2005 in the Canadian province of Ontario as a network of caregivers, policy-makers, and researchers sharing knowledge derived from research and best practices in seniors' health (Conklin, Stolee, Luesby, Sharratt, & Chambers, 2007). It is funded by the provincial ministry of health and long-term care and governed by key stakeholders, including consumers and community-care and long-term-care associations. The network seeks to improve the flow of knowledge throughout the seniors' health-care system by providing support to Communities of Practice (CoPs, organized around topics such as Alzheimer disease,

spiritual care, and continence care) and to a network of regional libraries. It employs “knowledge brokers” who support the CoPs and the librarians by facilitating communication, promoting SHRTN and extending its reach and membership, seeking useful evidence, and facilitating opportunities to move knowledge into action. As part of an evaluation of SHRTN, we developed an evaluation model suited to a knowledge exchange network and conducted a practical test of SHRTN’s performance in relation to the model.

Methods

Development of the Evaluation Model

Development of the model drew on literature and knowledge exchange principles that had guided the development of SHRTN (Conklin et al., 2007), our previous work (Conklin et al., 2007; Gauthier, Ellis, Bol, & Stolee, 2005; Stolee et al., 2005), the literature on knowledge exchange and network development, and a focused MEDLINE and Internet search related to the evaluation of health networks. We intended to gauge the utility of the model using a practical example rather than a comprehensive synthesis of a complete body of literature.

Work by the CHSRF (2005) and by the International Institute for Sustainable Development (Creech & Ramji, 2004) guided our understanding of knowledge networks. SHRTN can also be understood in terms of levels of network operation. Popp and colleagues (2005) recommend, based in part on the work of Provan and Milward (2001), that evaluation consider a network’s levels of impact (on individuals, organizations, the network itself, and the broader community). The PARiHS theory (Promoting Action on Research in Health Services) provides a useful framework for categorizing and assessing key factors related to successful knowledge exchange: level and nature of the *evidence* (knowledge), organizational *context*, and method of *facilitation* (Kitson, Harvey, & McCormack, 1998; Rycroft-Malone et al., 2002). According to this theory, research tends to be successfully implemented when evidence is clear and is relevant to the local context; when the local context features characteristics of a learning organization; and when enabling facilitation helps practitioners to understand, apply, and sustain the new knowledge.

The Practical Test

The practical test was a case study using primarily qualitative data from interviews and an e-mail survey. For the case, we needed an identifiable knowledge exchange activity that involved at least one of the key SHRTN components (a CoP) and that included activities and events

considered representative of the “machinery” of the network. In collaboration with the SHRTN leadership, we chose an exchange, led by the Alzheimer Knowledge Exchange CoP, on managing smoking cessation among long-term-care residents with dementia. In response to a request from a frontline caregiver, a knowledge broker, supported by a SHRTN librarian, obtained extensive background information and circulated it among CoP members, facilitated an e-mail dialogue, and organized an educational Webcast with a panel of three experts. Resources were made available in an online collaboration space, as a context for further discussion.

Case-study data included background information and documentation on the CoP and a 63-minute telephone interview with the knowledge broker. An e-mail survey was distributed to the 23 people (representing 19 organizations) who participated in the Webcast. Participants received one or two follow-up reminders. Responses were ultimately received from six participants; one response was completed via a 32-minute telephone interview and led to e-mail contact with a long-term-care home. Thirty-minute telephone interviews were conducted with the expert panellists.

Results

The SHRTN Knowledge Network Evaluation Model

We developed a knowledge exchange model that was consistent with major trends in the literature and that could be used as the basis for a flexible evaluation program. To the evidence, context, and facilitation elements of the PARiHS model we added a focus on results or impacts. For evaluation of knowledge exchange in a network context, we identified three levels of network activity: network-wide (SHRTN), network component (e.g., a CoP), and implementation site (frontline practice setting). Table 1 describes the model. The questions in the table reflect the broad categories of needed information; specific criteria can be derived from the PARiHS model (Kitson et al., 1998; Rycroft-Malone et al., 2002).

Results of the Practical Test

Our aim was to assess knowledge exchange activity in relation to the dimensions of evidence, context, facilitation, and results, at all three levels of network functioning.

Network-wide. At the network level, information gathered for the test suggests that SHRTN can enable the communication and interaction needed to support better use of knowledge. Participants indicated that SHRTN makes significant infrastructure and resources available, thus allowing for Webcasts and other opportunities for collaboration.

Table 1 SHRTN Knowledge Network Evaluation Model

		Knowledge Exchange Dimensions			
		Evidence	Context	Facilitation	Results
Network Dimensions	Network-wide	How do SHRTN leaders view evidence, and what evidence do they value?	Is a supportive context/culture evident in SHRTN's governance and operations?	What mechanisms are used to facilitate interaction and exchange within the network?	Awareness and perceptions of SHRTN
	Network component	What type of evidence is being sought and used through CoPs?	What is the context/culture of the SHRTN CoP?	What style of facilitation is used within the CoP? Do knowledge brokers provide effective facilitation?	Linkage and exchange activity
	Implementation site	How is evidence that is shared by CoP members integrated into the practice settings?	What is the context/culture of the practice setting?	What style of facilitation occurs within the practice setting?	Behavioural changes and outcomes for seniors and caregivers

Network component. The organizational context afforded by the CoP supported the flow of knowledge among participants. Evidence and an expert panel were assembled to reflect both research and practical experience. Most Webcast participants indicated that the CoP's facilitation role had been helpful and that the Webcast had been useful and informative. Nevertheless, some respondents indicated that the information may not have been sufficiently specific or concrete to be actionable. It was unclear from the data whether the Webcast session allowed for sufficient interaction between panellists and attendees. Technological issues prevented continued exchange in the Web-based collaboration space.

Implementation site. Participants showed appreciation for the materials received (including panellist handouts) but had different recollections of the usefulness of the Webcast. This test case did not focus on a single implementation site, and we did not have detailed information on the contextual characteristics of specific sites. One participant, however, reported using the Webcast material in a local learning collaboration she had established made up of people working in long-term care and community care. She then facilitated the development of specific intervention strategies in several homes, with a beneficial impact for staff and residents. We communicated with an administrator at one of these long-term-care homes; this person reported that the information and strategies were helpful. We thus found that the Webcast had an impact on specific strategies in at least some instances, resulting in more informed problem-solving conversations among frontline staff.

Discussion

The practical test has its limitations as a means of assessing the effectiveness of SHRTN as a knowledge exchange network. The case may not be fully representative of the range of knowledge exchange efforts undertaken by SHRTN. We were also limited in our ability to track the transmission of information to the frontlines. The Alzheimer Knowledge Exchange CoP, as one of the most developed CoPs, may have been in a better position to facilitate this activity; this facilitation and the resources assembled may thus have been more extensive than is typically feasible. On the other hand, this effort may have had a unusually good chance of succeeding. The test was also limited by the low response to our e-mail survey; this may be an indication of the challenges of sustaining the active engagement of potential knowledge users.

This evaluation model might benefit from additional testing and from an extensive review of other themes and developments in the literature on knowledge exchange and network development. For example, collaborative approaches to knowledge exchange in a network context are

consistent with a Mode 2 view of knowledge production (Gibbons et al., 1994; Nowotny, Scott, & Gibbons, 2001) and are consistent with conceptions within organizational studies of tacit knowledge flows within and across practice boundaries (Brown & Duguid, 1991, 2000; Orr, 1996). Future exploration could look into whether knowledge exchange must be tailored to the specific circumstances of the groups involved in the exchange — in other words, the extent to which we might be able to generalize the results of specific knowledge exchange initiatives (Mitton, Adair, McKenzie, Patten, & Perry, 2005). Recent suggestions by the formulators of the PARiHS framework that the evidence and context dimensions might be used to diagnose organizational readiness for knowledge translation, and to devise appropriate facilitation interventions to improve the likelihood of success, are also worth considering (Kitson et al., 2008).

Our findings suggest that SHRTN and the CoP provide a supportive context, but continued active facilitation of knowledge exchange is necessary at the point of care. This is consistent with the PARiHS framework's emphasis on the need for context-sensitive facilitation activities. An important implication for knowledge networks is the need for links with individuals and groups who serve as educational or other resources for frontline practitioners. Within the limitations of the practical test, this case suggests that SHRTN's facilitative role will have little or no impact on practice if it is limited to exchanges at the network or CoP level and if these exchanges are restricted to research-based evidence. This test points to the importance of the key elements of the PARiHS framework and demonstrates the value of considering the processes and impacts of knowledge networks in terms of level of operation.

References

- Brown, J. S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2(1), 40–57.
- Brown, J. S., & Duguid, P. (2000). *The social life of information*. Boston: Harvard Business School Press.
- Canadian Health Services Research Foundation. (2005). *Network notes II. Knowledge networks*. Ottawa: Author.
- Conklin, J., Stolee, P., Luesby, D., Sharratt, M. T., & Chambers, L. W. (2007). Enhancing service delivery capacity through knowledge exchange: The Seniors Health Research Transfer Network. *Healthcare Management Forum*, 20, 20–26.
- Crech, H., & Ramji, A. (2004). *Knowledge networks: Guidelines for assessment*. Working Paper. International Institute for Sustainable Development. Retrieved January 18, 2007, from www.iisd.org.

- Gauthier, N., Ellis, K., Bol, N., & Stolee, P. (2005). Beyond knowledge transfer: A model of knowledge integration in a clinical setting. *Healthcare Management Forum*, 18, 33–37.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. London: Sage.
- Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence based practice: A conceptual framework. *Quality and Safety in Health Care*, 7, 149–158.
- Kitson, A. L., Rycroft-Malone, J., Harvey, G., McCormack, B., Seers, K., & Titchen, A. (2008). Evaluating the successful implementation of evidence into practice using the PARiHS framework: Theoretical and practical challenges. *Implementation Science*, 3(1), 1–12.
- Mitton, C., Adair, C., McKenzie, E., Patten, S. B., & Perry, B. W. (2007). Knowledge transfer and exchange: Review and synthesis of the literature. *Milbank Quarterly*, 85, 729–768.
- Nowotny, H., Scott, P., & Gibbons, M. (2001). *Rethinking science: Knowledge in an age of uncertainty*. Cambridge: Polity.
- Orr, J. E. (1996). *Talking about machines: An ethnography of a modern job*. Ithaca, NY: Cornell University Press.
- Popp, J. K., L'Heureux, L. N., Dolinski, C. M., Adair, C. E., Tough, S. C., Casebeer, A. L., et al. (2005). How do you evaluate a network? A Canadian child and youth health network experience. *Canadian Journal of Program Evaluation*, 20(3), 123–150.
- Provan, K. G., & Milward, H. B. (2001). Do networks really work? A framework for evaluating public-sector organizational networks. *Public Administration Review*, 61, 414–423.
- Russell, J., Greenhalgh, T., Boynton, P., & Rigby, M. (2004). Soft networks for bridging the gap between research and practice: Illuminative evaluation of CHAIN. *British Medical Journal*, 328, 1174.
- Rycroft-Malone, J., Kitson, A., Harvey, G., McCormack, B., Seers, K., Titchen, A., et al. (2002). Ingredients for change: Revisiting a conceptual framework. *Quality and Safety in Health Care*, 11, 174–180.
- Stolee, P., Esbaugh, J., Aylward, S., Cathers, T., Harvey, D. P., Hillier, L. M., et al. (2005). Factors associated with the effectiveness of continuing education in long-term care. *Gerontologist*, 45(3), 399–409.

Authors' Note

The work on which this article is based was funded in part through the evaluation budget of the Seniors Health Research Transfer Network, which is funded by the Ontario Ministry of Health and Long-Term Care.

The authors are grateful for the collaboration of the SHRTN leadership and knowledge exchange participants in this evaluation initiative.

The authors received financial support as independent evaluators of the Seniors Health Research Transfer Network.

Comments or queries may be directed to Paul Stolee, Department of Health Studies and Gerontology, University of Waterloo, 200 University Avenue West, Waterloo, Ontario N2L 3G1 Canada. Telephone: 519-888-4567. Fax: 519-746-2510. E-mail: stolee@uwaterloo.ca.

James Conklin, MA, is a PhD student at Concordia University, Montreal, Quebec, Canada; Co-leader, Seniors Health Research Transfer Network evaluation team; and Coordinator, Ontario Research Coalition of Research Institutes/Centres on Health and Aging, Élisabeth Bruyère Research Institute, Ottawa, Ontario, Canada. Paul Stolee, PhD, is Associate Professor and Graham Trust Research Chair in Health Informatics, Department of Health Studies and Gerontology, University of Waterloo, Ontario; Associate, R. B. J. Schlegel—University of Waterloo Research Institute for Aging; and Co-leader, Seniors Health Research Transfer Network evaluation team.

