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How Interdisciplinary Primary Health Care Teams Access and Share Knowledge

Abstract: We explore how information (specifically new research-based clinical information) enters, and flows through, health care teams (HCTs). Each HCT is conceived as a network, and we examine how these networks function in relation to identifying information needs and the roles of different actors in accessing and sharing information.

Résumé : Nous explorons comment l'information (plus précisément les nouvelles données cliniques basées sur la recherche) est disséminée au sein d'équipes médicales. Chaque équipe est vue comme un réseau et nous examinons le fonctionnement de chacun de ces réseaux en termes d'identification des besoins informationnels ainsi que le rôles de chacun pour accéder à l'information et la partager.

1. Background

Multidisciplinary health care teams consist of health care professionals (physicians, nurse practitioners, nurses, physical and occupational therapists, social workers, etc.) who work collaboratively to ensure that patient care is coordinated and delivered in an effective and seamless manner (Meuser, Bean, Goldman, & Reeves, 2006). The emergence of team-based models of primary care delivery has been argued to provide a number of benefits to health systems, health care providers and patients, including: better coordination of care, a focus on collaborative problem solving and decision-making, and a commitment to patient-centered care (Mickan & Rodger, 2005). These processes rely in large part on team communication practices, which are influenced not only by context-related constraints, but also, we argue, by effective interactions. Moreover, team structure and team processes also impact the function of the team (Xyrichis & Lowton, 2007). Specifically, in larger teams, interactions can be more difficult, as staff tend to be influenced by a desire to be heard, and the need to conform to the group (Atwal & Caldwell, 2005).

Related to information sharing and flow in primary care teams is the “evidence imperative” – that is, the emphasis on bringing new, evidence-based information (in the form of clinical or best practices guidelines, evidence-based clinical protocols, new research findings, etc.) to bear on clinical decisions. At the same time, patients increasingly bring their own “evidence” (often in the form of internet print-outs) to care encounters. Thus as with most sectors of society in the “information age”, health care

settings are increasingly inundated with new information – some good, some bad and some of unknown quality or utility.

This information is then be combined with experience, training (or education), as well as interaction with others to create ‘knowledge’. While the terms ‘information’ and ‘knowledge’ are sometimes used interchangeably, they are quite different in practice. Information is simply a collection of facts or data; or as defined by Dretske (1981), “Information is that commodity capable of yielding knowledge, and what information a signal carries is what we can learn from it” (p. 44). The definition of knowledge is less established, and has been under debate for centuries. Knowledge is a multi-dimensional concept, with potentially different meanings, depending on the context and situation. We define knowledge in the traditional sense of a ‘justified true belief’. A discussion on the meaning of knowledge, and the components of this definition is far beyond the scope of this study, but worthy of noting.

2. Purpose & objectives

The purpose of this project is to critically explore how new clinically-oriented research knowledge enters, flows through, is exchanged within, and leaves interdisciplinary primary health care teams. In general, we want to know how HCT members access information, and communicate this information within their teams.

We bring to bear novel theoretical and methodological approaches, including social interaction theory, team dynamics, management theory, and social network analysis, to understand how these teams are structured, and the expectations (explicit and implicit) of team members regarding the “knowledge role” both inter-professionally and as it relates to patient education. We have two main objectives:

- (1) Explore how clinically-oriented research knowledge flows into, is exchanged within, and leaves interdisciplinary health care teams (HCTs).
- (2) Identify factors that HCTs perceive are related to good communication, knowledge flow, patient education and overall team functioning

3. Methods

This is a mixed-methods study with two interdisciplinary HCTs in Ontario, Canada (overall sample size, n= 28: Site 1, n=20, response rate 74%; Site 2, n=8, response rate 57%). Site 1 was an academic family medicine teaching centre located in a mid-sized city and affiliated with a University; it actually consisted of four separate care teams, each composed of a Senior Physician, 2 residents and 1 nurse; each team had access to several specialty and allied health professionals; Site 2 was a community-based family practice located in a small town, serving a mostly rural area. Thus from the two sites, five HCTs were available for analysis. Data was collected from each HCT member using: (1) A social network questionnaire to quantify types and numbers of relationships and interactions; a social network perspective provides the conceptual underpinnings of this research. Networks are made up of sets of individuals, organizations, or concepts, and each actor has links and connections to other actors who also have links and connections. Network analysis reflects both a theoretical perspective and provides a set of methods to measure and describe relationships and interactions. Social Network Analysis (SNA) is a research approach uniquely suited to describe, explore, and understand structural and relational aspects of health (Luke & Harris, 2007). Network analysis is about structure - the emphasis is on the relations and interactions rather than the attributes of the actors involved in a network. Network analysis provides a way to identify the structure of the

network and provides insights into the influence of the network structure on individuals within a group (Wasserman & Faust, 1997).

(2) Semi-structured interviews to explore experiences with knowledge flow and to compare with the social network data.

Analysis consisted of descriptive social network analysis using UCINET (a software program for the analysis of relational data) and content analysis of individual interviews, with the aid of NVivo (a software program which assists in the organization and analysis of qualitative data).

4. Results

Results from these initial teams indicate that obtaining clinically-oriented research is perceived to be a shared responsibility among team members. In the academic setting, trainees (resident physicians) had a large role in knowledge acquisition (bringing information to the team) and senior physicians often turned to residents for new information. In the small community setting, new information often entered the team sporadically and less frequently; the team depended on face-to-face meetings for knowledge exchange. In both settings, nurses seemed to be less involved in this knowledge exchange process, but brought information from outside sources (listserv, professional college, and conferences) which was shared formally at sessions such as 'lunch and learns' or other committee meetings. 'Outside experts' (invited speakers, pharmaceutical representatives) played a role in bringing research to HCTs, but it is not clear how this information was used in the practice setting. Most HCT members endorsed having resources (e.g., an on-site librarian) for knowledge management and brokering, especially in retrieving new information, but neither site had the ability to fund such an initiative.

Most HCTs that participated in our project reported having regular meetings, meant to be a forum to introduce and discuss information; however the organization and maintenance of meetings varied among teams and there was little agreement among team members about the goals/outcomes of such meetings. Many healthcare professionals reported relying on informal venues for knowledge sharing ('hallway chats').

Patient education was seen as an individual responsibility, and the amount and/or quality was reported to be dependent on the preferences of the individual clinician.

When it comes to applying the knowledge, or making changes in patient care, responsibility was often allocated to the team leader (i.e., most senior physician). While changes to clinical practice are often attributed to research, it is not obvious how that information entered the HCT. One possible exception was highlighted in cases where organizational changes (e.g., changes to charting, or patient referring practices) were implemented by veteran nurses or specialty staff (e.g. social workers or clinical teams).

5. Conclusion

The degree to which "research evidence" spontaneously enters HCTs is not obvious. Despite general understanding of clinical roles, there is less agreement of how teams function vis-à-vis information exchange – there is considerable room for improvement in this area, through, for example, more formalized venues and/or professional roles. Knowledge translation interventions may best succeed if they demonstrate a team member's contribution to evidence-based practice, and involve active collaboration in knowledge uptake. Future research is required to determine what kind of information actually changes practice behaviour, where that information comes from, and how it

enters the health care team. Fisher's concept of "information ground" (e.g., Fisher & Naumer, 2006) might provide a useful theoretical approach to understanding information sharing, where the mutable factor in these types of teams are not the environment or actors, but the individual patient and their changing needs for specific clinical actions from encounter to encounter.

6. References

- Atwal, A. & Caldwell, K. (2005). Do all health and social care professionals interact equally: A study of interactions in multidisciplinary teams in the United Kingdom. *Scandinavian Journal of Caring Science*, 19, 268-273.
- Fisher, K.E. & Naumer, C.M. (2006). Information grounds: theoretical basis and empirical findings on information flow in social settings. In A. Spink & C. Cole (Eds.), *New directions in human information behavior*, (pp. 93-111). Amsterdam: Kluwer.
- Luke, D. & Harris, J. (2007). Network analysis in public health: History, methods, and applications. *Annual Review of Public Health*, 28, 69-93.
- Meuser, J., Bean, T., Golman, J., & Reeves, S. (2006). Family health teams: A new Canadian interprofessional initiative. *Journal of Interprofessional Care*, 20(4), 436-438.
- Mickan, S. & Rodger, S. (2005). Effective health care teams: A model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, 19(4), 358-370.
- Wasserman, S. & Faust, K. (1997). *Social Network Analysis: Methods and Applications*. Cambridge: Cambridge University Press.
- Xyrichis, A & Lowton, K. (2007). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, 45, 140-153.