

Evidence Implementation in Health Care: Understanding How a Community of Practice Contributes to the Improvement of Evidence Uptake in Practice

Abstract

There is a critical need to develop and implement strategies to translate evidence from research findings into evidence-based practice. The persistence of the “research – practice gap” has been a recurrent theme in the health care literature for over 20 years. Despite advances in research and innovations in technology and health care services and delivery, health professionals resist, delay or fail to consistently implement clinical practices based on available evidence as to their effectiveness, efficiency and safety. More complex problems require more complex solutions; knowledge does not inevitably change practice or improve health outcomes.

There has been limited empirical research into the most effective and efficient ways of “bridging the gap”. Most research has been directed toward the development and implementation of evidence-based clinical guidelines. What is needed is research that will further understanding of why the practice gap exists and examine innovative initiatives that potentially offer solutions to problems confronting knowledge translation and exchange. Such an initiative is the Emergency Care Community of Practice, established by the National Institute of Clinical Studies in 2003, to promote and assist knowledge exchange, evidence uptake and practice change in participating emergency departments throughout Australia. The Emergency Care Community of Practice was implemented without evidence of its appropriateness in health or its effectiveness as a model for evidence implementation, practice change, sustainability and transferability. This paper addresses the significant and pertinent challenges confronting the current PhD research study of this unique “community of practice” including:

- synthesising various theoretical frameworks underpinning concepts of practice-relevant research, credible evidence and effective implementation;
- reconciling the mixed methods approach taken, given the debate about what constitutes credible evidence for guiding practice, and
- specifying and measuring outcomes that may be attributed to the community of practice.

Introduction

The existence of a gap between theory and practice in health care and the importance of developing strategies to “bridge the gap” have been pervasive themes in the health care literature for more than twenty years. Although there is universal consensus that a gap exists, there is conjecture as to its nature, the factors determining its persistence, and the effectiveness of strategies for “bridging the gap”. Familiar terms such as “benchmark”, “best practice” and “evidence-based practice” populate the contemporary literature. Different conceptualisations, interpretations and definitions of existing terms and emergent terminology, such as “research based practice”, “research based evidence”, “practice-based research”, “practice-based evidence”, “knowledge translation” and knowledge transfer” confounds many practitioners and policy makers, let alone novice researchers.

What distinguishes the contemporary evidence-practice debate is the vigour of the competing arguments particularly concerning the quality of evidence required for “burden of proof”. Strategic knowledge management is characterised by a shifting emphasis from identifying “barriers and enablers” to examining new means of assessment, processes and tools for effective and efficient knowledge translation. Knowledge transfer now extends beyond traditional research and clinical contexts to encompass key stakeholders in health policy making and management. Other significant trends include appreciation of the complexity of sustaining change at individual, organisational and systems levels and acknowledgement of the significance of practice within health care disciplines.

Setting the Context

1. The evidence-practice gap debate

The assertion that a research-practice gap exists is neither self-explanatory nor self-fulfilling. If the gap exists, what is the nature and source of that gap? What determines its apparent persistence? If bridging the gap is essential, why and how? What are the factors that determine successful implementation strategies? Are the outcomes from implementation those anticipated or wanted?

What are the drivers for the evidence-based practice debate? New knowledge generated by advances in research, innovation and technology has historically been under-utilised by health care professionals who delay, resist or fail to change clinical practices consistently and effectively. (Grol, 2001; Sackett, 1997). Grol and Grimshaw (2003) demonstrated that many clinical practices are based on factors other than evidence as to their safety, risks, effectiveness and efficiency. Many authors have questioned the factors involved in the limited uptake of research findings that would potentially improve practice and by implication, health care outcomes. The evidence-based practice movement contends that the implementation of evidence from research findings will bridge the gap, i.e. effect changes in clinical practice (Buchan, 2004; Grimshaw and Eccles, 2004; Dopson, 2005; Grol et al, 2005). The growing research into evidence implementation demonstrates however that research evidence, although essential does not inevitably result in changed practice. (Strauss and Jones 2004 & Eccles and Grimshaw, 2004; Dopson et al, 2005).

2. The Emergency Care Community of Practice (ECCoP)

The evidence based practice debate provided a fertile context for the establishment of the ECCoP. The National Institute of Clinical Studies (now an Institute of the NHMRC) was established by the Australian Government in December 2000 as a national agency for improving health care by helping close identified gaps between best available evidence and current clinical practice. In 2002, NICS participated in an extensive consultation process within the health care sector to identify clinically significant gaps between research and practice. Emergency care was identified as an area of priority and two initiatives were instigated to inform practice in selected targeted areas in emergency care. These were:

1. “clinical networks” of medical, nursing and allied health clinicians, academics, health organisations and policy makers formed to undertake defined projects in practice change and clinical improvement through evidence uptake, and
2. the “National Emergency Department Collaborative” in which clinicians, nurses, professional colleges and patients collaborated in the development of clinical indicators to assess the effectiveness of evidence-based strategies to bridge identified research-practice gaps. and improve care in 47 participating emergency departments, nationwide (NICS reports, 2003, 2004).

The Clinical Networks and the Emergency Department Collaborative were antecedents that helped to create a culture of inter-disciplinary cooperation that would nurture the embryonic community of practice. In 2003, NICS established the Emergency Care Community of Practice (EC CoP) to promote and assist evidence implementation in participating emergency departments. NICS’ agenda was explicit. The focus of the ECCoP was on application of evidence at practitioner level by fostering initiatives in practice change rather than quality improvement processes.

The Research Study

Although various models of communities of practice have been established in commerce, industry and education to improve knowledge sharing and problem solving among common interest groups, the model is rare in health care. Its potential has been recognised by policy makers in health services but is untested as a strategy for evidence implementation in clinical practice. Grimshaw and Eccles (2004) note that there is a lack of understanding about professional behaviour in practice and little research into the long-term effectiveness and sustainability of change. If strategies for changing practice are to be applied across clinical settings, then the scientific bases for the strategies needs to be established. In 2005, NICS funded a PhD Scholarship for an empirical study of the ECCoP to examine the effectiveness of the community as a sustainable and potentially transferable medium for improving evidence uptake in the clinical setting.

Communities of Practice

1. What is known about communities of practice?

A new reader of the CoP literature will be confronted with many definitions and descriptions reflecting not only explicit semantic variation but also fundamental conceptual differences as to what CoPs are, how they emerge, their purpose, efficiency and effectiveness. First described by Etienne Wenger, Communities of Practice are “groups of people who share information, insight, experience and tools about an area of common interest” (Wenger, 1998 p.22). Wenger later refined this definition to include “shared concern and passion about a set of problems or topic” and “deepening knowledge and expertise through regular and ongoing interaction”. (Wenger et al, 2002).

Newer definitions have evolved to reflect priorities within the host setting and differentiate a community of practice from other work-groups such as networks and collaboratives. A Community of Practice is a voluntary, interactive network of professionals within a domain of practice. They are distinguished from other work groups, project teams and networks by the level of participation, cohesiveness and collaboration between members whose purpose and commitment extend to broader professional concerns, problem solving and practice improvement. This sense of shared purpose may cross disciplinary, organisational, and geographic and disciplinary boundaries to exert a wider impact on practice (Wenger, 1999; Wenger et al, 2000; Gongla and Rizzuto, 2001).

2. The knowledge gap – what is yet to be learned about communities of practice?

To date, very few empirical studies of communities of practice have been conducted. There is much to be learned about how they function, particularly how they influence professional and organisational knowledge, learning and behaviour. The determinants of contextual influence have not been identified. How and why different models emerge and develop have yet to be examined. Given that their application has been in specific settings, generalisability and transferability is debatable. Critically, how to identify, measure and attribute outcomes to the activity of the community has not been explored.

The Emergency Care Community of Practice (ECCoP)

1. What is known about the ECCoP?

The ECCoP currently involves 77 of the 170 emergency departments in diverse metropolitan and rural hospitals nationwide. Membership fluctuates however more than 400 emergency department multi-disciplinary clinicians are actively involved in various research and practice-improvement activities. They communicate via the dedicated website, linked portals, teleconferences and formal activities, according to their key interests and priorities.

The ECCoP demonstrates many of the theoretical features distinguishing communities of practice. It also exemplifies more contemporary characteristics of being issues-based and directed toward problem solving (Johnson 2001) and deepening participants' knowledge and expertise through ongoing interaction (Wenger, 2002). The relevance to the issue of the gap between evidence and practice, and building capacity for evidence-based practice change is critical. The ECCoP integrates three contextual elements, the domain (emergency care), practice (by emergency care practitioners) and the community. (both the ECCoP and its host organisational and health services communities). The elements of evidence-based practice, i.e. best available evidence, clinical expertise, experience and judgment and client needs, preferences and values are reflected by the ECCoP as an amalgam of activities in knowledge management, evidence implementation and quality improvement. The ECCoP demonstrates commonalities with examples in other settings including:

- commitment to a shared value, in this case, evidence-based practice
- willingness to participate in shared learning relevant to clinical priorities
- importance of social, inter-personal interaction
- flexibility and responsiveness to participants needs, priorities and interests
- role development and differentiation within the ECCoP and emergency department
- the significance of executive support and credible “brokerage”
- “life cycle” changes and concern for sustainability.

The differences that could distinguish this community of practice from others still need to be systematically examined and substantiated. These include:

- commitment to informed practice change for improved outcomes
- critical significance of meaningful priorities driven from the practice domain
- commitment to building and applying research knowledge and skills in practice
- a level of sophistication in infra-structure and dynamics, including “seeding” of “collaborative” like initiatives in evidence implementation driven by local issues
- the importance of shared stories and narratives
- emergence of strong clinical leadership and champions for practice-change
- the growing importance of strategic partnerships and links
- the responsiveness demanded from and provided by the ECCoP project team
- different perspectives emerging about the role of the broker
- possible differences in the life cycle that appears to be more a metamorphosis than the classic infancy, adolescence, maturation and decline.

2. The knowledge gap: what is not known about the ECCoP?

Many questions remain unanswered about the factors that determine how and why the ECCoP has developed as it has in this particular clinical context and research environment. What were the enablers that overcame, (and to what extent) the individual, professional and organisational barriers to changing practice? What are the determinants and mechanisms of its efficacy as a medium for evidence implementation? How is effectiveness to be defined and measured to the satisfaction of key stakeholders in the research process? Propositions about the significance of different host settings, transferability and sustainability are speculative at best.

The Research Experience

The term “research problem” can be interpreted in two ways; firstly, defining the research problem within the context of the research process, that is, the key questions that the research study must address, and secondly, the challenges encountered by the researcher during the research process.

The concept of “evidence based practice” is based on three fundamental tenets that underpin the ECCoP study. These are that rigorous scientific research provides evidence for “best practice”, evidence implementation involves changing professional behaviour, and improving practice will achieve improved outcomes (Friedland et al, 1998; Grol and Grimshaw, 2003). Although rare in health and untested as a medium for promoting evidence uptake, the ECCoP was established with this specific intention despite limited evidence of its appropriateness or potential effectiveness. In 2005, NICS funded a PhD research study of the ECCoP to examine its effectiveness as a medium for evidence implementation, to identify key determinants of its effectiveness and explore the potential of the model for sustained practice change and transferability among different clinical settings.

1. The “research problem”

The first challenge has been to define and confine the boundaries of the study. The scope of the study had to encompass:

- theoretical concepts and principles underpinning “communities of practice” and their relevance and application in the health care sector
- factors involved in emergence, development and sustainability in practice setting
- patterns of participation, interaction, knowledge sharing and role development
- nature and quality of evidence, accessibility and applicability in practice
- determinants, barriers to and strategies for evidence implementation
- contextual factors affecting transferability across organisational boundaries, and
- indicators and measures of effectiveness, and
- attributing effects and outcomes to ECCoP participation and activity.

The research questions

The broad scope of the study meant that specifying feasible and meaningful questions was difficult. Finally, three key questions were identified.

1. What factors are instrumental in determining the effectiveness of the Emergency Care Community of Practice?
2. Is the Community of Practice model an appropriate model for informing the implementation of evidence in practice?
3. What is the potential transferability of the Community of Practice model to other clinical contexts in health care?

Theoretical Framework

The research proceeds from a theoretical proposition that the ECCoP has evolved in a unique way with characteristics that *may* be influential in its potential for sustained evidence implementation in health care. Various approaches and strategies for evidence implementation in the literature reflect

diverse perspectives and assumptions, based on different theories about the processes of learning and behavioural change. There is no convincing evidence for the efficacy of any one approach in a given situation. It could be argued that all have features that may be relevant for shaping learning and professional behaviour toward adopting and applying evidence in practice. Social Interaction Theory provides an appropriate framework to analyse and integrate the dynamics of learning and professional roles, relationships and interaction within the clinical context (Grol, 2004; Grol and Grimshaw, 2003; Grol, Wensing and Eccles, 2005). This theoretical perspective is consistent with Wenger's fundamental conception of learning within a community practice occurring during interaction between peers.

The Research Design and Methods

The next challenge was to find an appropriate, empirical and sufficiently rigorous research design. The study adopts a mixed-methods approach using case study methodology. The advantage of this approach is its capacity to deal with the history, development, features, and dynamics of this unique, complex and changing phenomenon in both its current and potential settings. The research is being conducted in two phases using multiple data collection methods.

- Phase 1 involved data collection from multiple sources including semi-structured, one-hour interviews with ECCoP participants (sample size 32/163 respondents); in-depth thematic analysis of historical and current, print and electronic, documentation and non-participant field observation of practice in four participating emergency departments and interaction within "virtual community" via the website.
- Phase 2 uses both qualitative and quantitative methods. A survey instrument, informed by phase 1 data will be distributed to all members of the community to test key assertions and propositions.

Analysis:

Analysis is directed toward codifying data obtained from phase 1 interviews and field observation and factor analysis of survey data from phase 2. The ECCoP will be compared with theoretical models and examples from other sectors to identify significant areas of congruence and divergence. Synthesis of data will use deductive and inductive reasoning to address the primary research questions.

2. The Research Process

Three specific issues have proven challenging. Firstly, the ECCoP was initiated by an organisation committed to the tenets of evidence-based practice and yet the model had no empirical evidence for this application in health care, its appropriateness for influencing professional learning, in any clinical setting nor its' potential as a medium for changing practice through improving evidence uptake.

Secondly, the research study is charged with establishing the evidential basis for a community of practice as a medium for evidence implementation, as well as the evidence for practice change mediated through strategic evidence implementation. It needs to be rigorous and sufficiently systematic to describe the mechanisms and develop tools for evidence uptake in diverse clinical settings. Existing theories and models of behavioural change insufficiently address complex, multi-faceted and dynamic interventions such as the ECCoP.

The third issue is the most problematic and is related to the perceived inability of social research, within the evidence-based practice lexicon and evidence hierarchies, to establish causality. Determining the effectiveness of the community of practice for evidence-based practice change means that observed changes should be attributable to participation in and activity of the ECCoP. This requires a level of precision in identification of outcome indicators and their measurement that may not be achievable. Currently there is no unifying social theory with the potential to resolve the issues of measurement and attribution of effects let alone generalisation from an atypical case.

Contribution of the research to new knowledge

1. Knowledge about communities of practice

What might be learned about communities of practice from this application in health care?

The ECCoP may demonstrate ways and means whereby:

- engagement in collaborative professional learning is increased
- multi-disciplinary knowledge, skills and experiences are successfully integrated
- contextual differences influencing readiness and the capacity to host communities of practice are identified
- professional role differentiation and development is enhanced
- professional, organisational and technological resources necessary to foster and support communities throughout their stages of development are identified, and
- the potential for adaptation of the model in different contexts, to achieve different purposes and accommodate different patterns of interaction is tested.

2. Knowledge about the ECCoP

From the shared stores of success, we know that the participants are sufficiently positive about the community to have seen it grow in numbers of sites involved, membership, interaction and the degree of diversity and sophistication of its activity. Findings from the study will hopefully provide valuable information for the future evaluation of the community and inform and guide policy and decision making for NHMRC, NICS and the Effective Practice programs. Some tentative observations and implications for the future include:

1. structure, organisation and dynamics are significantly influenced the host context, professional practice domains and multi-disciplinary interplay;
2. inter-disciplinary interaction is instrumental in overcoming traditional hierarchical relationships and silos isolating professional knowledge and skills;
3. cohesion is dependent on interweaving of a shared commitment to a fundamental value with quality social interaction during the learning process;
4. the role of the broker is critical but different perspectives by stakeholders, related to its future role may provide a source of tension.
5. Sustainability does not mean maintaining the status quo. Using the biological metaphor of an ecosystem, adapting to change by changing might be the source of sustainability.
6. Transferability to other contexts is as much dependent on organisational culture, climate and readiness to host the community as the nature of the community itself. The ECCoP may need to take responsibility for building innovative capacity in targeted hosts.

3. Bridging the evidence-practice gap

Evidence based practice contends that the conscientious, explicit and judicious use of current best evidence is necessary in making decisions about care. To practice in an evidence-based way requires the integration of clinical expertise with the best available evidence from systematic research. The ECCoP is an innovation in quality improvement in health care and its study is a trial in social research. Perhaps the most valuable lesson from the ECCoP study is that rigorous qualitative and mixed methods research has a place alongside the more purportedly scientific methodologies. The methodology may provide a grounded theory approach to development of an evolving theory for effective knowledge translation and transfer in specific contexts and highlights important areas of theoretical speculation and further examination.

Informing practice means findings from this and other studies need to be synthesised and disseminated in order to build capacity in clinically relevant research and evidence implementation

within and across other professions, organisations and sectors where networking and collaborative models are being tried. We need to question, examine and test the principles and propositions underpinning evidence-based practice, herein lays the crux of evidence implementation science.

References

1. Borbasi, S., Jackson, D. and Langford, R.W., 2004 *Navigating the Maze of Nursing Research: An Interactive Learning Adventure*. Elsevier Churchill Livingstone, Australia.
2. Braithwaite, J., 2008 *Personal conversation with the author*.
3. Buchan, H., 2004 *Gaps between best evidence and practice: causes for concern*. Medical Journal of Australia 180:6. Supplement: Adopting best evidence in practice, S48-S49.
4. Clarke, C. and McEldowney, R., 2000 *The Health Care Financial Crisis: Reorganization in Evidence-Based Medicine as a Response to an Unholy Trinity*, Policy Studies review, Winter 2000, Vol.17, Issue 4. Web article: <http://www20.epnet.com>
5. Dopson, S., 2005 *Knowledge to action: Evidence-based Health Care in Context*.
6. Dopson, S., Fitzgerald, L., Ferlie, E., Gabbay, J. and Locock, L., 2002 *No Magic Targets! Changing Clinical Practice to Become More Evidence Based*, Health Care Management Review 27(3): 35-47., Aspen Publications Inc.
7. Eccles, M.P. and Grimshaw, J.M. 2004 *Selecting, presenting and delivering clinical guidelines: are there any "magic bullets"?* MJA March, Vol 180:6, Supplement Adopting best evidence in practice, pp.S52-S54.
8. Friedland, D., Go, A.S., Davoren, J.B., Schlipak, M.G., Bent, S.W., Subak, L.L. and Mendelson, T., 1998 *Evidence-Based Medicine: A Framework for Clinical Practice*. Lange Medical, Appleton and Lange.
9. Gongla, P. and Rizzuto, C.R., 2001 Evolving communities of practice: IBM Global Services experience. *IBM Systems Journal* 50:4, pp. 842-862.
10. Greenhalgh, T., 2007 *Master Class for NICS Scholars and Fellows*, Adelaide.
11. Grimshaw, J.M. and Eccles, M.P., 2004 Is evidenced-based implementation of evidence possible? *Medical Journal of Australia*, March, 180(6), Supplement Adopting best evidence in practice, s50-1.
12. Grol, R., 2001 *Successes and failures in the implementation of evidence-based guidelines for clinical practice*, Medical Journal of Australia 180(6), s50-1.
13. Grol, R. and Grimshaw, J., 2003 *From best evidence to best practice: Effective implementation of change in patients care*. Lancet 362: 1225-1230.
14. Grol, R., Wensing, M. and Eccles, M., 2005 *Improving Patient Care: The implementation of change in clinical practice*, Elsevier Butterworth Heinemann, Edinburgh.
15. Huckson, S. and Davies, J., 2007 *Closing Evidence to Practice Gaps in Emergency Care: The Australian Experience*, Journal for Accident and Emergency Medicine, 14 (11), November pp.1058-1063.
16. National Institute for Clinical Studies (NICS) 2003 *Evidence-practice gaps report volume 1*. NICS, Melbourne.
17. National Institute for Clinical Studies (NICS) 2004 *National emergency department collaborative report*, October 2002 – October 2003 NICS, Melbourne.
18. Sackett, Rosenberg, Gray, Haynes and Richardson, 1996 *Title*, BMJ.
19. Sackett, D.L., Strauss, S.E., Richardson, W.S. et al 1997 *Evidence-based medicine: how to practice and teach*, *EBM*, 1st edition Churchill Livingstone, London.
20. Strauss, S.E. and Jones, G., 2004 *What has evidence based medicine done for us?* BMJ, 329:987-988 (30 October).
21. Wenger, E., 1998a. *Communities of Practice. Learning, Meaning, and Identity*. Cambridge University Press.
22. Wenger, E., 1998b. *Communities of Practice: Learning as a Social System*, Systems Thinker, June 1998.

23. Wenger, E., 1999a. *Communities of Practice: the Key to Knowledge Strategy*, The Journal of the Institute for Knowledge Management, Fall 1999, Vol. 1.
24. Wenger, E., 1999b. *Communities of Practice: the Key to Knowledge Strategy*, The Journal of the Institute for Knowledge Management, Fall 1999, Vol. 1.