# RCQ: Inter-Clinician Relationships, Practice Audit and Communities of Practice for Healthcare Quality Improvement

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**Abstract:** Inter-clinician relationships and communities of practice have the ability to support continuous quality improvement efforts within healthcare organizations, by offering a means of sharing necessary knowledge that is generally not possessed by clinicians. Sustained adherence to the processes critical to quality improvement is necessary for durable improvements in quality, and knowledge sharing is necessary for supporting these skills, such as practice audit, change management and use of the associated technology. This paper unveils the RCQ (Relationships, Communities, Quality) model, which provides a framework for the purpose of sustaining practice audit for quality improvement in healthcare.

**Keywords:** practice audit, inter-clinician relationship, relationship-centered care, continuous quality improvement

## INTRODUCTION

Improving quality in healthcare remains an ongoing issue. Central to this concern is the need to increase patient safety by eliminating error-prone processes, coupled with pressure to reduce cost and increase productivity. One approach to improving the quality of clinical processes is to do so incrementally, by empowering the knowledgeable frontline workers to make informed changes to workflow. This approach, referred to as Continuous Quality Improvement (CQI), entails the monitoring key process variables and outcomes, so subsequent changes in workflow can be evaluated for effectiveness in improving quality. However, empowering workers and monitoring these variables and outcomes, alone, will not result in quality improvement. Healthcare providers must have the desire, ability and resources necessary to successfully affect change within their practices. Although the ability to change clinical processes is essential, this becomes a significant challenge within complex organizations, and precarious when dealing with human life.

Inter-clinician relationships have the ability to support CQI efforts within healthcare organizations. In this sense, relationships can be defined as a medium for the interchange of knowledge between clinicians. These relationships are connections that clinicians draw upon when knowledge is sought, or new knowledge can be communicated. Communities of practice (COPs) offer a venue in which these relationships can be formed and developed among clinicians. Continuous and sustained adherence to such auditing processes is necessary for durable improvements in quality, and knowledge sharing is necessary for this sustained adherence, as practice audit and CQI require many skills that clinicians do not necessarily possess. Chief among these skills is working with the required technology, which supports the relationship by enhancing the ways in which clinicians communicate.

This paper focuses on the barriers and facilitators of relationships among clinicians for the purpose of sustaining practice audit for quality improvement in healthcare. To accomplish this goal, the need for CQI in healthcare will be presented. Following this, practice audit and its related technologies will be characterized, as well as several challenges in its implementation.  Accordingly, a description of inter-clinician relationships as a dimension of relationship-centered care (of which the scope of this paper is largely limited to), and the role COPs play in facilitating those relationships will be discussed. The role of technology will be described, along with its ability to support relationships and enhance communication. The RCQ (Relationships, Communities, Quality) model will then

be posited, which provides a framework for barriers and facilitators for the use of these relationships as media of knowledge sharing, followed by discussion of issues, such as application of the model and future research.

## THE NEED FOR CONTINUOUS QUALITY IMPROVEMENT

Clinicians, managers and policymakers are aware of quality deficiencies in the Canadian healthcare system, even though it is a top priority of Health Canada (2004). Preventable adverse events (AEs), which are unintended injuries or complications resulting in harm of a patient, offer an example of this. It has been estimated that, of 185,000 acute care hospital admissions associated with AEs, 70,000 may have been preventable. Also, access to care is not sufficient in rural and remote communities in Canada, which must rely upon traveling physicians and specialists (CTV, 2011). Insufficient emergency room capacity and wait times for surgery have both resulted in occasionally fatal consequences for some (CBC, 2005; 2011; Global Winnipeg, 2009). As well, sociopolitical factors, including disparate geographic administration of medical services, rapidly escalating medical costs and concomitant increasing demands for accountability and transparency in clinical practice, have mandated the development of metrics in performance assessment and mechanisms for promoting perpetual improvement in quality (Harrigan, 2000).

As a fundamental concept, CQI encompasses a philosophy of incessant refinement of an organization's processes, so that they meet or exceed standards of quality established by the consumer (McLaughlin & Kaluzny, 2004a; 2004b; Shortell, Bennett, & Byck, 1998). Also known as "total quality management" (TQM) (Deming, 1986), key to this philosophy are decentralization of control in order to allow frontline workers to leverage accumulated knowledge. It is thought that employees have a natural desire to improve the quality of their processes, as long as organizational leaders create a work environment that encourages them to initiate such changes. Therefore, CQI emphasizes a perpetual effort to incrementally improve quality and the creation of an environment and culture that is conducive to quality improvement in general (Deming 1986/2000; Juran, 1986). Measurement of key variables is necessary in order to generate feedback on performance and create benchmarks based on certain indicators (Powell, 1995). When a change results in a higher level of quality, it is institutionalized, and communicated throughout the work unit.

## PRACTICE AUDIT AND ITS BARRIERS

Practice audit (PA) entails the measurement and analysis of clinical work, and the subsequent comparison against a defined standard or benchmark, for the overall purpose of CQI (Godwin, 2001). PA can be described as a phase within a greater cycle of evidence-based practice, where the quality of care is evaluated, after care is applied in practice (Borbasi, Jackson, & Lockwood, 2010). Several cyclical models have been used for PA, for example Plan-Do-Study-Act (Langley, K. M. Nolan, T. W. Nolan, Norman, & Provost, 2009), and Godwin's (2001) fourteen steps. Common among each of these models are perpetual measurement of key indicators, inferring causes of quality issues and theorizing solutions for these problems, implementing change and evaluating performance post-change. In a sense, PA serves the function of detecting the need for change, informing clinicians as to the nature of the change needed, and evaluating the change following implementation. When attending to the needs of patients, one of the goals of being a clinician is to maintain a high enough standard of professionalism by ensuring that one's practice will be of an "acceptable" quality. Thus, it is in the interest of the clinician to have one's care provision iteratively reviewed either by oneself, or through peer assessment, for confirmation of adequate and appropriate service delivery in the maintenance of the highest professional standards. Classical constructs of PA have been professionally driven and directed, with a clear focus on structured peer review processes using clinical practice guidelines and established standards of care (Buetow & Roland, 1999).

For an example of PA, consider the following. A prospective, observational study conducted at a gastrointestinal clinic (Armstrong et al., 2011) described a PA that uses a touchscreen, handheld PC providing point-of-care data collection. Collected data included quality of bowel preparation, and duration of colonoscopy procedure. The audit showed that, compared to the recommended 6 minutes, the procedure was more likely to last longer, and greater than the recommended time, when bowel preparation was less than excellent, as measured by the Ottawa bowel preparation scale (Rostom & Jolicoeur, 2004). This study demonstrated that real-time, point-of-care clinical PDA-administered practice audits in concert with anonymous, peer-comparator outcome data provide a sound foundation for targeted quality improvement interventions in endoscopy.

Implementing PA involves overcoming several barriers, which may either prevent the clinician from either adopting PA or adhering to the tasks and processes associated with PA. In a review of the existing literature, (Johnston, Crombie, Davies, Alder, & Millard, 2000) present a list of barriers and facilitators to PA. Lack of resources, expertise in audit design and planning, organizational dysfunction, and ability to implement changes were identified as barriers to performing PA. Organizational factors, such as leadership and conflict between clinicians and management, have also been identified as affecting the success of PA. Black & Thompson (1993) identifies four categories of barriers for PA by interviewing a group of healthcare professionals. The respondents tended to view PA as merely a formalization of existing tasks. Also, suspicion surrounding PA exists, due to a perception that the government forces PA on unwilling clinicians. As well, the respondents expressed concern for practical considerations, such as lack of time, resources and knowledge of the audit process. The effectiveness of PA in increasing quality of care is questioned, as the audit tasks may not be adhered to in the long run by members of the organization, or changes in clinical processes may be made in order to increase the quality of the audit results, rather than the quality of care. Finally, anxieties surrounding the issue of PA included legal implications, having to share embarrassing results, and costs associated with audit. It is also possible that quality improvement may be achieved through other means, such as opinion leaders (Lomas et al., 1991) or quality circles (Deming, 1986). The feedback must also have the quality of being actionable; it must to be timely, individualized and non-punitive (Hysong, Best, & Pugh, 2006). Fear that audit results will result in punitive measures or blame is also identified as a negative perception to audit (Kongnyuy & van den Broek, 2008).

## INTER-CLINICIAN RELATIONSHIPS AND COMMUNITIES OF PRACTICE

The relationship centered-care (RCC) approach (Tresolini et al., 1994) differs from previous concepts of care that considered only the disease and its direct physiological effects on the human body. RCC recognizes the individualized interpretation of disease as being unique to each person, as well as the influence of these experiences on the lives and communities of patients (Frankel, Quill, & McDaniel, 2003). As patients heal, these psychosocial factors are to be considered along with the biological. This approach proposes that relationships are central to effective and satisfying healthcare delivery. It is through these relationships that emotional connections and genuine caring for others can be developed, and the psychological and social factors truly understood by the clinician. Good relationships among members of the healthcare system are the mechanisms for the exchange of complex information and emotions, if not therapeutic and satisfying in itself (Beach & Inui, 2006; Frankel & Inui, 2006).

Inter-clinician relationships, one dimension of RCC, are important to the development of PA in healthcare. Relationships are manifested through knowledge sharing, collaboration, co-operation, learning from other disciplines and mutual support (Beach & Inui, 2006; Tresolini et al., 1994). In this context, each clinician has an intrinsic desire to contribute their unique perspectives and experiences with clinicians, while in pursuit of their own quest for higher quality care. A community comprising clinicians with this common interest serves as a medium in which relationships are developed and sustained (Wenger, McDermott, & Snyder, 2002). Communities of practice (COPs) are characterized by a domain of interest to all its members, the tendency for its members to engage in assorted activities pertaining to the sharing of knowledge, and the development of a practice-specific knowledge base, which can be drawn upon and contributed to by its members (Wenger, 2000). In the context of PA, a community may define their domain of interest around certain medical specialties, quality indicators or healthcare organizations, which may have their own suite of tools, technologies, techniques to conduct, interpret and act upon the results of PA. Consequently, all members will have a degree of interest in sharing and contributing knowledge pertaining to the domain respective of each community. Membership of these communities, therefore, is not necessarily limited by factors such as organizational boundaries, profession, skill level or industry, for example. Although this concept is not without criticism (eg. Amin & Roberts, 2008), it is still lauded as a viable concept for quality improvement in healthcare (Fung-Kee-Fung et al., 2009; Lashoher & Pronovost, 2010).

## THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY

If we consider that the role of information and communication technologies (ICTs) in CQI is to facilitate knowledge exchange via relationships, this creates a unique orientation to the discussion. ICTs first and foremost enable members of communities of practice to communicate over geographic and temporal barriers (Ardichvili, Page, &

Wentling, 2003; Cox, 2008; von Krogh, 2002). These "virtual" COPs - or, more accurately, "hybrid" COPs, as COPs do not necessarily have to limit themselves to any one form of communication (Amin & Roberts, 2008) - exist as online forums, email, listservs, social networking sites and such. However, ICTs can *enhance* communication between members of a community, to facilitate the communication of highly contextualized information and knowledge. First, the ability to create graphical models of clinical processes would allow clinicians to easily communicate clinical process designs to other clinicians, researchers and technologists. This benefit will allow the transmission of highly specialized and contextualized information, in a way that all members of the COP can understand. Although process modeling has not been widely applied within healthcare to this end, some research shows that clinicians prefer certain modeling techniques over others (Jun, Ward, Z. Morris, & Clarkson, 2009). Second, centralized data storage and effective graphical interfaces can enable communication of actual performance results, so that they may be compared, critiqued or combined among members (Rees & Dineschandra, 2005). The amount of data collected by an audit can possibly be immense, especially if you consider the aggregate of many clinicians' audit efforts. Using cloud computing services, (Armbrust et al., 2010), distributed data mining services can consolidate data stores in order to derive knowledge from the audit data, of many clinicians, for an even wider audience (Talia & Trunfio, 2010). Third, anonymous and secure web portals may encourage clinicians to share information that may be condemning or embarrassing. In instances where such serious quality issues may exist, the clinician may be able to benefit from sharing this information, yet may not want to be identified (Gallagher, Waterman, Ebers, Fraser, & Levinson, 2003; Mazor, Simon, & Gurwitz, 2011). This is relevant to audits that require peer-comparator judging (Hamburg, 2010; Webster-Wright, 2009). This method of data analysis entails uploading of audit data to a central, secure web site, where it is evaluated and scrutinized by peer clinicians, securely and anonymously. This method is especially useful when data is captured in image form (Armstrong et al., 2006).

Successful adoption of the required technology entails its acceptance by its indented users (F. D. Davis, 1989; Venkatesh, M. G. Morris, G. B. Davis, & F. D. Davis, 2003). The Technology Acceptance Model (TAM) posits that the perceived ease of use and perceived usefulness are determinants of the user's intention to use technology, and its subsequent use (F. D. Davis, Bagozzi, & Warshaw, 1989). More recently, development has focused on determinants of each of the perspectives in order so that research using this model can produce a more actionable outcome (Venkatesh & Bala, 2008). With this purpose in mind, interventions can be constructed, administered and evaluated for the purpose of increasing user acceptance. Perceived usefulness of the technology is determined by subjective norms, image, job relevance and result demonstrability. Subjective norm refers to the degree to which individuals that are important to the user view the technology as important to use. Image pertains to the degree to which users believe that use of the system will increase their social status within a social system. Job relevance refers to the belief that the system is applicable to the user's job. Output quality, a moderator of job relevance, pertains to the perception of how well a system performs the tasks relevant to the job. Result demonstrability refers to the tangibility, observability and communicability of the results, as perceived by the user. Perceived ease of use is immediately determined by the user's degrees of computer self-efficacy, to which support is perceived as available, to which anxiety is felt at the prospect of having to use technology, and to which the user uses technology spontaneously and "playfully". After some time of use with the technology, perceived ease of use is adjusted by the objective usability of the technology and the perceived enjoyment received while using the technology.

## RCQ – RELATIONSHIPS, COMMUNITIES, QUALITY

Drawing upon several theories, a framework for barriers and facilitators to relationship building through communities, for the purpose of CQI, can be proposed. Specifically, this framework includes barriers and facilitators to clinicians using communities of practice to both contribute and draw knowledge from COP, two actions that will dictate the supply and demand of knowledge in the community. Facilitators and barriers are further split into qualities of the person, environment and the COP itself. Personal qualities include perceptions, desires, and other traits that affect an individual's participation. The environmental qualities encompass traits of the individual's organization, profession, social environment and culture. The RCQ framework is detailed in Table 1 (below). This framework can be used to maximize the benefits of relationships in quality improvement endeavors that involve practice audit.

| | | Facilitators | | | Barriers | | |
|---|---|---|---|---|---|---|---|
| | | Personal | COP | Environment | Personal | COP | Environment |
| **Contribute** | | - View of knowledge as a public good[1]<br>- Feelings of obligation[1]<br>- Desire to develop professionally[1] | - Connect with experts[1]<br>- Demonstrated value[1,9] | - Facilitation[9]<br>- Cultural values[1] | - Desire to protect knowledge[1]<br>- Fear of exposure[1,7]<br>- Fear of misinforming[1]<br>- Feelings of unworthiness[1,5,6,8]<br>- Acceptance of technology[2,8]<br>- Lack of expertise[10]<br>- Lack of resources[10,12] | - Dysfunctional norms[9] | - Desire to protect knowledge[1]<br>- Forced upon[3,10] |
| **Draw** | | - Desire to keep informed and up to date[1] | - Access to resources[1]<br>- Demonstrated value[1,9] | - Facilitation[9]<br>- Cultural values[1] | - Low actionability of PA results[4]<br>- Hard-to-duplicate problems[1]<br>- Effectiveness questioned[11] | - Dysfunctional norms[9] | - Availability of competing communities[1] |

**Table 1**: The RCQ framework. This framework presents factors that act as barriers and facilitators to contributing and drawing knowledge from communities of practice, for the purpose of practice audit and quality improvement. These factors can be personal traits, exist as features of the community itself, or of the environment in which the individual and community exists. 1: (Ardichvili et al., 2003). 2: (Venkatesh & Bala, 2008). 3: (Jamtvedt, Young, Kristoffersen, O'Brien, & Oxman, 2007). 4: (Hysong et al., 2006). 5: (Gallagher et al., 2003). 6: (Mazor et al., 2011). 7: (Kongnyuy & van den Broek, 2008), 8: (Nicolini, Powell, Conville, & Martinez-Solano, 2008). 9: (Wenger et al., 2002). 10: (Johnston et al., 2000). 11: (Black & Thompson, 1993). 12: (Lomas et al., 1991)

Central to personal reasons to participate in a community is the view that knowledge is a public good, and should be freely shared. Also feelings of obligation to an organization, community or for moral reasons may compel an individual to contribute. As well, one may want to develop oneself in a community by establishing themselves as a researcher, or mentoring others. Drawing knowledge from the COP is seen as a good way to keep informed about events, developments in the community. Personal barriers for contribution include the desire to protect knowledge, partly due to the view of knowledge as a personal resource. A person may be unwilling to participate, because they feel they may be ridiculed for their knowledge or opinion, identified as incompetent or blamed for certain issues. Also, a person may not want to participate because they fear that they will be misinforming others with their knowledge. Feelings from unworthiness stem from the view that they have not "earned the right" to contribute, and the technology and software associated with audits may not be acceptable by the individual, which compromises their ability to use enhanced communication methods. Lack of expertise of the clinician, or resources to perform audit, can also act as a barrier. Low actionability of PA results and questioning effectiveness of PA could possibly hinder further CQI efforts, and a resultant draw of knowledge. Hard to duplicate problems may discourage a clinician from using a COP because they feel that it would be unlikely that anybody could offer valuable contribution.

The qualities of the COP itself affect the volume of knowledge sharing over relationships. Access to experts, so that relationships may be created with them encourages contribution. A COP that can demonstrate its value and usefulness will encourage activity. Access to desired knowledge resources and availability of experts also make a COP appealing. Dysfunctional norms within the community, such as in-fighting, cliquishness, and the tolerance of belittling will reduce the appeal of the community. Environmental factors, such as a cultural norm that encourages participation in COPs, and the right facilitation and resources from organizational sources, facilitate participation in COPs. If environmental factors encourage the protection of knowledge, or force participation in a COP, this can actually have a detrimental effect on the rate of contributions. The availability of competing or rival COPs can also affect the demand side.

## CONCLUSION AND FUTURE RESEARCH DIRECTION

This paper illustrates the importance of inter-clinician relationships, as a resource for adopting and adhering to practice audit activities, with the overall purpose of quality improvement of clinical processes. As increasing quality of healthcare processes is an ongoing issue, practice audit presents a viable solution for detecting quality issues in care processes. Along with practice audit, inter-clinician relationships are an important resource in which information, knowledge and support for these activities can be found. The roles of technology in supporting these

relationships include overcoming geographical and temporal barriers, as well as enhancing the communication between clinicians.

The grand vision of this research path is to accumulate and consolidate knowledge on practice audit, applied to improve patient clinical outcomes, patient safety and satisfaction for all actors in healthcare. Currently, there is sparse research as to the role of inter-clinician relationships within continuous quality improvement with practice audit. A validated RCQ framework will allow practitioners to explore the benefits that relationships afford to their respective quality improvement efforts. Further, results of this study will assist clinical decision makers and policymakers in configuring resources in order to maximize chances of successful adoption of quality improvement initiatives.

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