



# Exploring a “community of practice” methodology as a regional platform for large-scale collaboration in cancer surgery—the Ottawa approach

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## ABSTRACT

Pressing challenges have forced health care providers to rethink traditional silos and professional boundaries. Communities of practice (COPs) have been identified as a means to share knowledge across silos and boundaries. However, clarity sufficient to enable their easy and uniform reproducibility is lacking, leading to a gap between COP conceptualization and implementation. This paper explores a COP structure and outlines a framework that is adaptable, measurable, and implementable across health disciplines in a regional cancer surgery program.

## KEY WORDS

Community of practice, regional collaborations, quality improvement, health care services research, knowledge translation

## 1. INTRODUCTION

Pressing challenges have forced health care providers to rethink its traditional silos and professional boundaries<sup>1</sup>. The “community of practice” (COP) approach has been identified as a promising platform that can support knowledge mobilization and collaboration across organizational boundaries<sup>2–4</sup>. Distinct from project teams, working groups, or departments, COPs facilitate voluntary, real-life knowledge sharing outside of formally regulated structures. These communities could be described as “groups of people who share a concern, a set of problems, or a passion for a topic, and who deepen their knowledge and expertise in an area by interacting on an ongoing basis”<sup>3</sup>. The ambiguity of the terms “community” and “practice” is, we believe, crucial for broad applicability of the approach across disciplines and care settings. However, use of the COP approach has been hampered by a lack of clarity sufficient to enable easy and uniform reproducibility<sup>5</sup>. In addition, COP research has historically focused on unidisciplinary peer networks and

not on the role of COPs in large-scale collaborations across multiple disciplines<sup>6,7</sup>.

The idea that a COP can be deliberately started and supported by an organization to facilitate multi-professional collaboration is a new and emerging area of enquiry. It has also been increasingly used as a theoretical approach to analyze and compare large-scale health care collaborations<sup>1,5,8</sup>. Additionally, a number of recent research findings have suggested that features of COP might be beneficial in addressing the challenges of multi-professional, multi-organizational collaborations<sup>9–11</sup>.

The present paper attempts to close the gap between COP conceptualization and its application in health care settings by describing a working model that was used in the implementation of regional COPs in cancer surgery. In addition, we explore the nature of peer networks within health care organizations and the opportunity for integrating existing networks from independent hospitals within a region into a manageable community.

## 2. RESEARCH DESIGN

### 2.1 Phase One: Literature Review

In our 2007 study of collaborative initiatives development in health care, we explored the possibility of applying a COP model to facilitate quality improvements in cancer surgery<sup>8</sup>. Using that model as an analytic approach in our 2009 systematic literature review of surgical collaborations, we looked for common elements in enabling operating infrastructures and tools<sup>2</sup>. The review further enhanced development of our model. The optimal structure for the collaboration was described as regional in scope, evidence-based, data-driven, and supported institutionally through strategic partnerships providing comprehensive support as part of the continuous quality improvement cycle<sup>2,12</sup>.

Here, we examine recent findings on the role of COPs in large-scale health care collaborations, with a

specific focus on barriers to implementation and factors that facilitate successful regional collaboration.

## 2.2 Phase Two: CoP Model Refinement

The CoP infrastructure and tools were adapted and delineated by drawing on a review of the literature, empiric observations, business constructs, and quality improvement principles. We refined the CoP structure, implementation tools, and outcomes to align with recent evidence on barriers and facilitators to successful collaboration across organizational and professional boundaries.

## 2.3 Phase Three: Pilot Test Regional CoP in Cancer Surgery

We describe the application of the model within a regional multi-organizational multi-professional collaboration in cancer surgery, and we include a practical description of its structure and activities. The implementation details, including clinical outcomes, are reported elsewhere<sup>13</sup>.

## 3. CHALLENGES OF MULTI-PROFESSIONAL COLLABORATIONS

Our literature search highlighted the limited evidence about what works and what doesn't in health care collaborations. Our understanding of a conceptual framework, an identifiable operational infrastructure, and outcomes of successful collaboration is still evolving. The challenges with knowledge-sharing and collaborative work within health care systems are primarily attributable to professional, organizational, and cultural barriers. Multiple differences in values, professional identities, and attitudes to organizational change divide the numerous health care stakeholders<sup>12,14-17</sup>. Collaborative identity formation is blocked by existing differences in professional cultures supported by highly specialized education and traditional hierarchies<sup>18,19</sup>. There is a divide between clinical practice and health care management in perceptions of research evidence and the nature of decision-making processes<sup>20,21</sup>. In addition, characteristics of peer networks vary across geographic areas<sup>22,23</sup>. Finally, the research and practice streams have traditionally been separated in academic and community care<sup>24</sup>.

Although still evolving, the CoP approach has been demonstrated to be beneficial in breaking down professional, geographic, and organizational boundaries; in sharing information; in reducing professional isolation; in building professional competencies; and in facilitating open and collaborative innovation<sup>5,8-10</sup>. Within social networks at the practice level, task-related social ties are formed organically between professionals with complementary skill sets<sup>11</sup>. Multi-professional practitioners are

automatically embedded in informal social networks when they share patients with a similar illness burden in the same health region<sup>25</sup>.

On the basis of that emerging conceptualization, we considered exploring the structural elements of a regional CoP that would be practical, sustainable, and adaptable. We emphasize that what follows is a model developed based on the opinions of the authors, resulting from review and interpretation of the limited literature describing large-scale collaborations in health care. It is also based on the personal 6-year experience of the authors with CoP implementation in the context of quality improvements in cancer surgery.

## 3.1 CoP Model as a Regional Platform for Large-Scale Health Care Collaborations

To build on quality improvement methodology and to facilitate implementation across diverse settings, we suggested standardizing the CoP process, including its structure, outputs, and evaluation measures. We hypothesized that a shared understanding of how to start, measure, and sustain a CoP would provide opportunities to assess and compare the effectiveness of various collaborative implementation strategies. In addition, a standard CoP framework could help in scaling collaborative health care improvements and lend itself to further systematic enhancements.

### 3.1.1 CoP Structure in the Context of Health Organizations

We identified three structural elements in Wenger's original conceptualization of CoPs: a *community* of people who are passionate about the issues relevant to their *practice* and who deepen their *domain of knowledge* by interacting on an ongoing basis. Membership in a CoP is voluntary and is not constrained by professional or organizational boundaries<sup>3,26</sup>. A main function of a CoP is to foster learning and knowledge-sharing for and by the participants and to be a valuable enabler in health care improvement, as highlighted in the U.S. Institute of Medicine's learning networks model<sup>1</sup>.

In the context of a hosting organization (in this case, a hospital), communities provide a social learning platform for individual knowledge conversion into collective organizational learning<sup>27,28</sup>. The focus on practice generates idea-sharing dialogue and connection between and across sites<sup>29</sup>. Learning and problem-solving activities allow CoP members to relate their projects to the context of the whole system and to deepen their domain of knowledge<sup>8,27</sup>.

To adapt this concept to a health care environment, we integrated the structural elements of CoPs with quality improvement methodology and the traditional health care focus on continuous learning. We explicitly extended CoP membership to both administration (or management) and clinician groups, establishing a multidisciplinary platform.

### 3.1.2 CoP Implementation Tools

The identified structure and functions of the model subsequently informed the design of five supportive tools necessary for the development of a multi-professional CoP in quality improvement. Those tools included

- access to data relevant to practitioners and host organizations alike,
- access to evidence and methodology support to evaluate knowledge gaps,
- access to targeted continuing medical education (CME) and continuing professional development (CPD) activities to provide CME or CPD accreditation for community work in identification of the evidence practice gaps,
- project management support to crystallize innovations and ideas into actionable processes, and
- a suite of communication strategies to enable community building and cross-hospital collaboration.

Access to data is essential to identify issues relevant to health care professionals and organizations. Care-quality concerns unite everyone across professional and organizational boundaries. A multi-organizational multi-professional CoP would therefore have to develop the capacity to support collection of various types of actionable data relevant to participating practitioners, managers, and patients.

Access to evidence and methodology support addresses differences in decision-making processes and in the perception of evidence by practitioners and managers. It includes access to process improvement and evidentiary assessment methodologies that participants can use to apply the necessary rigour to understanding their performance data and identifying areas for improvement.

Essential to the process is identification of gaps in process, evidence, or practice because of variation or failure to meet benchmarks relevant to all stakeholders. It is here that targeted CME and CPD activities with both a clinical and an administrative focus are offered. When gaps are identified, ideas and solutions are documented, prioritized, and implemented across the entire continuum of care. That work is accomplished in all participating hospitals using traditional project management methodology and targeted training.

Finally, a comprehensive communication strategy with both synchronous (face-to-face meetings, journal clubs, case conferences, tele-video) and asynchronous options (online formats, newsletters) is used to support the ongoing sharing and interactions by and for all members that is required for community-building.

### 3.1.3 CoP Outcomes

The adoption and modification of Nonaka’s “knowledge spiral” theory<sup>30</sup> provided a basis for defining the

outcomes of CoPs. It also helped to identify a framework for the intermediate outcomes of community formation that facilitated delivery of the final output: tangible improvements in care and care delivery. We hypothesized that the four important intermediate outcomes are innovations in care; knowledge transfer (closure of evidence or practice gaps); “re-tribalization” of peer groups, with development of interdisciplinary trust and social ties (social capital) and rebranding (a “new identity”) for the group; and establishment of infrastructure to support learning, mentorship, and leadership (“organizational memory”)<sup>8</sup>. At the very heart of the model is a transformative process of open-ended learning and shared problem-solving among the multi-professional groups.

The conceptualization of the integrated CoP model (Figure 1) combines the aforementioned important structural elements of CoPs, a support infrastructure, and intermediate outcomes.

The presence of an identifiable framework for the operational structure and outcomes of the CoP model allows for development of tangible evaluation measures to assess key components of collaboration. The intermediate CoP outcomes can then be used as standardized assessments to monitor community development and collaboration across the region and to help justify continued support by the host organizations.

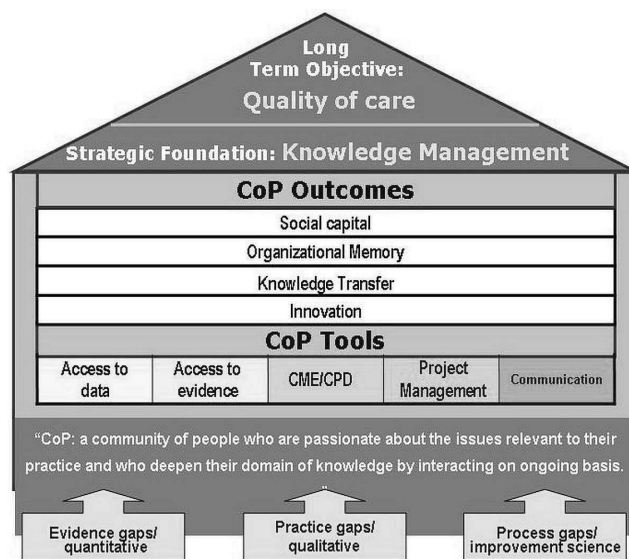


FIGURE 1 The Communities of Practice (CoP) infrastructure, tools, and outcomes. All essential components of the CoP development process are shown, including Wenger’s definition<sup>3</sup> of its structural elements (community, practice, shared domain of knowledge), implementation tools [access to data, access to evidence, accreditation with continuing medical education (CME) and continuing professional development (CPD), project management, and communication support]; and the intermediate CoP outcomes (innovation, knowledge transfer, social capital, and organizational memory) that can inform the evaluation process.

### 3.2 Regional Cancer Surgery CoP

Our model was applied to the development and evaluation of a pilot regional collaborative in cancer surgery<sup>31</sup> whose hub-and-spoke application has been explored in other regions and care settings<sup>32</sup>.

The implementation strategy is based on a deliberate CoP model, a hub-and-spoke operational structure, and an administrative coordinating committee. This model systematically leverages the strengths of individual hospitals, the priorities of individual practitioners, and the explicit linking of performance measures with the CPD frameworks and credit system.

Using this structural platform, The Ottawa Hospital, an academic tertiary-care facility, and a group of 8 regional-partner community hospitals launched an ambitious joint initiative to improve the quality of cancer surgery across the entire continuum of care. Rather than address isolated quality issues independently, three inter-disciplinary CoPs in breast, colorectal, and prostate cancer with more than 230 members were formed. The participants included surgeons, medical and radiation oncologists, nurses, social workers, administrators, family practitioners, radiologists, pathologists, gastroenterologists, and public health leaders.

The starting point in community formation is practitioner-informed identification of a practice problem or issue solicited through surveys and in-person interviews with key stakeholders. As a follow-up step, a gaps-and-barriers analysis is presented at regional multidisciplinary workshops. The participants then link variations in hospital outcomes to differences in care processes and discuss improvement targets. Formal accreditation of CoP meetings within the CME system makes participation in improvement activities by clinicians an integral part of their individual professional development plans.

At the next step, regional mutually agreed upon standards of care are developed and supported by a set of quality indicators. Those key performance measures are linked to the process improvements responsible for positive clinical outcomes. The data lead to the establishment of regional benchmarks. Participants now have a mechanism to compare their practice with benchmarks and targets.

Pursuing their goals further, community members meet on a regular basis to review their progress in quality improvement implementation. It is important to showcase the early wins that demonstrate the value of collaboration, which can be done using multiple communication channels, including newsletters, video conferencing, and a variety of presentation venues, including hospital boards, grand rounds, and hospital senior management meetings.

As a final step in developing and integrating communities into the regional care program, the regional steering committee (consisting of vice presidents and heads of surgery) links CoP improvement projects

with the affiliated hospitals and their strategic priorities. The administrator and methodology support enables not only ease of implementation, but also the creation of unique regional projects such as a regional database to capture and measure identified quality indicators. This harmonization between practitioner and administrative levels in the region (the result of a shared understanding of what these collaboration initiatives mean) continues to provide the basis for further reviews and gap analyses that direct future CoP priorities.

Over a 5-year period, our CoP work has resulted in the formation of a steadily growing interdisciplinary community of regional practitioners representing tertiary, community, and primary care. Regional compliance with evidence-based clinical practice guidelines is improved (20% increase in uptake in 2010–2011 compared with 2006–2007). Other significant improvements in the quality of regional cancer surgery care are described in a companion paper<sup>13</sup>. To summarize, the preliminary impact of the regional integrated quality improvement platform is associated with increased organizational capacity to deliver high-quality cancer surgery in the regional hospitals, increased knowledge base in the wider disease site teams, and by extension, improvement in patient outcomes.

### 3.3 Lessons Learned and Future Research Needs

The novelty of the model has several implications and lessons learned for organizations and managers who would like to cultivate multi-professional multi-organizational CoPs.

The first consideration is the need to create a comprehensive support infrastructure that enables collaborative work across organizational and professional barriers. It has to encompass multiple (practitioner and administrative) levels, including an effective operating infrastructure and a coordinating executive committee that can support implementation.

Second, it is essential to link individual and group CPD to the implementation of evidence-based standards and practices so as to facilitate quality improvement initiatives. Formal CPD accreditation of CoP activities helps to address the diverse learning needs of the broad membership.

Third, there is a need to reframe traditional performance measurement metrics so that they focus not solely on the impact in a single organization, but that they measure the impact of multiple organizations working together. As an end goal, assessing the collaboration process itself may help to map the work of multiple organizations against the same measures. An evaluation framework measuring a set of common “collaboration indicators” may be a useful tool in creating awareness about what the U.S. Institute of Medicine describes as an essential component of health care transformation<sup>1</sup>.

We hope that the proposed cop structural processes and outcome measures described here can provide a basis for future research and comparative assessment of successes and challenges in large-scale health care collaborations. Specifically, further applied research is required to address issues such as

- cop manageability and explicit linkages within the wider organizational context,
- scalability and sustainability of the processes,
- viability of cross-functional peer communities, and
- the role of technology in enhancing and delivering real value in these professional communities.

#### 4. CONCLUSIONS

Much of what has been reported to date about collaborative partnerships within health care systems highlights a key role of cops in fostering knowledge-sharing across professional and organizational boundaries. However, clarity sufficient to enable easy and uniform reproducibility is lacking, leading to a gap between cop conceptualization and implementation.

We attempted to address two immediate barriers to implementing large-scale health care collaborations:

- lack of a conceptual framework, and
- lack of an identifiable operational infrastructure and outcomes.

Ultimately, by helping to determine the factors responsible for successful collaborations, the present research may lead to improved delivery and patient care outcomes, as reported in our paper on application of the model in the context of a regional cancer surgery improvement partnership<sup>13</sup>.

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#### 6. CONFLICT OF INTEREST DISCLOSURES

The authors declare that no financial conflict of interest exists.

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