RURAL CONTINUOUS QUALITY IMPROVEMENT (CQI) NEEDS ASSESSMENT

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FINAL REPORT

Study conducted by:
UBC Continuing Professional Development, Rural Continuing Professional Development (RCPD) Program

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ABBREVIATIONS

APP – Alternative Payment Plan (physician compensation model)
BCCFP – BC College of Family Physicians
BCMQI – BC Medical Quality Initiative
BCPSQC – BC Patient Safety and Quality Council
CFPC – College of Family Physicians of Canada
CPSBC – College of Physicians and Surgeons of BC
CQI – Continuous Quality Improvement
DoBC – Doctors of BC
EMR – Electronic Medical Record
FFS – Fee-for-Service (physician compensation model)
GPSC – General Practice Services Committee
HDC – Health Data Coalition
JSC – Joint Standing Committee (on Rural Issues)
MOA – Medical Office Assistant
NITAOP – Northern & Isolation Travel Assistance Outreach Program
PI/QI – Practice Improvement/Quality Improvement
PSP – Practice Support Program
QA – Quality Assurance
RCCbc – Rural Coordination Centre of BC
RCPD – Rural Continuing Professional Development
RCPSBC – Royal College of Physicians and Surgeons of Canada
SRPC – Society of Rural Physicians of Canada
UBC CPD – UBC Division of Continuing Professional Development
ACKNOWLEDGEMENTS

The Rural Continuous Quality Improvement (CQI) Needs Assessment study was conducted by the UBC Rural Continuing Professional Development (RCPD) Program. Funding for this study was administered by the Rural Coordination Centre of British Columbia (RCCbc) on behalf of the Joint Standing Committee on Rural Issues (JSC), which includes representation from the provincial government, Health Authorities and the Doctors of BC.

The study was designed with guidance from an Advisory Committee that has broad stakeholder representation including members of the target audience, rural medical educators, and representatives from BC Health Authorities, the Doctors of BC, RCCbc, and the UBC Faculty of Medicine (see Appendix A for a full list of members).

This study is aligned with the JSC mandate to support physicians who reside in rural BC communities. It allowed us to speak directly to rural physicians and other healthcare providers in British Columbia (BC) to understand what is occurring and what is required to better support effective practice improvement (PI)/quality improvement (QI) in rural and remote communities in British Columbia. The RCPD study team would particularly like to thank the many rural physicians and other health care professionals who took the time to engage with this project. Each aspect of this project was unique in its composition and allowed the study team to explore different facets of the rural CQI experience and environment. We appreciate the candor and willingness of participants to share their opinions, insights, stories and experiences.

ABOUT THE UBC RCPD PROGRAM

The RCPD Program has been in existence since 2008 and is situated within the UBC Faculty of Medicine’s Division of Continuing Professional Development (UBC CPD). The RCPD Program is committed to improving rural patient health and the retention of skilled rural practitioners by supporting the unique learning needs of rural physicians and other rural health care professionals in British Columbia through high-quality and innovative CPD. The RCPD Program originated following a 2005 provincial needs assessment of rural physicians, which highlighted a critical need for more rurally relevant and customised ‘closer to home’ education. For the past ten years, the RCPD Program has been working with support from RCCbc to offer a multitude of CPD opportunities including traveling skills-based courses, monthly videoconference rounds, rural physician mentoring, online journal clubs, training equipment loans, clinical coaching, and research and evaluation initiatives such as this study. The RCPD program is guided by a Medical Director and a Rural Medical Advisory Committee.

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I. EXECUTIVE SUMMARY

INTRODUCTION

Engaging physicians in practice improvement (PI) and quality improvement (QI) activities is an important component of improving healthcare, enhancing patient and provider experience, and reducing the cost of care (Geonnotti, 2015). For the purposes of this needs assessment, and subsequently this report, we defined and operationalized PI as any activity physicians are involved with that is aimed at improving the quality of their practice. Further, QI refers to PI activities that use a specifically structured approach that includes measurement.

Physicians providing healthcare in rural and remote settings face a unique set of challenges in engaging with PI/QI initiatives given their geographic isolation and more limited access to support personnel and resources. There is currently a lack of clarity on the best way to engage and support rural communities in PI/QI initiatives.

The Rural Continuous Quality Improvement (RCQI) Needs Assessment was developed and implemented by the University of British Columbia’s Rural Continuing Professional Development (RCPD) team in collaboration with the Rural Coordination Centre of BC (RCCbc) through funding support provided by the Joint Standing Committee on Rural Issues. The aim of the needs assessment was to explore the current PI/QI landscape and to understand what is required to support effective PI/QI in rural and remote communities in British Columbia. This information was to be collected in a comprehensive, representative manner so as to better inform rural PI/QI strategies at a provincial level moving forward.

Key objectives

The following key objectives were identified for this needs assessment initiative: (1) To increase the knowledge and understanding of current rural PI/QI activities involving rural physicians in BC; (2) To determine enablers and barriers to engagement with PI/QI; (3) To elucidate the relationship between QI and quality assurance (QA) in the province; (4) To develop an approach to increase engagement of rural physicians with PI/QI; (5) To identify ways to deliver CPD that more effectively supports PI/QI; and (6) To provide feedback, where appropriate, to other stakeholders regarding actions that would improve rural physician engagement with PI/QI.

METHODS

An extensive literature review and environmental scan was conducted at the project outset to establish project direction, inform project task design, and provide project staff with a sense of where things sat in BC in terms of PI/QI involvement. A search for peer-reviewed literature was conducted using a variety of internet-based search engines including MedLine, PubMed, Web of Science, Google Scholar and Science Direct. The purpose of the literature review and environmental scan was to gain an increased understanding of current approaches being used to improve the quality of physician practice especially in rural environments and to identify themes that could inform the RCQI Needs Assessment.
Two key informant interviews (KII) were conducted with PI/QI subject matter experts considered to be knowledgeable in the field and leaders provincially. Insights were used by the Working Group to design data collection strategies and develop the content of both the survey questions and focus groups protocols. A survey was developed for all physicians practicing in rural/remote communities in BC. The online survey was disseminated to physicians providing care in rural and remote communities of BC through the Doctors of BC (DoBC) and the Northern and Isolation Travel Assistance Outreach Program (NITAOP) communication channels. The survey was open for a period of six weeks. A total of 1584 physicians were sent requests to complete the survey and a total of 299 survey responses were collected generating a response rate of 19%. Focus groups were conducted and broken down into seven demographic-based groups with 33 participants (see page 21). Focus group participants were identified by a question on the follow-up prize draw survey asking candidates to self-identify as interested. The focus groups were 90 minutes in length and were moderated by a Physician Lead familiar with the protocols and with qualitative research methodology experience. Focus groups utilized a semi-structured framework which allowed feedback on the sequence of questions, while allowing the discussions to flow freely among the participants.

DATA ANALYSIS

Key informant interviews and focus groups were audio recorded and transcribed. Data was tabulated, summarized, and analyzed for patterns or emergent themes. Qualitative survey data collected from open-ended survey questions was analyzed to identify key themes and further inform the quantitative data collected in each phase. Data summaries were reviewed by the Working Group for agreement and interpretation accuracy.

Further integrative analysis was performed for the purposes of report compilation and preparing recommendations. Similar thematic areas from the quantitative and qualitative analyses were grouped and reviewed holistically by the project team to draw out consistent themes and outcomes.

NEEDS ASSESSMENT FINDINGS

All findings from the key informant interviews, survey and focus groups are grouped in the following results section.

Facilitators and Barriers

The majority of respondents agreed that participating in PI/QI could improve their knowledge base and quality of practice, and help them provide better patient care. However, the survey indicated that half of the respondents had not initiated or participated in any PI/QI activity in the preceding two years.

Time constraints were identified as the biggest barrier to engagement with PI/QI initiatives. Further, the majority of family physicians in BC currently practice on a fee-for-service compensation model and results highlighted that this type of practice environment leaves little-to-no time for non-clinical interactions. A lack of knowledge of PI/QI principles was another identified barrier. This included knowledge of how to identify areas of potential need for improvement, how to develop programming to address these areas, and how to deliver it in a meaningful and useful way to the physicians who actually need it.
Further data demonstrated that the current healthcare culture does not support PI/QI involvement especially in the context of time allocation and compensation models. In some instances, the current healthcare culture was described as problematic rather than encouraging or fostering efforts at PI/QI.

**Attitudes and Practices**

**Current Participation and Satisfaction**

When asked about current involvement in PI/QI initiatives community-initiated, facility-based or practice-based workshop-type education were the most common formats described. These were often promoted or delivered by the local Division of Family Practice. However, despite the vast array of PI/QI initiatives and resources available and the seemingly high level of current engagement, nearly all respondents indicated that there was much room for improvement with their involvement and/or the quality of their PI/QI initiatives.

The majority of respondents agreed that participating in PI/QI activities would be advantageous for improving the care of their patients. Physicians also felt that the need for exploring ‘how their workplace could better support their involvement in PI/QI activities’, as well as ‘their readiness to participate in a self-directed or team-based continuous QI was also very high. A low percentage of respondents were satisfied with their current level of knowledge of PI/QI principles or their current level of involvement in PI/QI activities. Together, these results indicate that while respondents understand the potential benefits of CQI and are interested in incorporating PI/QI into their practice, they do not have the tools or knowledge to translate theory into action. The data revealed that there is a willingness to participate in PI/QI activities, as well as a strong desire to learn more about PI/QI.

**Practice Integration**

Aside from independent PI/QI initiatives such as critical self-reflection, we found highly variable responses regarding how they incorporated PI/QI into their practices. Physicians’ thoughts on how disruptive PI/QI was to workflow and how much they were able to leverage their colleagues to help facilitate the PI/QI process was also varied. Some noted that PI/QI practice integration using a team-based approach might facilitate the process.

**Resources**

We received feedback regarding many different types of resources that are currently being used with varying levels of success. Programming and support offered by Divisions of Family Practice, Doctors of BC (DoBC), the Colleges, UBC Continuing Professional Development (UBC CPD), Canadian Medical Association (CMA), various Health Authorities, Society of General Practitioners (SGP), Practice Support Program (PSP), the Ministry of Health (MoH) were mentioned, among many others. This broad and potentially difficult to navigate landscape illustrates the challenge physicians face when looking for PI/QI support and information on resources.

**Meaningful Use of Practice Data**

There was a high level of support for individual physician ownership over practice-level data. However, less than half of respondents indicated comfort in their abilities to use their data in meaningful ways. More physicians preferred to have support in the interpretation and application of their data than were willing to
spend time learning how to do so themselves. Sixty-two percent of respondents also indicated a willingness to pool their practice data into a central repository. More than half of respondents would trust practice data/clinical information summarized by an external source, and this lack of trust was particularly prevalent among International medical graduates (IMGs) relative to their Canadian trained counterparts.

**PI/QI and CPD**
CPD focused on how to identify and address quality gaps in practice and generate meaningful/useful reports from practice data was a popular request. There was also significant interest from approximately three quarters of physicians for CPD on understanding how to do PI/QI in a practice setting and how to accurately enter data into their EMR in a usable format. Team-based CPD focused on PI/QI was less popular, but still an interest for some family physicians. Specialists were less interested in this format.

**PI/QI and the Provincial Privileging and Credentialing System**
Half of the respondents disagreed that the Privileging Dictionaries newly introduced by the BCMQI had a positive impact on their quality of care. A good portion did not volunteer an opinion on the topic and only 5% of those expressing an opinion felt it was positive.

**Organizational Involvement**
In terms of which organizations should be involved in various aspects of PI/QI related activities, respondents felt that individual physicians should take the lead on PI/QI initiatives followed by DoBC and Divisions of Family. It was also felt that the MoH and DoBC should be responsible for ensuring adequate funding is provided. Data strongly demonstrated that individual physicians should not be responsible for funding their own PI/QI and that the MoH should not have a role in leading or developing content for PI/QI initiatives. In terms of developing content, delivery, and promotion, many possible organizations were identified including DoBC, SGP, Divisions of Family Practice, UBC Faculty of Medicine, individual physicians and PSP.

**Enablers to PI/QI**

**Collaboration and Feedback**
One of the major motivators for engaging in PI/QI activities was the ability to collaborate with colleagues, and to receive useful and actionable feedback regarding practice habits and areas of improvement. One important element of this was being able to look at one’s practice-level data, compare with their colleagues’ data or the data from their community/region/province, and thereby get a sense of what is currently working and what could use improvement. However, tying into the idea of ensuring safety within the healthcare culture, participants indicated that this kind of comparative collaboration and feedback needs to be done in a safe environment focused on learning and improvement not criticism.

**Accountability**
Respondents reported that being accountable to colleagues and/or others engaging in similar PI/QI projects is a powerful tool in increasing PI/QI success. While general accountability to other colleagues involved in PI/QI was identified as a facilitator, it was indicated that having a local PI/QI champion made the PI/QI journey from initial conception through to implementation of practice change, and sustainability even more successful.
Compensation/Incentives
Compensation for time spent engaged in PI/QI initiatives was frequently identified as a facilitator to meaningful PI/QI. Alternative means of compensation, such as reimbursement for travel and participation in PI/QI events were also identified as motivators.

Compensation Models
Compensation model alternatives to standard fee-for-service (FFS) agreements were noted to be a potential facilitator to PI/QI. Participants on alternative payment models (e.g. salary, sessional, service contract, etc.) noted that when freed from the high clinical time-demands of the FFS model, they were better able to allocate resources (including time and energy) to other areas including PI/QI. However, a switch to Alternate Payment Plan compensation models was not necessarily seen as a solution.

Team-Based Approaches
Another major facilitator to engaging in PI/QI identified by respondents was approaching initiatives from a team-based approach. The most common form of this was in the context of inter-professional coordinated care models. Other non-members of the care team were noted as being vital members to include in PI/QI initiatives such as allied health care providers and administrative staff. Another important consideration that was suggested of value for team-based PI/QI was the inclusion of the patient voice in the quality process.

Technology/ Electronic Data
Accessibility
Findings indicated that there was considerable interest in having better access to practice-level as well as regional/provincial-level data would be invaluable for PI/QI. However, aside from the data that is available to physicians through their own EMR systems, they have immense difficulty gaining access to data from other external sources.

Electronic Medical Records (EMR)
It was acknowledged that despite the widely known and extensively chronicled drawbacks to EMR-type data systems, they did provide a potentially invaluable source of practice-level data, provided users were familiar with how to extract that data in a usable format. However, it was also noted that a large subset of physicians either do not know how, or do not have time, to extract data from their EMR systems in a format that would lend itself towards any kind of meaningful PI/QI.

Support and Management for Using Data
The most common suggestion was that it would be hugely beneficial to have dedicated support personnel to handle data management. This would include help with entering, extracting, processing, analyzing and summarizing data. There was a wide range of thoughts as to where this type of support could/should come from and how it would interact with day-to-day clinical practice.

Data Quality
One of the major themes emerging from the use of data in PI/QI was concern expressed regarding data quality. When considering the applicability of data to PI/QI metrics, many aspects of data quality and type were highlighted including parameters/consistency, applicability/context-dependence and type of data collected.

While utilizing practice-level and regional/provincial-level data for PI/QI purposes can be an extremely useful avenue of learning, it was reiterated that it is not as simple as pulling data and immediately translating it into practice. Data utilization is multi-factorial and there are many layers to ensuring that the data being used is of reliable quality so that data-based initiatives address real needs and meet desired goals.

**Future Directions for PI/QI**

**Education**

One PI/QI theme where education was identified as being a priority included social determinants of health, mental health, understanding Adverse Childhood Experiences (ACEs), and culturally safe care, especially in regards to providing care for BC’s Indigenous communities. The need for increased educational opportunities focused on the link between quality improvement, physician health/wellness, and how it relates to day-to-day clinical practice was also identified. Finally, it was noted that greater accessibility to and effective use of PI/QI resources/tools would facilitate transformative change from an educational perspective.

**Logistics, Coordination, and Time Allocation**

The RCQI needs assessment highlighted the complexity of balancing meaningful PI/QI engagement within the context of clinical/practice duties. Physicians do not have time or support to electively engage with PI/QI to effect meaningful patient outcomes. One of the main reasons for this, and connected to the realities of remuneration and compensation models, was that PI/QI is currently expected to happen largely outside the regular flow of clinical practice. Having PI/QI directly integrated into normal practice workflow would yield immense benefits to physician engagement and satisfaction.

**PI Hub**

There was some disagreement among participants on whether a stand-alone hub was the solution needed to ease access to PI/QI and maximize engagement. However, a concierge-type support service to guide participants through the process of choosing which program or initiative was right for them was seen to be potentially helpful.

**RECOMMENDATIONS**

**System Changes**

The needs assessment identified numerous enablers and barriers to PI/QI by rural physicians. It highlighted the need for cultural and system-wide changes and supports necessary for the successful engagement of rural physicians and subsequent adoption/implementation of PI/QI across BC.
1. Stakeholders need to identify, resource, actively support and endorse a backbone organization (to use collective impact language) to coordinate and promote PI/QI within BC.

2. Modify compensation models to value quality of care and not volume of care
   2.1. Incorporate PI/QI into payment structures

3. Identify attractive incentives to encourage engagement in PI/QI activities
   3.1. Provide accredited CME/CPD opportunities whenever possible
   3.2. Reimburse physicians for travel and participation in PI/QI focused events
   3.3. Integrate PI/QI opportunities into everyday workflow (e.g., work huddles, pop-ups in EMRs, build into dedicated times throughout the week, etc.)
   3.4. Encourage team-based and group practices.

4. Expand existing resources
   4.1. Coordinate existing PI/QI programs in BC (e.g., Practice Support Program, Northern Quality Improvement Collaborative, Clinical Coaching for Excellence Program) to reduce redundancies
   4.2. Prioritize resources to provide more coaching, mentoring, and foster peer support networks (e.g., GPSC)
   4.3. Increase arms-length funding by the Ministry of Health to support systematic PI/QI activities
   4.4. Increase overall funding to sustain successful PI/QI pilot projects
   4.5. Identify what is working well, how we can learn from the process, and how to share this information around the province
   4.6. Recruit those already successfully engaged in PI/QI to help lead, facilitate and plan future PI/QI initiatives as well as support others who are interested to participate

5. Provide supports to reduce barriers
   5.1. Employ local support to do background work (e.g., data collection, patient registries) to alleviate time and energy constraints for physicians
   5.2. Incorporate the support for physician wellness as an important component of PI/QI
   5.3. Provide compensation for time spent doing PI/QI activities
   5.4. Work with stakeholders to identify the motivating factors for physicians that will help shift the culture of medicine to prioritize PI/QI as an expected and integrated part of practice
   5.5. Integrate team-based approaches to increase accountability and to encourage sustainable and ultimately successful PI/QI processes
   5.6. Develop a dedicated one-stop shop resource (physical or electronic) which supports access to a repository of all available PI/QI programs and supports which physicians could easily access to facilitate their participation in PI/QI activities
   5.7. Provide a concierge-type support service to guide those interested in PI/QI through the process of choosing which program, tools or initiatives would be most suitable to meet their needs and that will be able to facilitate successful engagement

6. Clearly distinguish quality assurance from quality improvement activities
   6.1. Situate PI/QI activities in a safe, non-punitive environment firewalled from privileging and credentialing processes
   6.2. Recognize participation in robust PI/QI as a marker for QA
7. Create space for open dialogue about whether recent changes in licensing and privileging have resulted in improvements of safety and care for patients in BC or harmed patients in the process of organizational risk management.

**Educational Programming**

The needs assessment identified areas in which physicians have limited knowledge of PI/QI principles and application, and would benefit from educational programming to meet their needs.

1. Look at new avenues of CPD in terms of how a Hub could support a provincial network of learners by exploring supports around distributed repositories and having a concierge for individual learners and health care teams

2. Create and deliver new programming to meet the identified needs for successful adoption and implementation of PI/QI on the following topics
   2.1. PI/QI principles (how to identify areas of potential need for improvement, how to develop programming to address these areas, how to deliver it in a meaningful and useful way to physicians who want it.)
   2.2. Tracking patient outcomes over time
   2.3. Focused efforts on specialists in rural communities
   2.4. Integrating PI/QI into the workplace
   2.5. Self-directed learning and assessment
   2.6. Social determinants of health, mental health and adverse childhood experiences (ACEs) with focus on indigenous communities
   2.7. Identification of PI/QI activities that will improve patient care
   2.8. Group-learning PI/QI activities (e.g., CCFP REAL groups, PSP Module Evolution, specialist journal clubs, Division SGLS)
   2.9. Implementing team-based PI/QI activities
      2.9.1. Explore how PI/QI can support and be a mechanism to improve physician wellness
      2.9.2. Patient-mediated/patient co-created PI/QI focused education
      2.9.3. Education on how to access EMR data and use it for PI/QI
      2.9.4. Encapsulate the patient experience in qualitative-type data collection and analysis, to facilitate practice-level change.
      2.9.5. Strategies for identifying and addressing quality gaps in physician practice
      2.9.6. PI/QI in relation to social determinants of health, including mental health and ACEs, as well as culturally-safe care, especially in regards to providing care for BC’s Indigenous communities

**Relationship Building**

To support successful engagement in PI/QI activities, the opportunity provided through supportive relationships needs to be better incorporated. This should not be seen as an additional drain on healthcare practitioner time or lead to an increase in the complexity of communications but rather be fostered as a positive support to increase the ease of implementation of PI/QI activities.
1. Increase general accountability to meaningful/successful engagement with PI/QI
   1.1. Have a local PI/QI champion (does not need to be a physician) who is responsible for shepherding PI/QI initiatives at every stage of the process
   1.2. Build in accountability to colleagues and/or others engaging in similar PI/QI projects
   1.3. Provide support for data extraction and analysis to encourage meaningful PI/QI
2. Synergize team-based PI/QI activities with existing networks/systems of care
   2.1. Integrate inter-collegial/inter-professional PI/QI activities with Patient Medical Home (PMH) and Primary Care Network (PCN) initiatives
   2.2. Link new/pilot PI/QI projects to existing networks of care to increase efficacy, sharing of processes and outcomes as well as to reduce redundancies. This may be especially important for smaller communities
3. Support for collaboration and opportunities for feedback loops
   3.1. Create opportunities for physicians to work side-by-side to encourage giving and receiving useful and actionable feedback from each other
   3.2. Encourage the sharing of practice-level data amongst colleagues by facilitating the comparison of an individual’s practice-level data with their colleagues’ data or the data from their community/region/province, and thereby get a reflection on how they are performing in relation to others and a sense of what could use improvement
4. Develop a structure for partnerships between key stakeholders and organizations to ensure alignment of priorities for PI/QI and to maximize communication channels
   4.1. Involve the Ministry of Health, Doctors of BC, Divisions of Family Practice, Practice Support Program, Faculty of Medicine, and individual physicians when developing and implementing PI/QI
   4.2. Create a forum of interested stakeholders to align efforts and provide opportunities for collaboration in PI/QI activities as well as avoid duplication and inefficiencies (e.g. Practice Improvement Hub)
   4.3. Organisations should foster PI/QI initiatives being driven from the grassroots level

**Technology and Data**
Physicians expressed the need for access to accurate, trusted and timely practice data as a powerful tool for PI/QI.

1. Facilitate processes to make trusted and accurate data available to individual physicians (FPs but also specialists who often have greater difficulty to access useful data) and teams
2. Increase access and usability of available EMR data
3. Provide real-time access to local- and regional-/provincial-level practice data (e.g. via Health Data Coalition, Ministry of Health, etc.) as well as access to externally-generated data (e.g., public health/disease surveillance data, hospital or facility data) to help inform and support PI/QI practices and fulfill the principles of the Triple Aim
4. Allow physicians to be responsible for and be able to control the use of their practice data
5. Provide physicians comprehensive data support, including data entry, extraction, processing, analyzing, summarizing, and interpretation (which could come from MOAs, Divisions of Family Practice, PSP coach, etc.)
6. Allow entry of physician practice data into a shared anonymous central repository
7. Provide accessibility of patient data between Health Authorities
8. Create a coordinated and centralized data collection and distribution process.
II. INTRODUCTION

Engaging physicians in practice improvement (PI) and quality improvement (QI) activities is an important component of improving healthcare, enhancing patient and provider experience, and reducing the cost of care (Geonnotti, 2015). QI describes the process of improving patients’ safety, experience and health outcomes by systematically addressing individual and organizational processes (Llanwarne, 2014). QI is focused on ‘continuously assessing and adjusting performance using statistically and scientifically accepted procedures’ (College of American Pathologists, 2005, as cited by Compas, Hopkins & Townsley, 2008) that will improve the quality of outcomes (Compas, Hopkins & Townsley, 2008). As described by Counte and Meurer (2008), successful elements are widely acknowledged to include a philosophy that favors a supportive organizational structure and culture, and the use of scientific methods to understand processes and achieve enhancement. For the purposes of this needs assessment, and subsequently this report, we defined and operationalized PI as any activity physicians are involved with that is aimed at improving the quality of their practice. Further, QI refers to PI activities that use a specifically structured approach that includes measurement.

Physicians providing healthcare in rural and remote settings face a unique set of challenges in engaging with PI/QI initiatives given their geographic isolation and more limited accessibility to support personnel and resources. While there are certainly many PI/QI initiatives available to physicians across the province and while a majority of physicians in rural BC communities are committed and engaged with these offerings to the best of their abilities, there is a definite lack of understanding about how PI/QI can be best engaged with and supported in rural communities.

Based on our preliminary environmental scans and discussions with key PI/QI experts, it was difficult to isolate actionable information or research being done on this subject matter from anywhere outside BC. Further confounding this issue, the people/organizations who are actively involved in PI/QI do not appear to be actively publishing their findings, which makes it challenging to identifying them in the published literature. It was clear that some objective assessment was needed to be taken regarding current PI/QI practices so as to better inform current understanding and evidence-based approaches to better support a PI/QI culture in BC.

This is a relatively hot topic issue and there is a lot of attention and funding currently being provided to support BC physicians in their PI/QI endeavours (e.g. Practice Support Program (PSP), Health Data Coalition (HDC), Divisions of Family Practice, Facility Engagement Initiative, etc.) but there is difficulty with engaging physicians in this direction and subsequently aligning efforts of individuals, teams and programs. As well, although there is a lot of knowledge and expertise on the individual level regarding effective PI/QI integration into rural practice, there are few documented examples of leveraging this insight into a cohesive, province-wide narrative.

In response to the knowledge gaps, interest and support for PI/QI outlined above, the Rural Continuous Quality Improvement (RCQI) Needs Assessment was developed and implemented by the University of British Columbia’s Rural Continuing Professional Development (RCPD) team in collaboration with the Rural Coordination Centre of BC (RCCbc) through funding support provided by the Joint Standing Committee on Rural Issues. The aim of the needs assessment was to understand what is currently occurring and what is
required to support effective PI/QI in rural and remote communities in British Columbia with individuals and
teams and to collect this information in comprehensive, representative manner so as to better inform rural
PI/QI strategies at a provincial level moving forward. The Rural CQI Needs Assessment was designed to
consider factors beyond continuing professional development (CPD), including system/workplace issues
deemed relevant by rural physicians.

KEY OBJECTIVES
The following key objectives were identified by the Rural CQI Needs Assessment Working Group:

- To increase the knowledge and understanding of current rural PI/QI activities involving rural
  physicians in BC;
- To determine enablers and barriers to engagement with PI/QI;
- To elucidate the relationship between QI and quality assurance (QA) in the province;
- To develop an approach to increase engagement of rural physicians with PI/QI;
- To identify approaches to adaptation of CPD to more effectively support PI/QI; and
- To provide feedback, where appropriate, to other stakeholders regarding actions that would
  improve rural physician engagement with PI/QI.

KEY QUESTIONS
The study was focused around the following questions:

- What is the interest and understanding of rural physicians to engage in PI/QI?
- What is the willingness and readiness of rural physicians to engage in PI/QI?
- What has enabled rural physician’s success in engaging in PI/QI?
- What are barriers for rural physicians to engage in PI/QI?
- What would help for rural physicians to be able to engage more fully in PI/QI?

PROJECT FRAMEWORK
This study was informed by the Model of Understanding Success in Quality (MUSIQ) framework. The MUSIQ
framework outlines a range of contextual factors/domains that are influential in determining the effectiveness
of PI/QI activities. Domains include the QI team, microsystem, QI supports, organization and environment. By
tracing the relationships between factors, the model allows for an in-depth understanding of how context
impacts the effectiveness of QI, and provides a framework for guiding application and research (Kaplan et al.,
2012). In addition to exploring the domains identified in the MUSIQ framework, this needs assessment will also
explore the individual/physician level. Each of the key questions will explore the contextual factors/domains:
Figure 1: Visual representation of the MUSIQ framework employed in approaching the RCQI Needs Assessment. Key questions (KQ) were mapped to their corresponding conceptual contexts and key domains were identified and highlighted to clearly inform the development of the assessment strategy.
III. METHODS

LITERATURE REVIEW & ENVIRONMENTAL SCAN

An extensive literature review and environmental scan was conducted at the project outset to establish project direction, inform project task design, and provide project staff with a sense of where things sat in BC in terms of PI/QI involvement.

A search for peer-reviewed literature was conducted between December, 2015 and January, 2016 using a variety of internet-based search engines such as MedLine, PubMed, Web of Science, Google Scholar and Science Direct. The following search terms were used for this literature search:

- Quality Improvement (QI)/Continuous Quality Improvement (CQI)
- Needs assessment/ Needs assessment for rural health physicians’ performance
- CQI in medical practice
- Practice improvement
- Primary Health Care

A total of 67 articles and other peer-reviewed resources were obtained in this search. Of these 67 articles, literature that was specific to Quality Improvement (QI) initiatives in primary care practices was included. A further inclusion criterion was examination of QI activities conducted in small/rural primary care practices and designed to promote physicians’ performance. This left 18 peer-reviewed resources that primarily referred to research from Australia, Canada, and the United States, which were subsequently used to inform project design. An annotated bibliography of each of these manuscripts is available for review in Appendix B.

The purpose of the environmental scan was to gain an increased understanding of the approaches being used to improve the quality of physician practice, with a focus on rural environments. The aim was to identify themes that can inform the RCQI Needs Assessment. The environmental scan was conducted during January and February, 2016, and was based on a web-based search that utilized Bing, Google and Yahoo Canada search engines. Keywords used and combined in the search included, but were not limited to: quality improvement, practice improvement, rural, physicians, continuous quality improvement activities for rural physicians, primary health care, Canada, United States (US), Australia, Europe, United Kingdom, initiatives and activities. The environmental scan was also informed by interviews with stakeholders who were identified by the project’s Core Working Group. Key stakeholders were asked about their perception of the landscape of quality improvement and practice improvement, with an emphasis on rural environments.

PARTICIPANTS

The online Rural CQI Needs Assessment survey was disseminated to physicians providing care in rural and remote communities of BC through the Doctors of BC and NITAOP communication channels for a period of six (6) weeks from March 21, 2017 to May 1, 2017. Focus group participants were identified by a question on the follow-up prize draw survey asking candidates to self-identify as interested. From this pool of applicants, participants were distributed into one of seven (7) focus groups as outlined in the section below.
PROJECT PLANNING

Prior to formal data collection, the Working Group conducted a series of project planning initiatives in order to inform project design as well as to plan and drive key strategic directions. These initiatives included a pair of formalized preliminary focus groups with members of the Advisory Committee (refer to Appendix A) divided into two groups: FG1-QI Leaders and FG2-Engagement Leaders (protocols available in Appendix E). In addition, two key informant interviews (KII) were conducted with PI/QI subject matter experts who are considered knowledgeable in the field and leaders provincially. Insights from these planning engagement initiatives were used by the Working Group to design data collection strategies and informed the content of both the survey questions and focus groups protocols (see next). The Working Group was a small team consisting of the Primary Investigators and co-Investigators; membership is outlined in Appendix A.

SURVEY

i. Design

Following initial project direction discussions by the Advisory Committee and initial key informant focus groups, the Working Group developed a survey with 27 items which took 15-minutes to complete and was intended to be completed by all physicians practicing in rural/remote communities in BC. The survey was designed over a four-month period (November 2016 to March 2017) by iterative development, leveraging insights from all members of the Working Group as well as undergoing extensive external review by subject matter experts and stakeholders. The survey was broken down into the following seven sections (full survey available in Appendix C):

1. Facilitators & Barriers;
2. Attitudes & Practices;
3. Meaningful use of Practice Data/Clinical Information;
4. PI/QI & CPD;
5. PI/QI & the Provincial Privileging and Credentialing System for Facility or Hospital-Based Practice;
6. Organizations Involved in PI/QI; and
7. Demographics.

ii. Deployment

The survey was translated into a fillable, online form using the eSurvey platform FluidSurvey. The online survey was disseminated to physicians providing care in rural and remote communities of BC through the Doctors of BC (DoBC) and the Northern and Isolation Travel Assistance Outreach Program (NITAOP) communication channels. The survey was live for a period of six weeks from March 21, 2017 to May 1, 2017.

iii. Response

A total of 1584 physicians were sent requests to complete the survey (1000 through DoBC and 584 through NITAOP). A total of 299 responses were collected (270 complete and 29 partial) after removal of responses
from ineligible respondents (i.e. respondents who were not practising in remote/rural BC communities, or who were non-physicians) for a response rate of 19%.

iv. Analysis

Quantitative data analysis was conducted using SPSS 17.0, with significance set at \( \alpha = 0.05 \). Descriptive analysis was performed. For the Likert scale responses, weighted means instead of arithmetic means were reported as the data is ordinal rather than continuous. Further, while Likert-style questions were collected on a 5-point scale, findings were analyzed and reported using a 3-point Likert scale by binning polar responses (e.g. a 5-point Likert scale ranging from 1=Definitely disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Definitely agree, was collapsed into a 3-point scale ranging from 1=Disagree; 2=Neutral; 3=Agree by aggregating responses 1&2 and 4&5, respectively). This was done a) to clarify and simplify what stories the data told, and b) to not violate minimum expected frequency assumptions during Chi-squared analysis. Cross tabulations and Chi-squared analyses were used to determine if there were significant differences among the responses in terms of different region (rural vs. urban), compensation model (fee-for-service [FFS] vs. alternative payment plan [APP]), gender, and duration in practice (<5, 5-10, 11-20, 21-30, >30 years).

Qualitative analysis was performed on data collected from open-ended survey questions to identify salient themes and further inform and develop the quantitative data collected in each section.

FOCUS GROUPS

i. Participant Recruitment

Invitations for the focus group phase of the needs assessment were sent to survey participants who indicated (upon completion of a short demographic survey) that they would be willing to participate in further focus group discussions. These individuals provided their contact information through which the research team could contact them. Focus groups were broken down into seven demographic-based groups as outlined in the table below and were conducted between September 5, 2017 and January 30, 2018. Two preliminary focus groups (FG1 and FG2) were conducted at project outset to inform project design and strategic directions. As such, they were not formally included in the data analysis and reporting.

Table 1: Focus Group Description Breakdown

<table>
<thead>
<tr>
<th>Focus Group</th>
<th>Inclusion Criteria</th>
<th>n</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG3a: Fee-for-Service (FFS)</td>
<td>Physicians being paid on provincially-governed fee-for-service agreements</td>
<td>5</td>
<td>This group provided insight into how the FFs payment model facilitates and/or inhibits engagement with PI/QI initiatives. Particularly useful when contrasted with FG3b.</td>
</tr>
<tr>
<td>FG3b: Alternative Payment Plan (APP)</td>
<td>Physicians being paid on non-standard agreements (including, but not limited to sessional, service contract, salary)</td>
<td>4</td>
<td>This group provided insight into how the FFs payment model facilitates and/or inhibits engagement with PI/QI initiatives. Particularly useful when contrasted with FG3a.</td>
</tr>
<tr>
<td>FG4: Rural Specialists</td>
<td>Physicians registered with CPSBC providing specialist services in rural BC communities</td>
<td>4</td>
<td>This group brings the discussion outside the scope of primary care providers to provide insight into how practice type can influence PI/QI involvement.</td>
</tr>
<tr>
<td>FG5: Facilities-based</td>
<td>Physicians practicing in hospitals, community care centres, or other governed care facilities</td>
<td>4</td>
<td>This group provided insight on how physicians practicing in a facilities-based environment rather than in tradition clinic environments may lend itself towards PI/QI involvement.</td>
</tr>
<tr>
<td>FG6: Team-based</td>
<td>Physicians and other healthcare providers who practice as part of an interdisciplinary care team</td>
<td>5</td>
<td>With an ever-increasing emphasis on team-based care, this group provided insight on how PI/QI is and/or could be conducted in a multidisciplinary environment and how non-physician care providers can be involved.</td>
</tr>
<tr>
<td>FG7: Physician Program Leaders</td>
<td>Physicians who are, or have been, actively involved in implementing and/or leading PI/QI initiatives</td>
<td>5</td>
<td>This group provided insight into the processes through which physicians initiate and lead PI/QI projects and the associated challenges and successes that come along with that leadership.</td>
</tr>
<tr>
<td>FG8: Program Regulators</td>
<td>Physicians working for the provincial government, a health authority, or other regulatory body who actively participates in the regulation of PI/QI initiatives</td>
<td>6</td>
<td>This group provided insight on physician participation in PI/QI activities from the perspective of regulatory bodies.</td>
</tr>
</tbody>
</table>

| Total Participants | 33 |
Figure 2: Geographic Distribution of Focus Group Participants

ii. Data Collection

All focus groups were conducted via WebEx; a UBC Faculty of Medicine approved web-conferencing software platform, which allowed participants to interact “face-to-face” from their homes, offices, etc., without the need for travel from all corners of rural BC. A teleconference dial-in option was also available for those without access to reliable internet connections or who, for other reasons, were not able to connect via WebEx. Focus group discussions were scheduled for 90 minutes (from 6:30-8pm on a weeknight). Each group had four to six participants for a total of 33 participants across all groups. All participants signed and returned an informed consent form to the researchers before participating in the focus group or interview (see Appendix D).

The focus groups were 90 minutes in length and were moderated by a UBC CPD Medical Lead familiar with the protocols and with qualitative research methodology experience. In addition, two to three other project staff were present at each focus group and during the post session debriefing. Focus groups utilized a semi-structured framework which allowed feedback on the sequence of questions, while allowing the discussions to flow freely among the participants. Each focus group followed a unique protocol depending on the group type.

RSA A Communities Represented
- Clearwater
- Fernie (x2)
- Fort St. John (x2)
- Fraser Lake
- Golden
- Prince Rupert
- Queen Charlotte
- Revelstoke
- Smithers
- Valemount

RSA B Communities Represented
- Nelson (x3)
- Powell River
- Prince George (x7)
- Trail

RSA C Communities Represented
- Oliver
- Parksville
- Salt Spring Island

Non-RSA Communities Represented
- Abbotsford
- Vancouver (x2)
- Victoria (x3)
and what we wanted to get out of each group. Participants were sent these protocols ahead of the group so they could begin to prepare their responses. (See Appendix E for all protocols used).

iii. Data Analysis

The focus groups were recorded (with participant consent) and transcribed by a professional transcriptionist. The data were tabulated, summarized, and analyzed for patterns or emergent themes. Working Group members compiled a codebook via iterative development, which was used to quantitatively code transcripts. Fifty-four codes were identified (see Appendix G), and the transcripts were coded independently by research team members and then discussed and condensed into thematic categories. NVivo (version 11), a qualitative analysis software, was used for organizing and grouping data and applying units of analysis.

KEY INFORMANT INTERVIEWS: FILLING IN THE GAPS

After all focus groups were conducted, the Working Group identified several areas that needed further clarification and interpretation. These included: culture around QI, patient voice, access to data and supports from the system, and collective competency. Subject matter experts were identified through the professional networks of the Working Group members and asked for follow-up interviews. Four interviews were conducted; each was between twenty and thirty minutes in duration and was recorded (with participant permission) for review by project staff.

These interviews were less structured than the focus groups and did not use formal protocols. As such, their recordings were not transcribed and analyzed following the same methods as the focus groups since they would not meet the same, acceptable level of scholarly rigour. Rather, they were used as informal “sanity checks” to collect external input/validation regarding the Working Group’s interpretation of the focus group data analysis.

FINAL ANALYSIS

Analysis for the survey and focus group data were conducted independently as outlined above in their respective sections. Further integrative analysis was performed for the purposes of report compilation and elucidating the recommendations generated by this project. Similar thematic areas from the quantitative and qualitative analyses were grouped and looked at holistically by project research staff in order to gain a more comprehensive understanding of each respective theme. This was done collaboratively and iteratively between members of the Working Group before finalization.
IV. FINDINGS

SURVEY

i. Demographics

The majority (61%, n=106) of respondents reported that they primarily practiced as Family Physicians (FP) or General Practitioners (GP). In comparison, approximately 33% (n=58) of respondents said they practiced as specialist. Residents and Other each account for about 3% (n=5). Of those who reported other, their responses included:

- Retired;
- GP Oncologist;
- GP Anesthesia;
- GP Practice Limited to Addiction Medicine;
- CCFP (EM)

The data is representative of BC provincial data of relative number of FPs/GPs practicing in rural regions in comparison to specialists.
Over two-thirds (n=122, 71%) of respondents completed their medical training in Canada, whereas 29% completed their medical education outside of Canada.

Twenty-nine percent (29%) of respondents graduated between 2000-2009. Forty-two percent (42%) graduated between 1980 and 1999, eighteen percent (18%) were newer graduates between 2010-2017 while only 11% graduated prior to 1980.
The majority (70%) of respondents worked in rural and remote community of BC for more than 5 years. About half (48%) of all the respondents worked even more than 10 years. About one-third (29%) worked for less than 5 years.

Figures 6 and 7 suggest that the input on the survey was from a broad representative group of rural physicians with a wide range of experience in rural practice.
In terms of primary practice, the respondents were informed to select **ALL** that apply to them, so the figure above indicates that some worked simultaneously in several areas. Whereas the large majority (85%) of respondents indicated they worked in a *private office or clinic*, those who practiced in *in-patient care*, *emergency room care*, *long-term care facility*, and *walk-in clinics* accounted for 65%, 54%, 44% and 17% of all, respectively. Of those (24%) who reported *other*, their responses included:

- community based clinics;
- hospital-run outpatient clinic;
- interdisciplinary clinics;
- health authority diagnosis and treatment center.

The respondents were told to select all the scopes of practice that apply to them. The majority of respondents (66%) said that they worked in *Family Practice*, and the next largest cohort was for *Emergency Medicine* (41%). There were almost an equal proportion of respondents that practiced in *Obstetrics* (16%), *Psychiatry* (13%), *Internal Medicine* (12%), *Surgery* (11%), and *Paediatrics* (10%). The information that a majority of the needs...
assessment survey respondents worked for Family Practice is consistent with another survey question that the majority of them worked as FP/GP instead of specialist.

**Figure 10: Primary Practice Location (n=269)**

The largest cohort of respondents practiced in **Interior Health Authority** (39%). The needs assessment survey generated almost an equal proportion of respondents that primarily practiced in **Northern Health Authority** (22%) and **Vancouver Island Health Authority** (23%). The remainder practiced in **Coastal/Providence Health Care** (13%) or **Other** (2%) such as retired, private practice, PHSA.

**Figure 11: Clinical Practice Setting (n=268)**

The large majority (61%) of respondents indicated they primarily worked in a **primary care office or clinic**, whereas about one-third (28%) primarily practiced in hospital. Respondents who reported their primary practice setting to be **other** made up 9% of total, and their responses mainly included:

- community clinics;
- mental health and addictions team;
- blend of hospital/ER and primary care office/clinical each week;
- diagnosis and treatment center

**Figure 12: Practice Type (n=270)**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>211</td>
<td>77.9</td>
<td>78.1</td>
</tr>
<tr>
<td>Part-time</td>
<td>39</td>
<td>14.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Retired</td>
<td>4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Locum</td>
<td>15</td>
<td>5.5</td>
<td>5.6</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>.4</td>
<td>.4</td>
</tr>
<tr>
<td>Total</td>
<td>270</td>
<td>99.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>271</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The majority (78%) of respondents were in full-time practice. About 14% of the respondents were in part-time practice, while 6% were locums and 1.5% percent were retired.

**Figure 13: Number of Hours per Week Spent in Direct Patient Care (n=260)**

Thirty-four percent spent less than 40 hours per week whereas 66% spent 40 hours or more per week in direct patient care.
In terms of working with colleagues in main clinical practice setting, 208 reported that they have other physicians in their practice, accounting for the majority (77%) of respondents. Respondents who shared their practice with MOAs, nurses and other specialists made up 64%, 59% and 40%, respectively. About 10% of respondents answered other. This data shows that most respondents were in group practices.

The majority of respondents (76%) indicated that they practiced in a community with population size below 30,000.
Most (80%) respondents reported that their primary source of professional income came from ‘fee for service’. Those who reportedly received their primary source of income from a ‘salary’ basis made up 10% of the total, whereas an income from a ‘sessional’ basis and ‘other’ accounted for 4% and 6%, respectively. In particular, ‘other’ primarily included a variety of contracts and alternate payment plans.
Eighty-five percent of respondents used an EMR to do clinical practice. Of those who indicated “Yes” to using an EMR, the most common platforms used were MOIS (18%) and Med Access (18%), followed by IntraHealth (14%), Oscar (9%), Wolf (9%), and Osler (7%). Twenty-five percent reported using a different platform of which Accuro, PARIS, Plexia, and Profile were the most common.

Summary of participant demographics

Participant demographics demonstrated a representative sample of BC rural physicians based on the category of practice, clinical setting, EMR usage, and location. The respondent demographics reflected a sample with substantial practice experience, and the majority (over 71%) had worked in rural and remote community of BC for more than 5 years at the time of survey completion. Based on participant demographics and the known provincial physician demographics we can confirm that we have a representative sample to reflect that of rural BC physicians in practice. The following are primary features of the respondents:

- 63% were family practitioners or general practitioners while 30% were specialists;
- over 70% were Canadian Medical Graduates;
- about 75% were aged 35 to 54 years old;
- about 76% practiced in a community with population size below 30,000;
- 85% of respondents’ practice settings included a primary care office or clinic;
- 78% worked in full-time practice and with other family physicians;
- 66% spent 40 hours or more per week in direct patient care;
- 80% worked in a fee for service payment structure;
- 85% used EMR in their practice.
ii. Motivators and Barriers to PI/QI

On scales of 1=Definitely Not, to 5=Most Definitely, respondents were asked to indicate their agreement with how much each of the pre-identified factors were either motivators or barriers to their engagement with PI/QI in their current practices. Their responses are summarized below. For simplicity’s sake, responses were binned into 3 categories delineating general agreement, neutral attitudes or general disagreement.

**Table 2: Motivators to Participation in PI/QI Activities**

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Definitely Not</th>
<th>Neutral</th>
<th>Definitely</th>
<th>Weighted Mean (/5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Potential to produce <strong>improvement in patient outcomes</strong></td>
<td>271</td>
<td>0%</td>
<td>2%</td>
<td>97%</td>
<td>4.7</td>
</tr>
<tr>
<td>b) Potential to <strong>improve my knowledge base and quality of practice</strong></td>
<td>271</td>
<td>1%</td>
<td>5%</td>
<td>93%</td>
<td>4.6</td>
</tr>
<tr>
<td>c) Ability to <strong>collaborate with colleagues/other healthcare professionals</strong></td>
<td>269</td>
<td>3%</td>
<td>12%</td>
<td>85%</td>
<td>4.2</td>
</tr>
<tr>
<td>d) Continuing Medical Education (CME) <strong>credits</strong></td>
<td>267</td>
<td>6%</td>
<td>11%</td>
<td>82%</td>
<td>4.2</td>
</tr>
<tr>
<td>e) Provision of <strong>incentives</strong> (e.g. payment for time spent participating in PI/QI activities)</td>
<td>268</td>
<td>5%</td>
<td>16%</td>
<td>79%</td>
<td>4.1</td>
</tr>
<tr>
<td>f) Easy access to <strong>practice data/clinical information</strong></td>
<td>260</td>
<td>8%</td>
<td>16%</td>
<td>77%</td>
<td>4.0</td>
</tr>
<tr>
<td>g) Having <strong>support to summarize</strong> practice data/clinical information</td>
<td>264</td>
<td>11%</td>
<td>26%</td>
<td>64%</td>
<td>3.7</td>
</tr>
<tr>
<td>h) Being able to compare my practice data to the <strong>summary of my peers’ practice data</strong></td>
<td>267</td>
<td>15%</td>
<td>27%</td>
<td>58%</td>
<td>3.6</td>
</tr>
<tr>
<td>i) Access to a <strong>PI/QI coach, champion or mentor for support</strong></td>
<td>266</td>
<td>18%</td>
<td>27%</td>
<td>54%</td>
<td>3.5</td>
</tr>
</tbody>
</table>

More than 80% of respondents agreed that the following factors were motivators to their participation in PI/QI activities:

- Potential to produce improvement in patient outcomes (n = 271);
- Potential to improve my knowledge base and quality of practice;
- Ability to collaborate with colleagues/other healthcare professionals to provide better patient care;
- Continuing Medical Education (CME) credits.

It should be noted that respondents were quite favourable to the ‘provision of incentives’, and ‘easy access to practice data or clinical information’ (79% and 77%, respectively). Of additional interest, respondents gave a moderate rating for ‘access to a PI/QI coach, champion or mentor for support’, and ‘being able to compare practice data with summary of their peers data’ (54% and 58% of all respondents agreed, respectively) which shows that it is less of a preference but over half that it might be of interest as a support or incentive.

Respondents were also given the chance to identify any additional enablers to PI/QI not identified in our survey. Other factors respondents identified included:
• Desire to stay current on best practices;
• Availability of easily-implemented PI/QI activities;
• Flexibility of PI/QI delivery modality;
• Access to support;
• Translatable ideas from successful PI/QI projects.

Chi-squared analysis of PI/QI enablers vs. demographics showed interesting results. GPs/FPs were more likely to agree that provision of incentives were a motivator to PI/QI participation than were specialists \(X^2(2) = 8.50; p < 0.05\). Further, Canadian Medical Graduates (CMGs) were more likely to agree that provision of CME credits were an effective motivator to PI/QI engagement than International Medical Graduates (IMGs) \(X^2(2) = 6.26; p < 0.05\).

**Table 3: Barriers to Participation in PI/QI Activities**

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Definitely Not</th>
<th>Neutral</th>
<th>Definitely</th>
<th>Weighted Mean (/5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Time constraints</td>
<td>230</td>
<td>3%</td>
<td>7%</td>
<td>90%</td>
<td>4.5</td>
</tr>
<tr>
<td>b) Lack of incentives (e.g. payment for time spent participating in PI/QI activities)</td>
<td>264</td>
<td>13%</td>
<td>29%</td>
<td>58%</td>
<td>3.6</td>
</tr>
<tr>
<td>c) I have limited knowledge of PI/QI principles and how to apply them practically</td>
<td>268</td>
<td>16%</td>
<td>32%</td>
<td>52%</td>
<td>3.4</td>
</tr>
<tr>
<td>d) I don’t know how to measure or track patient outcomes over time</td>
<td>266</td>
<td>21%</td>
<td>27%</td>
<td>51%</td>
<td>3.4</td>
</tr>
<tr>
<td>e) I don’t know how to access practice data/clinical information</td>
<td>265</td>
<td>24%</td>
<td>29%</td>
<td>47%</td>
<td>3.3</td>
</tr>
<tr>
<td>f) Lack of access to useful externally-generated data (e.g. hospital or MSP data)</td>
<td>239</td>
<td>14%</td>
<td>24%</td>
<td>62%</td>
<td>3.2</td>
</tr>
<tr>
<td>g) I don’t have access to practice data/clinical information</td>
<td>253</td>
<td>29%</td>
<td>35%</td>
<td>36%</td>
<td>3.0</td>
</tr>
<tr>
<td>h) My EMR data is not in a useful format</td>
<td>224</td>
<td>36%</td>
<td>24%</td>
<td>40%</td>
<td>2.6</td>
</tr>
<tr>
<td>i) My EMR-generated reports are not useful</td>
<td>214</td>
<td>36%</td>
<td>26%</td>
<td>38%</td>
<td>2.5</td>
</tr>
</tbody>
</table>

‘Time constraints’ was the most frequently cited barrier with over 90% of respondents agreeing. The following four barriers were also identified by over half of respondents as barriers to PI/QI:

• Lack of access to useful externally-generated data (62%);
• Lack of incentives (58%);
• Limited knowledge of PI/QI principles and application (52%);
• Limited knowledge of how to track patient outcomes over time (51%).

Respondents were also given the chance to identify any additional barriers to participation in PI/QI not identified in our survey. Other factors respondents identified included:

• Lack of translatability of PI/QI initiatives between practice settings/specialties;
• Bureaucratic red tape;
• Lack of Health Authority/College/other regulatory body buy-in;
• Lack of formalized research processes to inform maximally beneficial PI/QI initiatives;
• Inability to access PI/QI offerings centralized to Vancouver/ Fraser Valley.

In terms of demographic cross-tabulation, GPs/FPs were more likely to indicate that access to EMR-type clinical data \( \chi^2(2)=15.95; p<0.01 \) and the usability of available EMR data \( \chi^2(2)=7.00; p<0.05 \) were barriers to PI/QI than specialists were. Further, IMGs were more likely to indicate that a lack of knowledge regarding PI/QI principles was a barrier to their involvement than those trained in Canada \( \chi^2(2)=6.76; p<0.05 \).

**Summary - Facilitators and Barriers**

In general, the majority of respondents agreed that their participation in PI/QI could improve their knowledge base and quality of practice, and help them provide better patient care.

However, the survey indicated almost half of the respondents had not initiated or participated in any PI/QI activity in the preceding two years. For this reason, it is important to understand the factors that might prevent respondents from participating in PI/QI activities. Several barriers were identified, with ‘time constraints’ being the most frequently cited by a large majority, thereby suggesting the need to alleviate time consuming tasks for physicians through support by others and by potentially thinking of ways to embed PI/QI into existing activities and daily work.

It should be noted that incentives seem to be an important factor for the respondents’ participation in PI/QI practices as 79% of respondents rated ‘provision of incentives’ as motivators for PI/QI practices and 58% believed that lack of incentives were barriers to their participation of PI/QI. This probably indicates that the appropriate provision of incentives might be central to PI/QI success, as well as the implementation of any identified changes that will improve medical practice. These incentives may take a variety of forms including creating the space (e.g. time) or equipping (training/data etc.) for PI/QI activities and trying to streamline PI/QI into existing work.
iii. Attitudes and Practices

Respondents were asked to rate their level of agreement with several factors pertaining to their current attitudes and practices towards PI/QI; their responses are aggregated below. Once again, the scales ranged from 1=Definitely Not, to 5=Most Definitely, but data is binned below into 3 categories for ease of interpretation.

**Table 4: Current Attitudes and Agreement with PI/QI Capability**

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) My participation in PI/QI activities will be <strong>valuable for improving</strong> the care of my patients</td>
<td>262</td>
<td>2%</td>
<td>17%</td>
<td>82%</td>
</tr>
<tr>
<td>b) I would be prepared to participate in a <strong>self-directed continuous quality improvement</strong> process to ensure patient safety and best patient outcomes, if it was appropriately supported</td>
<td>263</td>
<td>6%</td>
<td>15%</td>
<td>79%</td>
</tr>
<tr>
<td>c) I would be willing to explore how my <strong>workplace can better support</strong> my involvement in PI/QI activities</td>
<td>268</td>
<td>4%</td>
<td>19%</td>
<td>76%</td>
</tr>
<tr>
<td>d) I would be prepared to participate in a <strong>continuous quality improvement process</strong> with other healthcare professionals in my community to ensure patient safety and best patient outcomes</td>
<td>264</td>
<td>4%</td>
<td>20%</td>
<td>76%</td>
</tr>
<tr>
<td>e) I am satisfied with my <strong>current level of involvement</strong> in PI/QI activities</td>
<td>263</td>
<td>30%</td>
<td>46%</td>
<td>24%</td>
</tr>
<tr>
<td>f) I am satisfied with my <strong>current level of knowledge</strong> of PI/QI principles</td>
<td>260</td>
<td>36%</td>
<td>44%</td>
<td>20%</td>
</tr>
</tbody>
</table>

The majority of respondents (82%) agreed that their participation in PI/QI activities has value for patient care. In addition, respondents were quite favourable to explore how their workplace can better support their involvement in PI/QI activities, to participate in self-directed continuous quality improvement processes, and to participate in continuous quality improvement processes with other healthcare professionals (76%, 79%, and 76%, respectively). The combination of significant value seen in PI/QI and the current dissatisfaction with their current involvement suggests an opportunity to support further engagement. The data also shows a willingness to work in teams on PI/QI and that physicians are internally motivated in that they have interest in self-directed PI/QI activities.

We also inquired after respondent’s most preferred methods of PI/QI engagement.

**Table 5: Preferred Approaches/Formats for Participating in PI/QI**

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Not Preferred</th>
<th>Somewhat Preferred</th>
<th>Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Team-based practice improvement activities (e.g. improvement activities involving all members of a healthcare team)</td>
<td>263</td>
<td>15.2%</td>
<td>21.3%</td>
<td>63.5%</td>
</tr>
<tr>
<td>b) Group learning with other physicians (e.g. small group learning sessions, practice improvement groups)</td>
<td>267</td>
<td>12.0%</td>
<td>28.1%</td>
<td>59.9%</td>
</tr>
</tbody>
</table>
c) **Individual learning and assessment** (e.g. personal learning/improvement plans, chart review) | 260 | 13.5% | 32.3% | 54.2%

d) **Mentoring/coaching support** | 264 | 25.8% | 31.1% | 43.2%

e) **Audit and formalized feedback** from a trusted source | 259 | 34.4% | 26.3% | 39.4%

The majority of respondents preferred to engage in ‘individual learning and assessment’, ‘group learning with other physicians’, and ‘team-based practice improvement’ (54%, 60%, and 64%, respectively) for PI/QI. Of note, in alignment with respondents’ rating of having access to a PI/QI coach, champion or mentor for support (54%), they also gave a moderate rating (43%) to ‘mentoring/coaching’ as a preferred method for participating in PI/QI.

Of interest, GP/FP respondents were more likely to indicate a preference for group learning formats than their specialist counterparts \(X^2(2)=6.78; p<0.05\). Further, respondents from smaller population communities (below 10,000) were also more likely to prefer group learning formats \(X^2(2)=6.63; p<0.05\) than their colleagues from larger population centres who demonstrated a preference for audit and formalized feedback \(X^2(2)=8.73; p<0.05\).

We asked respondents to indicate whether they had initiated or participated in PI/QI initiatives within the previous 2 years to gauge current PI/QI penetration. Their responses are outlined below.

**Figure 19: Initiation or Participation in PI/QI**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>52.8%</td>
<td>47.2%</td>
</tr>
</tbody>
</table>

To get a better sense of the current PI/QI landscape, if respondents answered ‘Yes’ to the previous question, we asked for open feedback regarding what types of initiatives they had participated in. Responses were incredibly diverse, but the most common type of PI/QI activities respondents initiated or participated in included:

- Independent clinic-based projects (mostly utilizing EMRs, but some without);
- Independent needs-driven research (i.e. reading articles, accessing UptoDate, podcasts, etc.);
- EMR data driven practice monitoring (often supported by Divisions);
- Programming through PSP;
- Shared Care initiatives;
Skills-based courses (delivered locally or regionally; often travelling programs);
Practice audits (both internal/informal and external/formal);
Facilities-based peer review;
Coaching and/or mentoring (both through formal programs and informally);
Intercollegial discussions (hospital/patient rounds, M&M meetings, chart reviews, etc.);
Team-based office management programs

Summary – Attitudes and Practices
The majority of respondents (82%) agreed that participating in PI/QI activities would be advantageous for improving the care of their patients. Further, agreement levels for exploring ‘how their workplace could better support their involvement in PI/QI activities’, as well as ‘their readiness to participate in a self-directed or team-based continuous QI’ were also very high (close to 80%). However, a low percentage of respondents are satisfied with their current level of knowledge of PI/QI principles (20%) or their current level of involvement in PI/QI activities (24%). Together, these results indicate that while respondents identified the potential benefits of CQI and were interested in incorporating PI/QI into their practice, they did not have the tools and/or know-how to translate theory into action which presents an opportunity for continuous learning and development.

Respondents had a fairly high preference for team-based PI activities (63%) especially among GP/FPs and those practicing in smaller population communities. The next preferred approaches were group learning with other physicians (60%), as well as individual learning and assessment (54%). Respondents were moderately in favour of coaching/mentoring support (43%).

The data also revealed that the majority of respondents have a positive attitude for participating in PI/QI activities, as well as a strong desire to learn more about PI/QI. Since the microsystem-level attitude, motivation and PI/QI capabilities are central to PI/QI success, it will be critical to provide physicians with the support, tools, and resources required to translate their desire and amenability to PI/QI into a practical and sustainable CQI culture.
iv. Meaningful Use of Practice Data

Respondents’ agreement with the following statements pertaining to the access, use, and applicability of practice data to PI/QI are aggregated in the following table.

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Physicians should be responsible for and control the use of their practice data</td>
<td>257</td>
<td>2%</td>
<td>17%</td>
<td>82%</td>
</tr>
<tr>
<td>b) I prefer to have support interpreting and applying findings from my practice data/clinical information for PI/QI</td>
<td>263</td>
<td>9%</td>
<td>27%</td>
<td>64%</td>
</tr>
<tr>
<td>c) I would be willing to have my practice data/clinical information included in a central repository and provided to other physicians as summarized data for the purpose of PI/QI, if it was non-identified and held by a trusted group</td>
<td>252</td>
<td>11%</td>
<td>27%</td>
<td>62%</td>
</tr>
<tr>
<td>d) I would be willing to spend some time learning about data management, compiling and interpreting reports, and meaningful practice data measurement</td>
<td>267</td>
<td>22%</td>
<td>25%</td>
<td>52%</td>
</tr>
<tr>
<td>e) I would trust practice data/clinical information summarized by an external source</td>
<td>248</td>
<td>15%</td>
<td>38%</td>
<td>47%</td>
</tr>
<tr>
<td>f) I am comfortable interpreting and applying findings from my practice data/clinical information for PI/QI</td>
<td>257</td>
<td>22%</td>
<td>37%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Respondents indicated strong support (82%) for individual physician ownership over practice-level data. However, a much smaller proportion (40%) of respondents indicated comfort in their abilities to use their data in meaningful ways. More physicians preferred to have support in the interpretation and application of their data (64%) than were willing to spend time learning how to do so themselves (52%). A majority of respondents (62%) also indicated a willingness to pool their practice data into a central repository. However, less than half of respondents (47%) would trust practice data/clinical information summarized by an external source, and this lack of trust was particularly prevalent among IMG participants relative to their CMG counterparts \(X^2(2)=6.85; p<0.05\).

In terms of demographic cross-tabulation, GP/FPs were more likely to indicate a preference for having support interpreting and applying findings from their practice data/clinical information for PI/QI than their specialist colleagues were \(X^2(2)=7.29; p<0.05\).

To further clarify what role data could play in PI/QI activities, we asked which sources of data physicians were currently using in their practices as well as their familiarity and access to several potential provincial or practice-level data sources.
The most commonly accessed and used data sources were EMRs (60% and 37%, respectively) followed by public health/disease surveillance data (27% and 23%, respectively), then hospital or facility data (31% and 15%, respectively). Access penetrance and utilization for HDC data-sharing was low on all metrics, which could be explained by the fact that this service is currently only available to MOIS and Oscar users with plans for Telus and Intrahealth to join the coalition soon. Interestingly, only 60% of respondents identified having access to EMR data, while over 80% indicated using an EMR in their practice in the demographics section, which indicates a disconnect between clinical and PI/QI use of EMR data.

More GP/FP respondents than specialists indicated having access to and utilizing public health/disease surveillance data for PI/QI ($\chi^2(1)=21.53; p<0.01$) and ($\chi^2(1)=19.76; p<0.01$), respectively. CMGs were similar more likely than IMGs to utilize public health/disease surveillance data for PI/QI ($\chi^2(1)=5.70; p<0.05$). Finally, respondents in smaller population communities were far less likely to utilize public health/disease surveillance data for PI/QI than their colleagues in larger centres ($\chi^2(1)=15.47; p<0.01$), which may be indicative of lack of collection or access of this kind of data in smaller centres.

Open-ended responses to this question highlighted the inaccessibility of data from Health Authorities and the lack of a coordinated, centralized data collection and distribution process.
v. PI/QI and CPD

From an educational perspective, we were interested to explore which topic areas pertaining to PI/QI are of most interest to rural physicians. Combining this information with the motivators/barriers and PI/QI formats information above, may yield interesting insights into the most effective way to deliver high-yield PI/QI education. Participants were asked to rate their interest in several pre-identified topic areas of CPD.

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Not Interested</th>
<th>Neutral</th>
<th>Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Strategies for identifying and addressing quality gaps in my practice</td>
<td>264</td>
<td>3%</td>
<td>12%</td>
<td>85%</td>
</tr>
<tr>
<td>b) Generating meaningful/useful reports of my practice data</td>
<td>263</td>
<td>5%</td>
<td>15%</td>
<td>80%</td>
</tr>
<tr>
<td>c) Understanding how to do PI/QI in my practice setting</td>
<td>264</td>
<td>5%</td>
<td>19%</td>
<td>76%</td>
</tr>
<tr>
<td>d) Entering data into my EMR accurately and in a usable format</td>
<td>255</td>
<td>14%</td>
<td>19%</td>
<td>67%</td>
</tr>
<tr>
<td>e) Leading or participating in team-based PI/QI projects</td>
<td>262</td>
<td>17%</td>
<td>26%</td>
<td>57%</td>
</tr>
</tbody>
</table>

The most popular topics for CPD/education were about identifying and addressing quality gaps in practice and generating meaningful/useful reports from practice data (85% and 80% respectively). There was also significant interest in CPD/education about understanding how to do PI/QI and in being able to accurately enter data into their EMR in a usable format (76% and 67% respectively). Team-based CPD did not achieve the same level of interest (57%); of which specialists were far less likely to participate than were their GP/FP colleagues \( \chi^2(2)=6.02; p<0.05 \). This data highlights the existing CPD opportunity in how physicians could be supported in their learning needs.

Responses to the open-ended portion of this section once again highlighted the challenge of engaging with CPD initiatives due to time constraints as well as the fact that not all clinics in BC utilize EMR systems for patient data tracking at present.
vi. PI/QI and the Provincial Privileging and Credentialing System

The BCMQI recently released a set of Privileging Dictionaries outlining the skills and competencies practitioners are expected to have in order to practice in various clinical settings in BC. Reactions to these dictionaries have been mixed, so we asked respondents to identify whether they thought the implementation of these dictionaries have had a positive impact on their practice. Their responses are aggregated below. Once again, the scales ranged from 1=Definitely Not, to 5=Most Definitely, but data is binned below into 3 categories for ease of interpretation.

Table 9: Attitudes to the BCMQI Privileging Dictionaries

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Privileging Dictionaries have had a positive impact on the quality of care I deliver to my patients</td>
<td>277</td>
<td>45%</td>
<td>27%</td>
<td>4%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Of those indicating an opinion (n=211), 59% of respondents disagreed with the concept that the Privileging Dictionaries newly introduced by the BCMQI had a positive impact on their quality of care. A good portion respondents did not volunteer an opinion on the topic, only 5% of those expressing an opinion indicated agreement.

The vast majority of open-ended responses to this question further detailed respondents’ dissatisfaction with the privileging dictionaries. Despite the significant “hassle” required by the new regulations, respondents indicated that they saw no perceivable increase in the quality of patient care, and indeed, some indicated that the privileging dictionaries have negatively impacted their ability to care for their patients. New-to-practice physicians, locums, and those practicing in very remote communities especially indicated difficulty establishing or maintaining privileges.
vii. Organizational Involvement

Survey participants were asked their thoughts regarding which organizations or groups ought to be involved in various aspects of PI/QI and how these various organizations can show leadership and support to PI/QI. Their responses are outlined below, with a higher percent score indicating a higher preference for that particular group.

![Figure 20: Organizations involved in leading PI/QI](image)

*Figure 20: Organizations involved in leading PI/QI*
Figure 21: Organizations involved in funding PI/QI
Figure 22: Organizations involved in developing PI/QI content
Figure 23: Organizations involved in delivery and implementation of PI/QI
In terms of which organizations should be involved in various aspects of PI/QI related activities, respondents most notably identified individual physicians should take onus on leading PI/QI initiatives (58%) and the MoH and DoBC should provide adequate funding (76% and 58%, respectively). Respondents felt strongly that individual physicians should not be responsible for funding their own PI/QI and that the MoH should not have a role in leading or developing content for PI/QI initiatives. In terms of developing content, delivery, and promotion, many disparate organizations reached intermediate support (over 50% preference for one of these) including DoBC, SGP, Divisions of FP, UBC FoM, individual physicians and PSP.

Open-ended responses to this question yielded some interesting insights.

- Many participants indicated they had trouble answering the question due to a lack of knowledge regarding what the scope/mandate of each individual organization was.
- The importance of keeping PI/QI centered at the physician level was highlighted, especially in regards to separating regulatory body involvement at the funding vs. the planning/delivery levels.
Finally, many respondents indicated confusion and dismay over the number and array of organizations currently involved in the PI/QI process. Concerns mostly centered on the administrative duplication/burden necessitated by applying through multiple bodies as well as bureaucratic inefficiencies between organizations. As one survey respondent succinctly put it:

“My goodness BC has a lot of organizations. No wonder it takes forever to get things done!”
FOCUS GROUPS

After preliminary analysis of our survey findings, a series of focus groups were conducted to enhance and expand upon the findings and collect some more focused input regarding several thematic areas not fully addressed in the survey. With this in mind, it was important to collect input from a wide range of perspectives on PI/QI and so designed our focus group demographics and protocols as outlined in the method section. Briefly, we conducted seven 90-minute focus groups to collect opinions from the following demographic groups: rural physicians on the fee-for-service compensation model as well as alternative payment plans, rural specialists, facilities-based care providers, team-based care providers, physician program leaders, and program regulators. The following sections include a thematic breakdown of the qualitative input collected across our seven focus groups (see Appendix F).

i. Current Attitudes and Practices towards PI/QI

In order to better understand which strategic directions need to be pursued in order to ameliorate PI/QI engagement in the province, it was important to get a clearer picture of the current PI/QI landscape. The main purpose of this section of inquiry was to get a sense of what kind of initiatives physicians are currently using to improve their practice, how satisfied they are with their current level of engagement with PI/QI as well as with the level and quality of PI/QI alternatives available, and to gauge how successful they have been at implementing PI/QI into their practices. We also asked questions on the best ways to incorporate PI/QI into their practice flow, and what kind of resources they have been successfully using or wished were available to support their PI/QI.

a. Current Participation and Satisfaction

When asked about current involvement in PI/QI initiatives, participants’ responses were diverse and extensive (see Appendix H for a list of examples). The types of initiative involvement mentioned were as diverse as the communities represented in our engagement process. The most common type of answer we encountered was the community-initiated, facility-based or practice-based workshop type education, which was often described as being promoted, run, or delivered by the local Division of Family Practice.

“A lot of it initially had been self-starting within our Division of Family Practice. We have a very strong Program Manager who was looking at utilizing the EMRs for practice improvement. So we had several initiatives on and off throughout the years”

-FG3a: FFS Respondent

Another common response described inter-collegial or inter-professional practice rounds or M&M type discussions. These were said to promote critical practice analysis as well as foster interpersonal relationships.

“We do have a morbidity and mortality rounds once a month that’s becoming quite well attended and it’s more for primary practice at the hospital but it’s still been quite helpful and that’s now got CME credits associated with it so that’s probably going to improve outcome or turnout anyway compared to previously.”

-FG7: Program Leaders Respondent
Practice and/or clinical support resources such as practice coaches or practice assessment were also frequently described.

“The Northern Quality and Care work that’s being done with UBC CPD and Practice Support Program around developing a peer mentor training and practice support program is also working on that to develop a peer mentor training and coach training of all their regional support team members in a standardized way”

-FG7: Program Leader Respondent

Finally, many respondents indicated self-learning as a powerful tool in their PI/QI inventory. From critical self-reflection, to self-motivated education, to teaching new generations of physicians, independent/individual development was one of the most commonly cited forms of CQI.

“I think thus far it’s been a very informal process for me. You know the formal part being I guess the conferences and pieces like that but the informal part being learning from my colleagues, learning from my medical students and my residents especially.”

-FG3b: APP Respondent

Many of our respondents had highly positive things to share regarding their personal or their professional settings’ interaction with PI/QI initiatives. We heard about their success stories and it allowed us to begin to piece together what goes into successful PI/QI engagement. Some of their responses are listed below:

“We have a hospital-based Quality Committee which actually works really well at getting things done using, uh, improving things at that level and that involves review of cases and looking at system issues about how things are reported and so on”

-FG3a: FFS Respondent

“I attended the IHI conference on quality improvement and I was really inspired by a lot of the work that they did, particularly around the joy and work streams and some of the work they had done in places like Alaska with the Alaska Native Services”

-FG3b: APP Respondent

“We have once a month a simulation night where we have pizza and beer and we do and some kind of an emergency case involving everybody: the surgeons, anaesthesia. [...] They’ve been really effective for good team building but as well for demonstrating skills, reviewing protocols and that’s been very effective for us.”

-FG5: Facilities-Based Respondent
However, despite the vast array of currently available PI/QI initiatives and resources available and the seemingly high level of current engagement, when we asked about their current satisfaction with their involvement with and/or the quality of their PI/QI initiatives, nearly all respondents indicated that there was much room for improvement.

“I came from a culture nine years ago where quality improvement was pretty high on the agenda [...] so it feels to me like it’s at a pretty rudimentary stage in northern BC, and it may be different elsewhere in the province but it feels pretty rudimentary to me at the moment.”

-FG4: Specialist Respondent

“We would like to do more perhaps quantitative or quality improvement or just kind of getting some data. A lot of it so far has just been kind of physician feedback more on an informal basis but it’s something we’re looking at how to get some more data and figure out how to move forward a bit more formally.”

-FG6: Team-Based Respondent

b. Practice Integration

One of the major goals of this section of questioning was to establish how PI/QI is currently being integrated into the physician workflow. Aside from independent PI/QI such as critical self-reflection, we found that respondents had highly variable responses regarding how they incorporated PI/QI into their practices, and we had varying responses regarding how disruptive it was to their workflow and how much they were able to leverage their colleagues into helping the PI/QI process:

“For me the biggest challenge is that it isn’t part of the regular flow. It needs to be a very deliberate outside of clinic hours aspect and unless you really set up your practice that way to have some dedicated time for your intentional mindful reflective practice improvement, it’s very hard to retroactively add it into your schedule”

-FG3a: FFS Respondent

“I think there’s a kind of leap of faith here [...] that by participating in practice improvement activities and not doing clinical things, you could actually achieve more.”

-FG4: Specialist Respondent

For some, however, it was noted that approaching PI/QI practice integration from a team-based approach might facilitate the process. By having mutual buy-in from all members of the care team and by having
each member actively involved in the process, it allowed the process to be far more sustainable and ultimately successful that it might be if individual physicians attempted to do so alone.

“That’s why to me the whole idea of the team approach particularly to trying to improve quality is so critical because whatever you do it’s important that that starts becoming ingrained as the practice of our business; that it becomes ingrained as the new norm for how things are done”

-FG8: Program Regulator Respondent

c. Resources

To get a better idea of what kind of resources are currently being used to support or leverage successful PI/QI engagement, we asked respondents to identify some of the major resources they commonly use as well as speculate regarding what kind of resources might be useful for them and highlight any issues they have experienced in leveraging resources to support PI/QI.

As in previous sections, we received feedback regarding many different types of resources that are currently being used to varying levels of success. Programming and support offered by Divisions of Family Practice, DoBC, the Colleges, UBC CPD, the CMA, various Health Authorities, MSP, SGP, PSP, the Ministry of Health were mentioned, among many others. This paints a broad and potentially difficult to navigate landscape regarding where people are going for the PI/QI support and what kind of resources are being used.

“Well I think we use more local resources than we think, um, so when I was in [redacted] I intended to tap into the Health Authority or the community itself so those kinds of things. Um, in our current work there’s the band, uh, Chief and Council that has certain resources from Northern Health or things from First Nations Health that used to be Health Canada, so again it’s Public Health as well.”

-FG3b: APP Respondent

Recognizing the availability of available resources and leveraging them into meaningful practice-change are very different phenomena. As one respondent highlights:

“I mean I do read my College and my Messenger and Doctors of BC stuff so I know there’s lots of access through CMA as well like practice improvement, but I haven’t taken advantage of many of those programs, just time wise.”

-FG4: Specialist Respondent

This issue of lack of time was a prominent theme from our survey findings, and will be discussed in greater depth below in section ii.a.

Of note, one respondent highlighted the difficulties that specialist physicians in rural communities have in accessing resources for meaningful PI/QI in rural communities relative to their GP/FP counterparts. It was highlighted that most resources that are readily available in rural communities are either online, or when
offered in person must, by nature of cost-recovery, cater to a wide array of practitioners and so it is difficult to get specialty-specific PI/QI in rural communities.

“...the specialists in rural communities essentially, um, we’re left to our own devices.”
-FG4: Specialist Respondent

ii. Barriers to engagement with PI/QI

One of the major focuses of this engagement process was to establish what the major barriers are to physicians engaging with meaningful PI/QI initiatives. Clarifying these problematic areas would establish clear starting points for producing actionable methods for successful PI/QI implementation and delivery across BC.

a. Time

Perhaps unsurprisingly, given the data generated from our survey, time constraints was the biggest identified barrier to engagement with PI/QI initiatives. Without exception, every focus group respondent indicated a lack of time as a barrier to PI/QI in some fashion. Between clinical duties, personal needs, and the diverse array of other responsibilities that physicians have on a day-to-day basis, it was remarked time and again that carving out the time to meaningfully engage in PI/QI initiatives is exceptionally difficult.

“I mean time is always a factor in these things and a lot of times we’re so busy in what we do we just want to escape from what it is we’re doing to give ourselves a break from that which is causing us immense stress”
-FG8: Program Regulator Respondent

This is compounded by the fact that most family physicians in BC currently practice on a fee-for-service compensation model, so any time taken out of clinical time to engage in PI/QI directly impacts physician earnings.

However, as one physician notes:

“I’m noticing a trend that more people are saying, we don’t have time not to do [PI/QI] because, and they give very sort of goose bump inducing stories about how their quality ventures are saving them time and saving morbidity and even mortality.”
-FG7: Program Leader Respondent

This issue of time constraints is inextricably linked with almost all of the other identified barriers listed below. From a basic lack of knowledge through initiative sustainability and compensation models, a lack of time to meaningfully devote to quality PI/QI is a constant underlying theme.

b. Knowledge

It is difficult to develop and deliver quality programming to improve practice without the relevant subject-matter expertise and know-how. With the vast array of responsibilities physicians already have, it is difficult to be able to develop these skills. Accordingly, a major barrier to meaningful PI/QI engagement was a lack of knowledge of PI/QI principles: how to identify areas of potential need for improvement, how
to develop programming to address these areas, and how to deliver it in a meaningful and useful way to the physicians who actually need it.

“There’s often so many great suggestions that come up during those nights at the debrief, you sit down and you go over all those topics and people try to capture those things but […] it’s a challenge to implement those changes that were identified as problems or ways to improve your practice. I need someone who knows more about practice efficiency to come and tell me what to do.”

-FG5: Facilities-Based Respondent

c. **Sustainability**

The next piece that was identified as a barrier to PI/QI was initiative sustainability. Assuming a need was identified and a meaningful and useful initiative/program was instituted to address that need, it is then critical that supports are in place in order to promote the longevity of that initiative and to ensure that newly acquired skills, competencies or other practice improvements are not lost. As one physician reported:

“Sometimes I’ll learn something […] and then a week later I can’t remember how to do it anymore”

-FG3a: FFS Respondent

Other respondents reported similar frustrations.

“I think like little projects here and there get started, but the momentum dies because there’s so many other things that sort of, it’s sort of, sort of the last thing on the list to do or keep doing it […] I get inspired to start a project, I meet with my coach, she gives me some time lines and then unfortunately it just never gets completed for some reason.”

-FG3a: FFS Respondent

“When we’re talking about PSP incentives and things, you choose to do it, you get it, you do some stuff for a little while and then it kind of falls off the radar or, you know, it may not be sustainable on an individual by individual case.”

-FG7: Program Leader Respondent

A related piece to the issue of sustainability is one of accountability. Respondents reported that PI/QI initiatives often fail for them in their ability to sustain their motivation for any PI/QI activity they decide to pursue. Physicians noted that when they engaged in an initiative on their own or if they used conference-style learning, they often lost the internal motivation to continue their PI/QI in that field.

“I think all of us when we begin on our practice improvement projects, we all have the best of intentions to complete it but six months rolls around and it just hasn’t and it’s not that we don’t view it as important, it’s how do we continue to make it a priority throughout the course of our regular working day and that’s the challenge”

-FG3a: FFS Respondent
d. The Current Culture of Healthcare

One of the major findings of the focus group engagement process that was not highlighted in our survey findings was the notion of how current healthcare culture either lends itself towards or away from PI/QI involvement. This is a highly layered and nuanced topic with many levels to explore. In some cases, it was simply reported that the status quo of healthcare culture simply does not prioritize PI/QI, especially in the context of time allocations and compensation models.

“A lot of doctors that I’ve run into; their idea of lifelong learning is somewhat different than what we’re talking about in practice improvement and quality improvement. They are content in many cases to use the old didactic models of attending conferences and sitting and listening to interesting tidbits and yet not having a mechanism to transfer the knowledge from the speaker to Mrs. Smith who they’re seeing at 2 o’clock.”

-FG7: Program Leader Respondent

In some instances, healthcare culture was described as problematic, rather than encouraging or fostering efforts at PI/QI.

“There’s still somewhat of that culture in many people and some resistance to the effort in changing their approach to quality improvement to doing that kind of learning. And it’s not malicious that they’re lazy or anything that, they just don’t know any better and that’s the way that they were taught in medical school and that’s the way they think teaching should be.”

-FG7: Program Leader Respondent

“It would be great if we had either an authority or provincially led way of soliciting proactively patient feedback as to quality of or perceptions of quality of care. Right now we’re in a complaints-driven process so the College, you know, exists to resolve complaints and slap wrists when they need to be slapped. So that’s a punitive model. It would be nice to illicit examples of excellent care”

-FG6: Team-Based Respondent

“I think in my experience again a lot of these sorts of functions [...] was seen as almost a threat, you know, and somebody mentioned that that it’s seen as a punitive measure and it is obviously a quality improvement measure.”

-FG8: Program Regulator Respondent

Further, some respondents indicated that the current healthcare culture can even have detrimental implications for physician wellness. One respondent reported that:
Interactions with regulatory bodies in particular were identified as some of the most challenging areas. In the context of physician quality, it was often noted that in their duty of health services regulation, some regulatory authorities approached quality from a quality assurance lens, rather than an improvement lens. While not necessarily problematic (indeed, it was often noted that quality assurance is a vital part of healthcare culture), respondents implied that when this kind of quality check is performed outside a safe, non-punitive environment, it runs the risk of interfering with meaningful practice improvement.

“There also seems to be a disconnect in terms of language and perspective when representatives from regulatory bodies and those representing physician-led PI/QI initiatives enter into dialogue surrounding the current PI/QI landscape in BC. The following two quotes highlight this contrasting cultural approach:

“I think that as a profession we do a really poor job at assessing physician health as it pertains to quality improvement. So I would advocate that part of quality improvement should be physician wellness or health and what are we doing to measure that and what are we doing to address it.”

-FG3b: APP Respondent

“For too long they’ve [CPSBC] been seen as the enemy of the profession, you know, being the guardians of the public good and not actually wanting to loop back through feedback like this and bringing it forward”

-FG7: Program Leader Respondent

“And also I guess we’re concerned about repercussions if you’re exposing your knowledge and your skills to scrutiny of the Health Authority. People are concerned about that and, you know, legitimately if there are physicians who might need to brush up on their skills a little bit and somebody from the Health Authority witnesses something, then you know there could be repercussions.”

-FG5: Facilities-Based Respondent
The regulator viewpoint highlights the importance of physicians embracing the quality assurance side of what they refer to as the QA/QI continuum. While it is noted that the purpose of a QA approach is not necessarily to weed out the “bad apples”, it was still suggested by regulators that QI initiatives should be implemented primarily as a means to address subpar performances on QA metrics. By contrast, the prevailing physician leader (non-regulator) point of view highlighted the importance of establishing the proverbial “firewall” between practice assessment and quality improvement, and promoting a culture of independent continuous QI. It is assumed that physicians are dedicated and motivated towards improving their practices, and so if the threat associated with QA outcomes is removed, the collective competence model of physician practice will take over and allow physicians to pursue QI initiatives in a safe, non-punitive environment.

This dissonance between the currently accepted/available quality assurance model and the culture of meaningful PI/QI that respondents preferred was something that would take a subtle, yet distinct and intentional cultural shift to effectively resolve.

“The artificial separation has to disappear. Physicians have to, you know, sort of embrace that this is the continuum, that this is about helping them improve, uh, it’s not about finding the bad apples, it’s not about, um, you know disappointing those that are poor performers. It’s about helping everyone. This, if we do this well everyone should improve, the whole system will improve and doing it well means we’ll find the outliers, we need to manage them, that’s through a different process but deal with the majority of the 97 percent that are not a problem and help them actually get better at what they’re doing.”

-FG8: Program Regulator Respondent

“And the one thing I’d like to just go back to emphasize was what [redacted] was talking about which is creating the opportunities to share with peers in a safe environment because that’s worked in the Divisions, it’s worked here in [redacted] and I’ve seen it work before I came here. We ran a lot of sessions where we brought people together to share unconditionally without punishment and doctors are inherently wanting to do better and they love to know how they’re doing compared to their peers and I think that’s an important element of encouragement rather than, you know, having to you know beat them with sticks or anything.”

-FG7: Program Leader Respondent

e. Compensation Models
As previously noted, the majority of family physicians in BC currently practice on a fee-for-service compensation model (our survey reported 80% of respondents on FFS). Respondents noted that this type of practice environment leaves little-to-no time for non-clinical interactions. One respondent noted that:

“I might be politically incorrect here, but frankly, we get paid for the number of patients we see and we don’t get paid for going to a QI meeting or an M&M meeting”

-FG4: Specialist Respondent

With this kind of impetus on maximizing the number of patient visits, it was noted time and again that it was highly problematic to take time out of practice to engage with PI/QI initiatives, even though their worth is noted and appreciated by most physicians.

“I think we’re struggling as well to know what we need [in terms of PI/QI] and what is the most helpful because we’re so bogged down with seeing the number of patients that we have to see.”

-FG6: Team-Based Respondent

Some of the reasons supplied for why compensation/incentivization may not be stand-alone solutions included only minimal monetary compensation, a lack of reimbursement for time spent in travel to PI/QI events, non-recognition for independent PI/QI initiatives, low CME credit values for certain initiatives, and it being relatively easy to fulfill the College’s CME credit requirement without extraneous PI/QI involvement.

As such, while many respondents did indicate that it would be nice to receive compensation or incentives for their time spent in PI/QI (especially in the context of FFS compensation models), it seems that as a stand-alone measure, the provision of compensation and incentives may not be a sufficient (or ubiquitous) motivator for engagement in PI/QI.

While it was resoundingly accepted that team-based PI/QI was an important and effective approach to PI/QI, respondents vocalized several barriers to implementing team-based QI into their practices. Once again the fee-for-service model was noted as a problematic compensation model, which hinders team-based initiatives.

“I think the fee-for-service model is almost in some way anti-collaborative, anti-team care; I’m on a fee for service model but my nurse practitioners are paid by the Health Authority. If it wasn’t for them driving PI it probably wouldn’t happen in our clinic”

-FG6: Team-Base Respondent

In addition, communication and relationship barriers were identified as a potential hurdle to effectively implementing team-based PI/QI especially regarding which members of the healthcare team would/should be responsible for which aspects of the PI/QI initiative.
iii. Enablers to PI/QI

Along with understanding the barriers to PI/QI, we also wanted to hear about what factors most motivated or helped physicians to engage with PI/QI. This information would help clarify future avenues of program/education delivery to pursue. Combining the input of the Barriers and Enablers sections would hopefully allow us to paint a more complete picture regarding what currently works and what doesn’t in terms of rural PI/QI.

a. Collaboration and Feedback

In line with our survey findings, one of the major motivators to engaging in PI/QI activities was the ability to collaborate with colleagues and to receive useful and actionable feedback regarding practice habits and areas of improvement.

“There is nothing worse than working in an environment where people are not working together to achieve better outcomes.”

- FG8: Program Regulator Respondent

The ability to work side by side in practice with people I’m learning from in their environment has been by far the most helpful.

- FG3b: APP Respondent

One important element of this kind of opportunity for interaction is the ability to look at one’s practice-level data, compare with their colleagues’ data or the data from their community/region/province, and thereby get a sense of what is currently working and what could use improvement.

“I found it really satisfying to find out that I was doing well on an objective measure, like someone else other than a patient or myself told me I was good at my job and those practitioners who are real outliers of the bell curve, they improved their practices.”

- FG4: Specialist Respondent

However, tying into the idea of safety within the healthcare culture discussed above in section ii.d., participants indicated that this kind of comparative collaboration and feedback needs to be done in a safe environment focused on learning and improvement wherein successes are celebrated and areas needing improvement are not vilified. Additionally, it was noted that this kind of comparison should not be approached from the perspective of weeding out those clinicians who are not performing to the required standard. Rather, it should be approached from a collective competence and confidence perspective to be maximally effective.
b. Accountability

As mentioned in section ii.c. above, one of the major barriers to PI/QI success is initiative sustainability. From a different yet aligning perspective, respondents reported that being accountable to colleagues and/or others engaging in similar PI/QI projects is a powerful tool in increasing PI/QI success.

“I have a few things in place but I just need the accountability to kind of like hold me accountable to what I’ve done. Like she runs the reports, but it just sort of seems to stop there. Like we don’t, we don’t ever close the loop so I never know if I’m improving or not.”

-FG3a: FFS Respondent

While general accountability to other physicians undergoing PI/QI was identified as a facilitator, respondents indicated that having a local PI/QI champion who was responsible for pushing these kinds of initiatives forward was even more successful at every level of the PI/QI journey: from initiative conception, through delivery, implementation of practice change, and sustainability.

“One of the most important aspects of this process to me is the relationship between the trusted advisor or mentor and a physician to hold the physician accountable for some of the quality improvement projects that they’re doing.”

-FG8: Program Regulator Respondent

c. Compensation/Incentives

Linked to the time constraint barrier identified in both the survey and focus group discussions, compensation for time spent engaged in PI/QI initiatives was frequently identified by respondents as facilitators to meaningful PI/QI.

“I think as crude as it is, the compensation for the private community-based frontline individual who, you know, is paying to keep the lights on and the staff and everything else for time taken away, is going to be a significant motivating factor.”

-FG4: Specialist Respondent

“If you’re going to ask the rural physician that already worked 65 hours a week to sit down and review something or review some numbers or a practice, it is nice if they can get paid for their time.”

-FG5: Facilities-Based Respondent
Alternative means of compensation, aside from direct monetary compensation, were also identified by some participants as motivators. One respondent indicated that the provision of CME credits required for the fulfillment of the College’s CPD requirement is one enticing factor for participation in PI/QI events.

“...compensation whether that be through existing approaches or something new or different or CME credits [...] I think some carrots for this kind of thing are probably going be necessary in some settings”

-FG3a: FFS Respondent

However, provision of compensation or incentives was not seen by all as a requirement or a solution to maximizing the efficacy of PI/QI initiatives. One respondent said:

“I don’t feel strongly that it needs to be compensated, it just needs to be easy to do.”

-FG3a: FFS Respondent

Additionally, when asked about the provision of CME credits, a different respondent replied:

“I have no shortage of CME points for my Royal College certification [...] I mean I stopped logging the hours cause I just don’t need them”

-FG4: Specialist Respondent

d. Compensation Models

Unsurprisingly given the findings in previous sections, compensation model alternatives to standard fee-for-service (FFS) agreements were noted to be a potential facilitator to PI/QI. We had participants on alternative payment models (salary, sessional, service contract, etc.) weigh in on their experiences and they noted that when freed from the high clinical time-demands of the FFS model, they were better able to allocate resources (including time and energy) to other areas including PI/QI.

“I do think the APP model allows for quality improvement well. You can initiate quality improvement trials which may or may not be successful without fear for the bottom line and I think that opens up a lot of freedom to be able to try things out [...] I think the APP model does support that kind of quality improvement”

-FG3b: APP Respondent

However, it should be noted that a switch to APP compensation models was not necessarily seen by respondents as a solution unto itself. One respondent said “I have not found that there’s sufficient time in day to day, even in the APP setting, for [QI],” –FG3b: APP Respondent.

Another respondent had similar views:

“APP is just a method of payment. It doesn’t reflect on what your day to day work looks like necessarily, and I would think I have days that look just like a fee for service physician.”

-FG3b: APP Respondent
So in the context of compensation models, we heard that APP models were perhaps a better fit to incorporating meaningful PI/QI into physicians’ workflow. However, on its own, a change of compensation model may not be sufficient to promote PI/QI engagement to the physicians’ desired extent. These findings, combined with other data collected regarding the provision of compensation and incentives, seem to imply that meaningful engagement in PI/QI is not simply an issue of compensation.

e. Team-Based Approaches
Finally, another major facilitator to engaging in PI/QI identified by respondents was approaching initiatives from a team-based approach. The most commonly cited form of this was in the context of inter-primary care provider, coordinated care models.

“We have real in-time quality improvement in that we don’t work in silos in our clinic. We’ve actually structured the clinic so that we can have maximum crossover between the different providers.”  
-FG6: Team-Based Respondent

“I guess it feels good just knowing that there’s that person who’s got your back. So I think a lot of it has to do with that sense of having one’s back, working together as a cohesive team; building trust.”  
-FG6: Team-Based Respondent

However, other respondents identified other members of the care team as being vital members to include in PI/QI initiatives such as:

- Allied health care providers

“We have really kind of changed the way that we are getting support for staffing for accessory folks such as, for example, either an LPN or an Occupational Therapist or someone like that to kind of change the kind of tone of their work to provide support for [QI].”  
-FG3b: APP Respondent

- Administrative staff

“I think one thing that has probably been the most help to my practice and things like quality improvement is having people like physician assistants or MOAs who do a lot of the education, who help with metrics and help input data, help do the notes so I can focus on the bigger picture stuff.”  
-FG3b: APP Respondent

Another important consideration that was added to the topic of team-based PI/QI was the inclusion of patient voice in the quality process. Several respondents vocalized that, too often, quality is seen as a physician-centric topic, and not enough consideration was given to the patient experience, which can be a vital component of PI/QI and should be seen as such.
An additional layer to add to this model of team-based approaches to PI/QI that came out of our focus group discussions was the importance of the social, interpersonal elements in securing the success of inter-professional PI/QI initiatives.

“We also did the CPR night where we had the Fire Department and the paramedics, the nurses, doctors, everything, teams in one of our local pubs and we raised the money to support community CPR and it was a huge hit, costumes everything, great, team building fun, you know and everybody had to practice so it was great for enhancing our CPR skills too!”

-FG5: Facilities-Based Respondent

iv. Technology/ Electronic Data

With new advances in technology and data-driven health sciences becoming available at ever-increasing rates, the Working Group made it a priority to inquire after how health data is currently being used in clinical practice, how it lends itself towards PI/QI initiatives and what kind of technological advancements or supports would be most useful to physicians in increasing the quality of their practices.

a. Accessibility

The use of data to inform PI/QI initiatives was the topic of access to practice data was a key issue raised in many focus groups. Our respondents agreed that having access to practice-level as well as regional/provincial-level practice data would be invaluable for PI/QI. However they indicated that aside from the data that is available to them through their own EMR systems, they have immense difficulty gaining access to data from other sources.

“We know that the data is there, we just don’t have access to it unless we were to go through a whole research proposal and ethics and so on.”

-FG6: Team-Based Respondent

There were also discussions around the usefulness of the data that is made available to them. In terms of readily-available data from external sources, respondents indicated that there was very little that was made available to them that was of any use.

“So to think about what data you’re getting that’s helpful; I mean essentially it’s minimal to none. So that’s the starting point, and then there needs to be some agreement on as to what are the important questions that the data will be answering.”

-FG4: Specialist Respondent
More specifically, some respondents acknowledged that in an ideal world, there would be a high influx of readily available, useful and intuitive data accessible to them on any given topic, at which point they would be able to choose which types of data or which subject matter would be the most useful for them to engage with.

“It would be useful to have a plethora of data that would be provided and you can choose amongst them what you are going to focus on as a clinic and what you choose in the moment could be the most meaningful.”

-FG7: Program Leader Respondent

Taking the previous point a step further, focus group participants discussed the usefulness of push vs. pull access to relevant data. Participants overwhelmingly agreed that the majority of data they could access could only be done so through a laborious self-initiated process. Accordingly, respondents indicated a preference for data that was pushed to them and which they could decide whether or not to use.

“It needs to be made easy and with that push aspect once the clinical question is asked in terms of easily accessing the data and then that sense of collaboration with others to discuss and review and talk about strategies.”

-FG3a: FFS Respondent

As a cautionary point to the above discussion, one respondent noted that it would be a fine line between providing physicians with welcomed, useful data directly versus inundating them when they already have so much information coming through their various communication channels.

b. Electronic Medical Records (EMR)

It was widely acknowledged by our participants that despite the widely known and extensively chronicled drawbacks to EMR-type data systems (namely lack of interoperability and the burdensome task of data entry), they did provide a potentially invaluable source of practice-level data, provided users were familiar with how to extract that data in a usable format.

“We can use our EMR in an effective way to sort of mine through that data and sometimes we surprise ourselves; we think we’re doing a good job in certain places and we really surprise ourselves with how poorly we’re doing.”

-FG6: Team-Based Respondent

However, it was also noted that a large subset of physicians either do not know how to or do not have time to extract data from their EMR systems in a format that would lend itself towards any kind of meaningful PI/QI.

“Very few physicians know how to meaningful pull the data out of their local EMR and run reports, do run times, look at any indicators. […] I think really being intentional about supporting physicians using those data sources and making the usability of the local EMR’s better at being able to run the reports is quite key.”

-FG7: Program Leader Respondent
Additionally, it was also noted that while most family/general practice clinics utilize EMRs (85% according to our survey), many specialist practices do not, which makes utilizing EMR-type data in the context of specialty-based subject matter very challenging.

“Anecdotally over the last year of doing some work in BC, [...] I’ll bet only 10 percent of psychiatrists are using electronic medical records.”

-FG4: Specialist Respondent

c. Support and Management for Using Data
To address most of the concerns outlined in the previous two sections (iv (a) and (b)), the most common suggestions that our respondents provided was to have data support. From data entry, through processing, analyzing, summarizing, and extracting, our respondents thought it would be hugely beneficial to have dedicated support personnel to handle data management. There were many suggestions regarding where this type of support could/should come from and how it would interact with day-to-day clinical practice:

- MOAs

“I think that things that can be done by not the physician are definitely a priority and MOAs I think have quite a good role in that. How do we make their use of the EMR more efficient so that work isn’t so difficult and how do we make it where they get a few extra minutes per patient to just enter some of their basic template data?”

-FG3a: FFS Respondent

- Divisions

“Our Division also has been trying to look at EMR supports. We have a coach who works with the MOAs helping them navigate the EMR and upgrade our problem sheets or scan for screenings that are behind and things like that. It’s slow but I think we’re making some general improvements there.”

-FG3b: APP Respondent

- PSP

“Having a PSP coach would be hugely helpful.”

-FG3b: APP Respondent

d. Data Quality
One of the major themes emerging from our probes surrounding the use of data in PI/QI was that of data quality. One of our respondents summarized this idea very concisely by saying that “data is only as good as the process in which we use it,” (FG3a-FFS respondent). Respondents highlighted many aspects of data quality and type that are vital to consider when considering the applicability of data to PI/QI metrics including:

- Parameters/Consistency
While utilizing practice-level and regional/provincial-level data for PI/QI purposes can be an extremely useful avenue of learning, our respondents reminded us that it is not as simple as pulling data and immediately translating it into practice. Data utilization is multi-factorial and there are many layers to ensuring that the data being used is trusted and of reliable quality so that data-based initiatives address real needs and meet desired goals.

### e. Data Sources

Throughout our interviews, we asked our participants to list off any data sources they currently use for PI/QI as well as mention any sources or organizations they would like to receive data from, but don’t. The following is a summary of their responses.

#### Applicability/context-dependence

“I think it is important that we understand the parameters of [data] and how it’s going to work for us. If we’re all entering our data differently or taking it differently or storing it differently or not using it at all, then it’s not a helpful thing.”

-FG3a: FFS Respondent

“There has to be consistency in input, like going through consults coming into my inbox, one is a little bit more specific about coding [...] so having, training for support staff to have particular codes is huge. Because the data is only going to be as good as what you’ve inputted.”

-FG5: Facilities-Based Respondent

#### Type of data collected

“I don’t think I get much useful data. I mentioned the Doctors of BC data. It’s really, it’s really not in the context of my practice, that’s the problem.”

-FG4: Specialist Respondent

“The measurement of performance is so multi-factorial and in rural communities you must understand the context and realize that your measurements may be different for multiple different reasons than just the team or the individual.”

-FG8: Program Regulator Respondent

“We don’t capture a lot of data around patient satisfaction, patient’s journey, and provider satisfaction. Those are all really lean things. We look at costs and how many of these did you order and how many transfers did you have. But we really don’t delve into those other things around patient provider satisfaction with any meaning that often changes things.”

-FG3b: APP Respondent
### Data Sources Currently Used
- EMR (incl. HDC)
- MSP-mini practice profiles
- Divisions of FP
- Provincial programs (e.g. Perinatal Health Services of BC, Provincial Pap Smear Program, BC Provincial Academic Detailing program)
- Pharmaceutical industry

### Desired Data Sources
- Health Authorities
- Ministry of Health

“I think there’s a role for the health authorities to show some leadership particularly around the data piece. [...] I mean if I got a fax from the Health Authority showing how we as a group of physicians are doing meeting XYZ conditions. You know, if we had that data provided for us proactively.”

- FG6: Team-Based Respondent

### v. Future Directions in PI/QI

Building upon the feedback garnered in other sections of this needs assessment, we asked participants to outline where they envision the future of PI/QI in BC could be headed in a ‘perfect world’ scenario.

#### a. Education

Feedback regarding educational subject matter and delivery method was highly diverse, but a few salient themes consistently emerged. Some of the major subject areas that were identified included how to better encapsulate the patient experience in qualitative-type data collection and analysis, and subsequently how to translate that into practice-level change.

“I’m interested in more around qualitative work; understanding people’s experiences, including health care providers as well as patient experiences.”

- FG3b: APP Respondent

One PI/QI theme where education was identified as being a priority was in regards to social determinants of health, including mental health and understanding Adverse Childhood Experiences (ACEs), as well as culturally safe care, especially in regards to providing care for BC’s Indigenous communities.

“We really don’t have a lot of social determinants of health or metrics for them in terms of screening for access, screening for maybe poverty inventories or any of those kind of things and so not have metrics makes them really difficult to target or to build them into any plan.”

- FG3b: APP Respondent
Further, another area of importance that was highlighted was more education surrounding the link between quality improvement, physician health/wellness, and how that relates to day-to-day clinical practice.

“One of the gaps that I see that we rarely ever talk about in quality improvement is a physician’s health, uh, meaning how good are we as a profession and as a network in understanding our colleagues in terms of how well they’re doing. We’re very good at understanding if they’re writing this prescription or that or if the patients are getting this drug or that or whether they’re reaching a blood pressure goal. But I never see measurements around how healthy am I or any of you or are they on the verge of burnout, or are they ready to leave?”

-FG3b: APP Respondent

Finally, it was noted that greater accessibility to and effective use of PI/QI resources/tools would facilitate transformative change from an educational perspective.

“I think from an educational perspective, there’s some formal training for physicians to learn how to use QI, [but] I think very few physicians will go on that option. I think most of where the education needs to be based is on trying to teach physicians when they do take projects, it’s just coaching them on how to use different tools effectively.”

-FG8: Program Regulator Respondent

Overall the sense that emerged from most of the focus groups was the concern that although there are many areas of potentially useful subject matter which can be addressed with educational resources, as a standalone measure, simply developing and delivering various courses may not lead to transformative change. Rather, there needs to be adequate levels of directed support, resources and tools in place as well as systems-level support and coordinated, facilitated access to those resources to be able to translate what is learned through educational endeavours into sustainable and actionable practice-level change.

b. Logistics, Coordination, and Time Allocation
One of the main takeaways from this engagement strategy surrounded the complexities of balancing meaningful PI/QI engagement with time availability barriers and clinical/practice duties. Repeatedly from the survey responses and the focus group proceedings, we were told that physicians do not have time to electively engage with PI/QI to the extent to which they would like to be, or to the extent wherein it would
have the best chance of leading to the improvement of meaningful patient outcomes. One of the main reasons for this, and connected to the realities of remuneration and compensation models, was that PI/QI is currently expected to happen largely outside the regular flow of clinical practice. Following on this, many of our respondents indicated that having PI/QI directly integrated into their workflow would yield immense benefits to their engagement level and satisfaction.

“Having it consciously scheduled into your practice clinical routine I think are keys to making it just a part of your everyday practice versus as chore.’’
- FG3a: FFS Respondent

“When [PI/QI] is woven into the fabric [of my practice] then it means that the whole system is serious about this and I think that’s important”
- FG7: Program Leader Respondent

Further, having dedicated times of their day/week/month that were cordoned off and specifically allocated to PI/QI was a measure many of our respondent indicated would facilitate their interaction with PI/QI activities.

“One of the thoughts I had [...] is wondering if there could be like a certain amount of time dedicated to QI like I don’t know, a week out of the year where you develop the quality improvement project and that’s seen as a good thing and rewarded somehow.”
- FG3b: APP Respondent

“We’re just bombarded with stuff, you know. [...] if you had a dedicated time you just knew that’s when you were going to have PI/QI time, that would be really helpful.”
- FG5: Facilities-Based Respondent

c. PI Hub

Finally, following the results of the survey wherein participants indicated confusion over the mass of organizations and bodies who currently provide PI/QI and/or CPD offerings to physicians in BC, we wanted to know how respondents felt about the idea of a PI hub: a dedicated location (physical or electronic) that compiled all available programs offered where physicians could go for a one-stop-shop of PI/QI resources, support and CPD offerings. Responses to this type of resource were mixed. Many were in favour of the idea.

“One of the challenges we’ve got at the moment is so many different quality groups. It amazes me how many groups there are at the moment that’s been working quality and what happens is because the roles are not clearly defined, people start stepping on each other’s toes here and it leads to conflict and which is totally unnecessary.”
- FG8: Program Regulator Respondent

However, there were some participants who didn’t agree that a stand-alone hub was the solution needed to ease access to PI/QI and maximize engagement. Rather, a concierge-type support service to guide
participants through the process of choosing which program or initiative is right for them might be more helpful.

“I get overwhelmed with the number of different things. I’m getting Medscape and Advancing, like there’s a thousand websites to find stuff on and if someone could help me know okay these are the better ones to access to narrow it down.”

-FG5: Facilities-Based Respondent

“I wonder if rather than a single place to go it’s more of a distributed type of repository that what’s needed; a single portal entry to a distributed repository that might be more critical that can allow you to be led to a concierge.”

-FG7: Program Leader Respondent

Another important piece that came out of these discussions that tied in well with the team-based approaches discussed above is the importance of having this type of resource available not only to physicians, but also to allied health care providers and other members of the care team.

“One of the things I feel is really important is that it’s accessible to all of the team members, it’s not just one group of the team [...] and that’s financially accessible as well because usually the allied professionals don’t have the same CME funding. So even though we can attend an online workshop together, if it’s very expensive that’s not financially feasible for them.”

-FG6: Team-Based Respondent
V. DISCUSSION

In response to knowledge gaps, interest and support for PI/QI, the Rural Continuous Quality Improvement (RCQI) Needs Assessment was developed and implemented by the University of British Columbia’s Rural Continuing Professional Development (RCPD) team in collaboration with the Rural Coordination Centre of BC (RCCbc). The aim of the needs assessment was to understand what is currently occurring and what is required to support effective PI/QI in rural and remote communities in British Columbia for individuals and teams, and to collect this information in a comprehensive, representative manner so as to better inform rural PI/QI strategies at a provincial level moving forward. The Rural CQI Needs Assessment was designed to consider factors beyond continuing professional development (CPD), including system/workplace issues deemed relevant by rural physicians. For the purposes of this assessment, PI/QI is defined as any activity that involves physicians aimed at improving patient care.

Engagement took place in three phases and included several key informant interviews, an online survey, and a series of focus groups. Participants were asked for their input on a variety of topics, including:

• Current attitudes and practices towards PI/QI;
• Enablers to PI/QI;
• Barriers to PI/QI; and
• Technology and meaningful use of practice data.

A summary of findings is provided below followed by a series of key recommendations.

CURRENT ATTITUDES AND PRACTICES OF PI/QI

The current attitudes towards and involvement in PI/QI by rural physicians is highly diverse and extensive, and is related to a number of factors including the organizer/initiator of the activities, ease of engagement, and available resources.

The most common involvement with PI/QI for rural practitioners is engagement in community-initiated, facility-based or practice-based workshop type education. For FPs, these activities are often promoted, organized, and/or delivered by local Divisions of Family Practice. Another common PI/QI activity pertained to inter-collegial or inter-professional practice rounds or M&M-type discussions. These promote critical practice analysis as well as build and foster interpersonal relationships. The use of practice and/or clinical support resources such as practice coaches or peer mentors was also frequently mentioned. Finally, many respondents indicated self-learning as a powerful tool in their PI/QI inventory. This included critical self-reflection, self-motivated education and teaching new generations of physicians.

In contrast, despite the range of currently available PI/QI initiatives and resources and the seemingly high level of current engagement, nearly all respondents indicated that there was much room for improvement in terms of their involvement with and/or the quality of their PI/QI initiatives. This reflects an opportunity to improve the successful application of high quality PI/QI activities into regular practice.
Physicians identified the integration of PI/QI activities into their regular workflow with dedicated time for mindful reflection on practice improvement as a key facilitator. In addition, it was noted that employing a team-based approach by having mutual buy-in and involvement from all members of the care team was needed for more sustainable and ultimately more successful PI/QI, which is often difficult due to the different compensation models for different healthcare providers. It was also mentioned that it is often easier for those on alternate payment compensation models to drive and participate in PI/QI activities than those on a fee-for-service model. In addition, respondents noted that recognizing the availability of PI/QI resources and leveraging them into meaningful practice-change are very different phenomena mainly due to time constraints.

In addition, rural physicians face a unique set of challenges in engaging with PI/QI initiatives given their geographic isolation and more limited accessibility to support personnel and resources. Specialist physicians in rural communities indicated even more difficulty in accessing resources for meaningful PI/QI in rural communities relative to their GP/FP counterparts. It was highlighted that most resources that are readily available in rural communities are either online, or when offered in person must, by nature of cost, cater to a wider array of practitioners, which adds to the challenge in getting specialty-specific PI/QI support in rural communities.

**ENABLERS TO PI/QI**

One of the major focuses of this needs assessment was to identify the major enablers for physicians to engage in meaningful PI/QI initiatives. Highlighting these elements would support the production of actionable methods for successful PI/QI implementation and delivery across BC. Findings revealed that the engagement process of physicians for PI/QI is multifaceted.

Respondents identified the ability to collaborate with colleagues and to receive useful and actionable feedback regarding areas of their practice where they might improve as a major motivator to engagement in PI/QI activities. They noted that working side-by-side in practice with colleagues and learning from each other was one of the most helpful ways to achieve this. Similarly, respondents reported that being accountable to colleagues and/or others engaging in similar PI/QI projects is a powerful tool in increasing PI/QI success. While general accountability to other colleagues pursuing PI/QI was identified as a facilitator, they also indicated that having a local PI/QI champion, who was responsible for pushing these kinds of initiatives forward, especially fostered success at every level of the PI/QI journey: from initiative conception, through delivery, implementation of practice change, and sustainability.

Many respondents also indicated that while it would be appealing to receive compensation or incentives for their time spent in PI/QI activities (especially in the context of FFS compensation models), they also noted that the provision of compensation and/or incentives is not necessarily a solution unto itself. As noted above, one key factor for successful engagement in PI/QI is the integration of such practices into the regular workflow. In addition, other factors such as recognition for participation in self-directed independent PI/QI initiatives, reimbursement for time spent in travel and tuition to PI/QI events, and especially facilitating the ease of engagement were also important considerations.
Finally, team-based approaches were identified as another major facilitator to engaging in PI/QI. The most commonly cited form was in the context of inter-primary care provider, coordinated-care models to reduce silos and build relationships/trust between members both within and outside of the team. Another important consideration for team-based PI/QI was the inclusion of patient voice in the quality improvement process. Several respondents stated that more consideration needs to be given to the patient experience, which can be incorporated in the form of getting patient feedback or welcoming direct patient engagement with the PI/QI activity in order to better appreciate and understand the patient experience. Lastly, respondents noted that effective team-based PI/QI needs to include effective communication and basic team-building skills such as understanding each other’s roles and responsibilities.

**BARRIERS TO PI/QI**

As noted above, compensation models had a significant impact on the successful participation in PI/QI. The majority of family physicians in BC practice on a fee-for-service compensation model, which often creates a practice environment that leave little-to-no room for non-clinical activities. With this type of payment environment it may be difficult for physicians to take time out of practice to engage with PI/QI initiatives even though their importance is noted and appreciated by most physicians.

The current culture of medicine was reported to simply not prioritize PI/QI, especially in the context of their time allocations related to current compensation models for patient care along with the many other competing demands on their time. There needs to be comprehensive system changes that focus on and values quality of care and not volume of care to encourage a culture fostering meaningful practice of PI/QI. Adequate levels of supportive resources and tools, as well as systems-level support and coordination for access to those resources, are essential elements to promote sustainable and actionable practice-level change.

Interactions with regulatory bodies were identified as one of the most challenging issues in relation to engagement with PI/QI. In the context of physician quality, it was often noted that in their duty of health services regulation, regulatory authorities generally approached quality with a quality assurance lens rather than with a quality improvement lens. Physicians also thought that the regulators should have a minimal role in PI/QI activities and processes. Although quality assurance measures are necessary, they need to be clearly separated from PI/QI activities, which should foster engagement in a safe, non-punitive environment. It was emphasized that the proverbial “firewall” between practice assessment/quality assurance and quality improvement was necessary to promote a culture of independent continuous QI and meaningful practice improvement. Participation in robust PI/QI activities in a safe environment can be reassuring to the QA process.

**TECHNOLOGY AND MEANINGFUL USE OF PRACTICE DATA**

One of the major themes identified in this study related to the use of practice date to inform PI/QI. Our respondents agreed that having access to practice-level as well as regional/provincial-level practice data would be invaluable for PI/QI. However, they indicated that aside from the data that is available to them through
their own EMR systems, they have immense difficulty gaining access to data from other sources. Many also reported difficulty getting useful data out of their EMR or in accessing and trusting the accuracy of useful data received from other sources. There was the overall impression that the minimal data that was available to physicians was of limited value.

Physicians acknowledged that in an ideal world, they would have access to a high influx of readily available, useful and intuitive data related to any given topic, at which point they would be able to choose which types of data or which subject matter would be the most useful for them to engage with for PI/QI. Accordingly, respondents indicated a preference for data that was pushed to them and then they could decide whether or not to use it, which is in contrast to the current state of having to go through a laborious self-initiated process to obtain it. However, a cautionary point is to be mindful of the fine line between providing physicians with welcomed, useful data versus inundating them when they already have so much information coming through their various communication channels.

VI. RECOMMENDATIONS

SYSTEM CHANGES

The needs assessment identified numerous enablers and barriers to PI/QI by rural physicians. It highlighted the need for cultural and system-wide changes and supports necessary for the successful engagement of rural physicians and subsequent adoption/implementation of PI/QI across BC.

1. Stakeholders need to identify, resource, actively support and endorse a backbone organization (to use collective impact language) to coordinate and promote PI/QI within BC.
2. Modify compensation models to value quality of care and not volume of care
   2.1. Incorporate PI/QI into payment structures
3. Identify attractive incentives to encourage engagement in PI/QI activities
   3.1. Provide accredited CME/CPD opportunities whenever possible
   3.2. Reimburse physicians for travel and participation in PI/QI focused events
   3.3. Integrate PI/QI opportunities into everyday workflow (e.g., work huddles, pop-ups in EMRs, build into dedicated times throughout the week, etc.)
   3.4. Encourage team-based and group practices.
4. Expand existing resources
   4.1. Coordinate existing PI/QI programs in BC (e.g., Practice Support Program, Northern Quality Improvement Collaborative, Clinical Coaching for Excellence Program) to reduce redundancies
   4.2. Prioritize resources to provide more coaching, mentoring, and foster peer support networks (e.g., GPSC)
   4.3. Increase arms-length funding by the Ministry of Health to support systematic PI/QI activities
   4.4. Increase overall funding to sustain successful PI/QI pilot projects
   4.5. Identify what is working well, how we can learn from the process, and how to share this information around the province
   4.6. Recruit those already successfully engaged in PI/QI to help lead, facilitate and plan future PI/QI initiatives as well as support others who are interested to participate
5. Provide supports to reduce barriers
   5.1. Employ local support to do background work (e.g., data collection, patient registries) to alleviate time and energy constraints for physicians
   5.2. Incorporate the support for physician wellness as an important component of PI/QI
   5.3. Provide compensation for time spent doing PI/QI activities
   5.4. Work with stakeholders to identify the motivating factors for physicians that will help shift the culture of medicine to prioritize PI/QI as an expected and integrated part of practice
   5.5. Integrate team-based approaches to increase accountability and to encourage sustainable and ultimately successful PI/QI processes
   5.6. Develop a dedicated one-stop shop resource (physical or electronic) which supports access to a repository of all available PI/QI programs and supports which physicians could easily access to facilitate their participation in PI/QI activities
   5.7. Provide a concierge-type support service to guide those interested in PI/QI through the process of choosing which program, tools or initiatives would be most suitable to meet their needs and that will be able to facilitate successful engagement

6. Clearly distinguish quality assurance from quality improvement activities
   6.1. Situate PI/QI activities in a safe, non-punitive environment firewalled from privileging and credentialing processes
   6.2. Recognize participation in robust PI/QI as a marker for QA

7. Create space for open dialogue about whether recent changes in licensing and privileging have resulted in improvements of safety and care for patients in BC or harmed patients in the process of organizational risk management.

EDUCATIONAL PROGRAMMING

The needs assessment identified areas in which physicians have limited knowledge of PI/QI principles and application, and would benefit from educational programming to meet their needs.

1. Look at new avenues of CPD in terms of how a Hub could support a provincial network of learners by exploring supports around distributed repositories and having a concierge for individual learners and health care teams
2. Create and deliver new programming to meet the identified needs for successful adoption and implementation of PI/QI on the following topics
   2.1. PI/QI principles (how to identify areas of potential need for improvement, how to develop programming to address these areas, how to deliver it in a meaningful and useful way to physicians who want it.)
   2.2. Tracking patient outcomes over time
   2.3. Focused efforts on specialists in rural communities
   2.4. Integrating PI/QI into the workplace
   2.5. Self-directed learning and assessment
   2.6. Social determinants of health, mental health and adverse childhood experiences (ACEs) with focus on indigenous communities
2.7. Identification of PI/QI activities that will improve patient care

2.8. Group-learning PI/QI activities (e.g., CCFP REAL groups, PSP Module Evolution, specialist journal clubs, Division SGLS)

2.9. Implementing team-based PI/QI activities
   2.9.1. Explore how PI/QI can support and be a mechanism to improve physician wellness
   2.9.2. Patient-mediated/patient co-created PI/QI focused education
   2.9.3. Education on how to access EMR data and use it for PI/QI
   2.9.4. Encapsulate the patient experience in qualitative-type data collection and analysis, to facilitate practice-level change.
   2.9.5. Strategies for identifying and addressing quality gaps in physician practice
   2.9.6. PI/QI in relation to social determinants of health, including mental health and ACEs, as well as culturally-safe care, especially in regards to providing care for BC’s Indigenous communities

RELATIONSHIP BUILDING

To support successful engagement in PI/QI activities, the opportunity provided through supportive relationships needs to be better incorporated. This should not be seen as an additional drain on healthcare practitioner time or lead to an increase in the complexity of communications but rather be fostered as a positive support to increase the ease of implementation of PI/QI activities.

1. Increase general accountability to meaningful/successful engagement with PI/QI
   1.1. Have a local PI/QI champion (does not need to be a physician) who is responsible for shepherding PI/QI initiatives at every stage of the process
   1.2. Build in accountability to colleagues and/or others engaging in similar PI/QI projects
   1.3. Provide support for data extraction and analysis to encourage meaningful PI/QI

2. Synergize team-based PI/QI activities with existing networks/systems of care
   2.1. Integrate inter-collegial/inter-professional PI/QI activities with Patient Medical Home (PMH) and Primary Care Network (PCN) initiatives
   2.2. Link new/pilot PI/QI projects to existing networks of care to increase efficacy, sharing of processes and outcomes as well as to reduce redundancies. This may be especially important for smaller communities

3. Support for collaboration and opportunities for feedback loops
   3.1. Create opportunities for physicians to work side-by-side to encourage giving and receiving useful and actionable feedback from each other
   3.2. Encourage the sharing of practice-level data amongst colleagues by facilitating the comparison of an individual’s practice-level data with their colleagues’ data or the data from their community/region/province, and thereby get a reflection on how they are performing in relation to others and a sense of what could use improvement

4. Develop a structure for partnerships between key stakeholders and organizations to ensure alignment of priorities for PI/QI and to maximize communication channels
4.1. Involve the Ministry of Health, Doctors of BC, Divisions of Family Practice, Practice Support Program, Faculty of Medicine, and individual physicians when developing and implementing PI/QI.

4.2. Create a forum of interested stakeholders to align efforts and provide opportunities for collaboration in PI/QI activities as well as avoid duplication and inefficiencies (e.g. Practice Improvement Hub).

4.3. Organisations should foster PI/QI initiatives being driven from the grassroots level.

TECHNOLOGY AND DATA

Physicians expressed the need for access to accurate, trusted and timely practice data as a powerful tool for PI/QI.

1. Facilitate processes to make trusted and accurate data available to individual physicians (FPs but also specialists who often have greater difficulty to access useful data) and teams.
2. Increase access and usability of available EMR data.
3. Provide real-time access to local- and regional-/provincial-level practice data (e.g. via Health Data Coalition, Ministry of Health, etc.) as well as access to externally-generated data (e.g., public health/disease surveillance data, hospital or facility data) to help inform and support PI/QI practices and fulfill the principles of the Triple Aim.
4. Allow physicians to be responsible for and be able to control the use of their practice data.
5. Provide physicians comprehensive data support, including data entry, extraction, processing, analyzing, summarizing, and interpretation (which could come from MOAs, Divisions of Family Practice, PSP coach, etc.).
6. Allow entry of physician practice data into a shared anonymous central repository.
7. Provide accessibility of patient data between Health Authorities.
8. Create a coordinated and centralized data collection and distribution process.
VII. REFERENCES


### VIII. APPENDICES

**Appendix A – Advisory Committee and Working Group Membership**

#### Advisory Committee

<table>
<thead>
<tr>
<th>Name</th>
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<th>Affiliation</th>
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## Working Group

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<th>Name</th>
<th>Role</th>
<th>Affiliation</th>
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BACKGROUND

Engaging physicians in QI activities is an important component of improving healthcare, enhancing patient and provider experience, and reducing the cost of care (Geonnotti, 2015). QI describes the process of improving patients’ safety, experience and health outcomes by systematically addressing individual and organizational processes (Llanwarne, 2014). QI is focused on ‘continuously assessing and adjusting performance using statistically and scientifically accepted procedures’ (College of American Pathologists, 2005) that will improve the quality of outcomes (Compas, Hopkins, and Townsley, 2008). As described by Counte and Meurer (2008) successful elements are widely acknowledged to include a philosophy that favors a supportive organizational structure and culture, and the use of scientific methods to understand processes and achieve enhancement.

There has been interest in understanding and implementing CQI in the health care industry since 1980s, and systemic and continuous improvement of care remains on the agenda of many health organizations globally (Goebers et al., 2001).

Best Practices for developing and implementing CQI activities...

There have been numerous efforts to prove impact of specific PI/QI initiatives in the literature. The following factors are described as being essential for developing and sustaining successful QI activities:

1. Identifying specific and measureable goals to help guide action which include, setting measurements for evaluation (Compas et al., 2008), planning processes for evaluation, continually assessing performance, planning changes where improvements are warranted, and refining goals as needed (Gennotti, 2015).
   - An understanding of optimal and actual care delivery can help identify areas that need to be changed, stimulating quality improvement and measuring the effects of these changes is crucial when implementing innovation. (Grol, et al., 2013).
   - Measuring the effects of the changes in the implementation process is a crucial piece in undertaking innovation (Grol, et al., 2013)

2. Ensuring activity is leadership driven (Compas et al., 2008)
   - Engaging a physicians and a non-physicians as co-leaders with varying roles, skills and background, helps to enhance the improvement process, expand participation in the change process, and help to sustain efforts over time.
Identifying Practice Champions has been recognized as valuable in CQI initiatives. Practice Champions could be any member within the health care team with leadership abilities, influence, and are enthusiastic in not just taking an active role in implementing change, but also in providing support in engaging other members. They are also especially interested in the holistic functioning of the practice and in patient outcomes. Liddy et al. (2014) suggests that having a Practice Champion is crucial in practice improvement.

Practice facilitators (PFs) are health care staff who work with health care providers to actively improve practice behavior over time. Their roles include: accessing current practices, planning implementation measures and improving strategies for better health outcomes for the communities which they serve. They also act as change agents, and change practices to understand how data collected can be used to drive QI, promote an interdisciplinary team approach, and increase capacity for creating and maintaining QI infrastructure within practices (Kotecha et al., 2015).

A PF with a similar background to that of the health care team in which they work with are more likely to be seen as credible; their ability to “speak the language” gives them better abilities to foster trust and handle context-specific challenges faced (Geonnotti et al 2015, p. 12). Physicians, managers, PFs and other team members should not be seen as external observers or even manipulators of the system, but part of the system itself.

3. Utilizing resources and education materials (Compas et al., 2008)

4. Providing meaningful incentives (Compas et al., 2008)

5. Establishing both internal and external stakeholders (Compas et al., 2008)

   - Collaborative and affirmative approach towards CQI from all stakeholders involved is necessary to assure its success when CQI is introduced. (Geboers et al., 2001)

6. Considering the willingness of those involved to engage with the activity (Llanwarne, 2014)

7. Considering the interest of individuals and groups around engaging with CQI

   - Greatest impact on improving performance outcomes occurs when all clinicians and allied health professionals are engaged in a unified institution-wide agenda (Lim et al).

8. Ensuring that components of the activity become part of the practice culture (Compas et al., 2008)

   - ‘Development of a structured, organization-wide approach to understanding and improving processes in necessary to maintain and sustain QI (Berlowitz et al., 2003) with sustainability referring to transformational change in an organizations culture so that QI processes permeate everyday Practice and yield permanent quality outcomes (Swerissen, 2007)’ (Compas, Hopkins, and Townsley, 2008)
9. Achieving an organization-wide approach/multidisciplinary involvement (Compas et al., 2008)
   - Interdisciplinary educational approach can yield statistically significant improvements in quality care
   - There is a strong consensus in the literature that CQI initiatives should be developed by whole teams, rather than just individuals.

10. Taking a systems approach to consider multiple interconnected elements
   - CQI CPD programs should address/acknowledge the importance of the web of relationships in which the physician is placed. Stroebel et al. (2005) argue that the limited success of many CQI initiatives is because many of these initiatives often focus efforts on enhancing the “quality of parts, but fail to account for the interrelations between parts” (Stroebel et al., 2005, 439).
   - Change in practice often does not just entail a transformation in knowledge or technical ability, but also requires an organizational shift (Cohen et al., 2004). Similarly, change in one area of practice can reverberate throughout the entire system, altering the practice landscape (Cohen et al., 2004). This has especially important implications on rural practices due to high turnover rates of personnel.
   - In supporting QI initiatives for physicians in rural practices, careful consideration should be paid to systemic conditions and non-physician health care professionals. Attention to the context in which the physician practices is especially important due to the organizational (e.g. high staff turnover) and infrastructural challenges (e.g. information technology) pertinent to rural practices, in addition to the unique epidemiological characteristics (i.e. higher burden of chronic disease) of rural communities.

In their comprehensive review of published literature in which contextual factors suggested to influence QI success are described, Kaplan et al. (2010) found that organizational characteristics (size, ownership and teaching status), organizational culture, years involved in QI and data infrastructure were the factors generally shown to influence QI success.

Gaps in the literature

   - Whilst a lot of activities in quality improvement have been implemented within the healthcare sector, not a lot of evidence has described how CQI initiatives can be sustained in varying settings, particularly in small primary care practices (Counte and Meurer, 2001; Crossland et al.; 2014; Goebers et al., 2001; Compas et al., 2008)
   - More attention should also be placed on identifying specific factors that serve as barriers or facilitators within and across different types of healthcare organizations (Counte and Meurer, 2008).
   - Little is known about how to improve care consistently across diverse settings/contexts (Kaplan et al., 2010). Mixed results/variance in the success of similar initiatives may result from differences in context; a significant amount of theoretical research supports the idea that context impacts (a) organizational change, dissemination, innovation, implementation, and
knowledge translation (Damschroder et al. 2009; Greenhalgh et al., 2004; Pettigrew, Ferlie, and McKee 1992 in Kaplan et al., 2010).

- Kaplan suggests that future research could focus on relationships among contextual factors and impact on QI

**STUDY AIMS**

This study will explore what is required to support effective practice improvement (PI)/quality improvement (QI) in rural and remote communities in BC. The key objectives of the needs assessment are to (a) increase the knowledge and understanding of current rural PI/QI activities involving rural physicians in BC; (b) determine enablers and barriers to engagement with PI/QI; (c) develop an approach to increase engagement of rural physicians with PI/QI; (d) adapt CPD to more effectively support PI/QI; and (d) provide feedback, where appropriate, to other stakeholders regarding actions that would improve rural physician engagement with PI/QI.

**RESEARCH QUESTIONS**

The Rural CQI Needs Assessment seeks to answer the following research questions:

1. What is the understanding and interest of rural physicians to engage in PI/QI?
2. What is the willingness and readiness of rural physicians to engage in PI/QI?
3. What has enabled rural physician’s success in engaging in PI/QI?
4. What are barriers for rural physicians to engage in PI/QI?
5. What would help for rural physicians to be able to engage more fully PI/QI?

RQ: What is the understanding and interest of rural physicians to engage in PI/QI?

- ‘Clinicians often feel they did not study medicine to learn models of systems organization, and the study of organizations feels far removed from the intricacies of everyday clinical medicine.’ Llanwarne, 2014
- Greater consensus around the basic meaning of the concept of CQI in organizations is required in order to achieve successful engagement with CQI activities (Counte and Meurer, 2008)
- Knowledge gaps around what qualifies as QI have resulted in under-recognition of benefits of QI, and lack of knowledge about QI methodology represents a major barrier to participation (Lime et al., 2014).

RQ: What is the willingness and readiness of rural physicians to engage in PI/QI?

- Attitude towards the QI model can influence the success of the initiative. For example, varying levels of commitment to the improvement activity has been found to have a negative impact on implementation, and can result in a negative attitude towards CQI in general (Geobers et al., 2001). Goebers et al. (2001) recommends that ‘for CQI to be introduced successfully, a positive attitude
toward CQI is required from all who will be working with it [...] Negative opinions of CQI could severely hamper its organization-wide implementation.’

- Geonnotti (2015) recommends that understanding readiness to engage with PI/QI is a crucial first step in facilitating QI effort. It helps to tailor approach in a way that best suits need. This study conceptualizes practice readiness to be based on the following components:
  a. Willingness: ‘Motivation and receptivity that individuals in practice demonstrate towards engaging in QI, or practice’s commitment to change’
  b. Organizational stability and resources: ‘Presence of leadership, adequate financial and other resources including time, devotion to making changes, practice culture with positive attitude towards change, absence of organizational stress or practices capacity to change’

- According to Gennotti’s findings, understanding both willingness and organizational stability are key factors for create capacity in the practice to engage to CQI. Evidence-based knowledge about the attitudes of GPs and staff in small scale practices is essential for worldwide implementation (Goebbers et al., 2001)

- A study by Kirchoff et al., 2014, found that a physicians in rural locations displayed more preparedness to engage in QI activities than their urban counterparts (Kirchoff, et al., 2014), and small rural practices may create greater opportunities for increased engagement in QI.

RQ: What has enabled rural physician’s success in engaging in PI/QI?

- Geonnotti (2015) recommends the following factors for achieving successful engagement:
  a. Developing a vision and roadmap for improving care
  b. Leadership (physician or non-physician)
  c. Resources (time, technology, financial supports)
  d. Incorporating data in the conversation
  e. Fostering partnerships between participating practices
  f. Using existing infrastructure provided by physician organizations
  g. Balancing need for accountability with reporting requirements with admin burden
  h. Practice culture/intrinsic motivation of clinicians and practice staff
  i. Aligning efforts with physicians’ norms/values
  j. Considering contextual factors (place within broader health system), and tailoring initiative to the specific practice environment

- This study also suggests that in order to engage in QI effectively, the practice team should view QI as a way to provide better care to their patients rather than a revenue stream for the practice or a bureaucratic burden. Successful engagement requires practice teams to a demonstrate high degree of trust, teamwork and communication skills (Geonnotti, 2015)

- A study by Institute for Healthcare Improvement put forward model for engaging clinicians emphasizes need to understand the local culture in order to engage with colleagues to introduce change and sustain improvement (in Llanwarne, 2014)

RQ: What are the barriers for rural physicians to engage in PI/QI?
Identified barriers for the implementation of care delivery innovations within primary health care include the lack of financial investment, resistance from professional associations, overly prescriptive approaches lacking adaptability, and utilization of overly streamlined governance models (Haggerty et al., 2015). Cohen et al. (2004) also acknowledge the difficulties associated with implementing system-based changes, as health care practices tend to become entrenched in their ways of thinking and doing things.

Lack of essential data and inadequate information systems pose further barriers for physician engagement in CQI (Audet et al., 2005; Calico et al., 2003). This is especially pertinent to physicians working in rural environments, as most data on quality care and patient safety measures tends to come from urban-based, academically-affiliated environments. A large factor contributing to the relative lack of rural-relevant data is the isolation associated with rural practices. In small communities with limited resources, rural physicians may have fewer avenues to be involved in QI activities or training (Kirchoff et al., 2014).

Barriers identified by the National Roundtable on Health Care Quality (Counte and Meurer, 2008):

- Many organizations unwilling to commit to major QI projects that involve process redesign
- Healthcare organizations are reluctant to obligate resources needed to implement CQI
- Clinicians are slow to understand/support CQI
- CQI has not yet been integrated into everyday/mainstream operations
- Programmatic innovation (CQI) will require systematic evidence of its effects, and these studies are difficult to design and conduct
- ‘Before effects of CQI can be determined, major methodological issues will need to be resolved so that its major attributes and impacts can be measured’

Some of the challenges of implementing CQI activities in small scale practice outlined by Goebers et al. (2001):

- Staff are very busy and have little time for extra work, and have doubts around whether engaging in CQI is worth the work. Because practices often operate on thin profit margins, the perceived costs of engaging in QI may seem to outweigh the anticipated benefits
- Due to small number of staff, physicians have to play several roles when it comes to CQI i.e. set targets for the organization, select subjects, carry out activities, measure impact etc.
- May feel that activities do not relate to practice work
- Difficulty changing fixed routines
- Lack of support in evaluation phase and beginning phase of project.

Ability to participate is often limited by lack of knowledge, lack of time, and lack of institutional support, and these findings are consistent with previous reports on barriers to QI involvement on the provider level (Lim et al., 2014). At the institutional level, barriers include lack of infrastructure, and lack of support from leaders (Lim et al., 2014).

RQ: What would help for rural physicians to be able to engage more fully PI/QI

Rural areas tend to have a higher burden of disease, and are less likely to have evidence-based care (Cicutto et al., 2014). It is therefore crucial to have infrastructure providing best practice data on rural-
relevant quality measures (Calico et al., 2003) and appropriate external benchmarks to help identify target areas for improvement (Geonnotti et al., 2015).

Recommendations to overcome barriers and support physicians to engage more fully outlined in Geonnotti et al., 2015:

a. Start implementation with those element of CQI which general practitioners have the most positive attitude
b. Successful project then positively reinforce introduction of CQI, and could bring about positive aspects of other systematic and CQI
c. Should address personal obstacles throughout implementation
d. Commitment to CQI from all staff members
e. Pay attention to practice culture
f. Provide physicians with more knowledge about ongoing QI initiatives and resources, i.e.: provide online resources for building foundational knowledge in QI, improving networking opportunities and collaboration/multi-institutional organization.
g. Integrate QI into CPD to promote awareness and share success stories (has been achieved through case-based multidisciplinary conferences, interactive problem-based teaching sessions, peer lectures).
h. In the context of university-affiliated institutions, recognition and academic promotion for participating in QI is needed. Institutions need to designate time to facilitate QI activities and publish

- ‘Even the most determined practice is likely to benefit from assistance in developing new skills to meet its improvement goals, including identifying areas for improvement, understanding and using data, planning and making system-level changes, and tracking performance over time.’ (Geonnotti, 2015)
- Gaining the trust of practices and getting their buy-in for QI efforts is a critical step in achieving improved care and ultimately transforming primary care practice (Hasselman, 2011; Safety Net Medical Home Initiative, 2013; Johnson and Stewart, 2008).

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Appendix C – Needs Assessment Survey

RURAL CONTINUOUS QUALITY IMPROVEMENT (CQI) NEEDS ASSESSMENT SURVEY

The goal of this needs assessment is to understand what is currently happening, what is required and could be put in place to better support effective practice improvement/quality improvement (PI/QI) in rural and remote physician practices in British Columbia.

For this survey, Practice Improvement (PI) is any activity you are involved with that is aimed at improving your practice. Quality Improvement (QI) refers to PI activities that use a specifically structured approach that includes measurement.

Your input is important and will help shape the future of PI/QI in rural British Columbia, ultimately positively impacting your practice and patient health. It may also help inform what supports are needed and may influence the PSP privileging process and any requirements for continuous quality improvement. Please note that the purpose of this survey is for PI/QI and is not for regulatory, disciplinary or performance assessment. All responses will be reported anonymously and in aggregate fashion only.

The survey will take approximately 15 minutes to complete.

Please note that this survey is targeted at physicians providing care in rural and remote communities in British Columbia.

Upon completion of the survey, you will have the opportunity to enter into a draw to win your choice of one of three prizes: an Apple iWatch- latest model, a case of good quality BC wine or a $500 Amazon gift card. Winners will be randomly selected and notified on March 31, 2017 and after the survey close date (i.e. April 7, 2017). Those who complete the survey earlier will have an increased chance of winning one of the prizes.

CONSENT: Please note that participation in this survey is voluntary. By completing this survey (i.e. pressing SUBMIT), you are providing implied consent for your responses to be collected as data in this study.

There may be minimal risks associated with participation in this study in that you will be invited to generally provide input based on your personal and/or professional experience. Nevertheless, there will not be any individual identifiers in the report(s) of this study. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

All data collected in the study will be treated with utmost confidentiality to protect each individual’s identity. The data will (i) be accessible to members of the research team only, (ii) be presented in aggregate format only, and (iii) be included in reports with no individual identifiers. Any contact information you provide will be kept separate from your feedback provided.
For more information about this study, please contact any of the study team members listed below.

**Study Team**

Bob Bluman, MD, CCFP, FCFP, Principal Investigator, Executive Medical Director, UBC CPD, Faculty of Medicine, bob.b@ubc.ca  
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Click here if you would like to learn more about PI/QI and see examples of PI/QI activities.

<table>
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<tr>
<th>PI/QI is a process by which evidence-based information and interventions are used to help physicians identify patient care areas for improvement and change their practice. A variety of reputable PI/QI activities exist and are designed to help analyze information, measure and sustain change. Some examples of PI/QI activities that you may want to consider while responding to this survey include:</th>
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<tbody>
<tr>
<td>1. Personal learning/improvement plans</td>
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<td>2. Group learning (e.g. practice-based small group learning)/improvement plans</td>
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<td>3. Self-assessment (e.g. chart review)</td>
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<td>4. Mentoring/coaching support for practice change</td>
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<td>5. Data collection tools and procedures</td>
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<td>6. Formalized feedback on practice</td>
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<td>7. Commitment to change and reflection exercises</td>
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<td>8. Plan-Do-Study-Act (PDSA) cycles</td>
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SECTION A – FACILITATORS AND BARRIERS

1. The following factors would motivate me to participate in Practice Improvement /Quality Improvement (PI/QI):

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<td>a) Potential to <strong>improve my</strong></td>
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<td>c) Ability to <strong>collaborate</strong></td>
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<td>e) Access to a <strong>PI/QI coach,</strong></td>
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<td>f) Continuing Medical Education</td>
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<td>g) Easy access to <strong>practice</strong></td>
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<td>h) Being able to compare my</td>
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Additional comments on motivating factors:

2. The following factors are **barriers** to my participation in Practice Improvement/Quality Improvement (PI/QI):
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<th>Barriers</th>
<th>Definitely Not</th>
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<td>Lack of incentives (e.g. payment for time spent participating in PI/QI activities)</td>
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<td>I have limited knowledge of PI/QI principles and how to apply them practically</td>
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<td>I don’t have access to practice data/clinical information</td>
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<td>I don’t know how to measure or track patient outcomes over time</td>
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<td>Lack of access to useful externally-generated data (e.g. hospital or MSP data)</td>
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Additional comments on barriers:
### SECTION B – ATTITUDE AND PRACTICES

3. Please indicate your level of agreement with the following statements:

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<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don’t Know/Unsure</th>
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<tr>
<td>a) My participation in PI/QI activities will be <strong>valuable for improving the care</strong> of my patients</td>
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<td>b) I am satisfied with <strong>my current level of involvement</strong> in PI/QI activities</td>
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<td>c) I am satisfied with <strong>my current level of knowledge</strong> of PI/QI principles</td>
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<td>d) I would be willing to explore how my <strong>workplace can better support</strong> my involvement in PI/QI activities</td>
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<td>e) I would be prepared to participate in a <strong>self-directed continuous quality improvement process</strong> to ensure patient safety and best patient outcomes, if it was appropriately supported</td>
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<td>f) I would be prepared to participate in a <strong>continuous quality improvement process with other healthcare professionals</strong> in my community to ensure patient safety and best patient outcomes</td>
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Additional comments:
4. **I prefer to participate** in practice improvement/quality improvement (PI/QI) through the following formal approaches:

<table>
<thead>
<tr>
<th></th>
<th>Not Preferred</th>
<th>2</th>
<th>Somewhat Preferred</th>
<th>4</th>
<th>Highly Preferred</th>
<th>5</th>
<th>Don’t Know/Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Individual learning and assessment (e.g. personal learning/improvement plans, chart review)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>b) Group learning with other physicians (e.g. small group learning sessions, practice improvement groups)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>c) Team-based practice improvement activities (e.g. improvement activities involving all members of a healthcare team)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>d) Mentoring/coaching support</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>e) Audit and formalized feedback from a trusted source</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Additional comments:

5. I have recently (within the last two years) **initiated or participated** in a Practice Improvement/Quality Improvement (PI/QI) activity.

   □ Yes
   □ No

6. Please list or describe the PI/QI activities you initiated or participated in **and who was involved**:

   ____________________________
SECTION C – MEANINGFUL USE OF PRACTICE DATA/CLINICAL INFORMATION (E.G. PRACTICE CHARTS, EMR DATA, NATIONAL DATABASES, HOSPITAL DATA)

7. Please indicate your level of agreement with the following statements:

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don’t Know/Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Physicians should be responsible for and control the use of their practice data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) I would be willing to have my practice data/clinical information included in a central repository and provided to other physicians as summarized data for the purpose of PI/QI, if it was non-identified and held by a trusted group</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>c) I would trust practice data/clinical information summarized by a trusted external source</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>d) I am comfortable interpreting and applying findings from my practice data/clinical information for PI/QI</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>e) I prefer to have support interpreting and applying findings from my practice data/clinical information for PI/QI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) I would be willing to spend some time learning about data management, compiling and interpreting reports, and meaningful practice data measurement</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Additional comments:

8. Please comment on the following with respect to your access and utilization of data sources for practice improvement/quality improvement (PI/QI):
I have access to this data source for PI/QI | I utilize this data source for PI/QI | I don’t know this data source or haven’t thought of using it for PI/QI
---|---|---
Yes | No | Yes | No | Yes | No

a) Electronic Medical Records (EMR)

b) Health Data Coalition (physician-led EMR-based data sharing initiative)

c) Hospital or facility data

d) Public health/disease surveillance data (e.g. Pap report cards)

Additional comments or other data sources you have access to or utilize (e.g. nationally available clinical databases):
SECTION D – PI/QI AND CPD

9. I would be interested in education on the following topics or areas to support my PI/QI efforts:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don’t Know/Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Entering data into my EMR accurately and in a usable format</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Generating meaningful/useful reports of my practice data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>c) Understanding how to do PI/QI in my practice setting</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>d) Strategies for identifying and addressing quality gaps in my practice</td>
<td></td>
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<td></td>
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<tr>
<td>e) Leading or participating in team-based PI/QI projects</td>
<td></td>
<td></td>
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</table>

Additional comments or other topics/areas of interest:
SECTION E – PI/QI AND THE PROVINCIAL PRIVILEGING AND CREDENTIALING SYSTEM FOR FACILITY OR HOSPITAL-BASED PRACTICE

10. In the context of the new Provincial Practitioner Privileging and Credentialing System (i.e. Privileging Dictionaries), please indicate your **level of agreement** with the following statement:

<table>
<thead>
<tr>
<th>Strongly Disagree 1</th>
<th>Disagree 2</th>
<th>Neutral 3</th>
<th>Agree 4</th>
<th>Strongly Agree 5</th>
<th>Don’t Know/Unsure</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

a) The Privileging Dictionaries have had a **positive impact on the quality of care** I deliver to my patients

Additional comments on Privileging Dictionaries:
### SECTION F – ORGANIZATIONS INVOLVED IN PI/QI

11. In your opinion, what role(s) should the following bodies play in setting the PI/QI direction? [For each, select all that you believe should apply]:

<table>
<thead>
<tr>
<th>Organization</th>
<th>Leading</th>
<th>Funding</th>
<th>Developing Content</th>
<th>Delivery &amp; Implementation</th>
<th>Promoting</th>
<th>No role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual physicians</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Doctors of BC (DoBC)</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Society of GPs (SGP)</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Specialty Societies</td>
<td>□</td>
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<td>□</td>
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<td>□</td>
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<tr>
<td>Divisions of Family Practice</td>
<td>□</td>
<td>□</td>
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<td>□</td>
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<tr>
<td>Practice Support Program (PSP)</td>
<td>□</td>
<td>□</td>
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<td>□</td>
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<tr>
<td>UBC Faculty of Medicine (i.e. UBC Division of Continuing Professional Development – UBC CPD or other Clinical Departments)</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Rural Coordination Centre of BC (RCCbc)</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Joint Clinical Committees (JSC, SSC, GPSC, SCC)</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<td>□</td>
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<tr>
<td>Ministry of Health</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>College of Family Physicians of Canada (CFPC)/BC College of Family Physicians (BCCFP)</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Royal College of Physicians and Surgeons of Canada (RCPSC)</td>
<td>□</td>
<td>□</td>
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<tr>
<td>College of Physicians and Surgeons of BC (CPSBC)</td>
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<tr>
<td>BC Patient Safety &amp; Quality Council</td>
<td>□</td>
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Additional comments:
SECTION G - DEMOGRAPHICS

Information collected in this section will help us better understand your context of care. None of the information will be used to identify any individual physician. Your confidentiality will be maintained at all times.

12. I am a:
   □ GP/FP
   □ Specialist
   □ Resident
   □ Other. Please specify ______________

13. My practice includes work in the following: [Select all that apply]
   □ A private office or clinic
   □ Emergency room care
   □ In-patient care
   □ Long-term care facility
   □ Walk-in clinic
   □ Other. Please specify _________

14. My scope of practice includes: [Select all that apply]
   □ Emergency medicine
   □ Family practice
   □ Family practice anaesthesia
   □ Family practice enhanced surgical skills
   □ Internal medicine
   □ Psychiatry
   □ Radiology
   □ Surgery
   □ Other. Please specify _________

15. My age is: ______ [YRS]

16. I completed my medical training in _______ [Please provide country where you completed your medical education]

17. I graduated from medical school in ______ [YYYY]

18. My primary practice location is in or under the following health authority [Select one]
   □ First Nations Health Authority
   □ Fraser Health Authority
   □ Interior Health Authority
   □ Northern Health Authority
   □ Vancouver Coastal/Providence HC Health Authority
   □ Vancouver Island Health Authority
19. I practice in a community with a **population size** of: [Select one]
   - □ Under 1,000
   - □ 1,000 to 2,999
   - □ 3,000 to 4,999
   - □ 5,000 to 9,999
   - □ 10,000 to 29,999
   - □ 30,000 and above
   - □ Don’t know

20. I currently practice: [Select one]
   - □ Full-time
   - □ Part-time
   - □ Retired
   - □ Locum
   - □ Other. Please specify _______

21. I have been providing care in rural and remote communities of British Columbia for [select one]
   - □ Less than 5 years
   - □ 5 to 10 years
   - □ 11 to 20 years
   - □ 21 to 30 years
   - □ Over 30 years

22. I typically spend the following number of **hours per week in direct patient care**: _______ [# of HRS/WK]

23. I primarily work in the following **clinical setting**: [Select one]
   - □ Walk-in clinic
   - □ Primary care office/clinic
   - □ Long-term care facility
   - □ Hospital
24. In my main clinical practice setting, I work **with the following**: [Select all that apply]

- Other family physicians
- Other specialists
- Nurses
- Nurse practitioners
- Pharmacist
- MOAs
- Other. Please specify _______
- Not applicable

25. The professional income from my practice is derived primarily (>50%) from the following payment method: [Select one]

- Fee for service
- Salary
- Population-based blended funding
- Sessional
- Other. Please specify _______

26. I **use an EMR** in my practice

- Yes
- No

27. The type of EMR I use is [Select one]:

- IntraHealth
- Med Access
- MOIS
- Oscar
- Osler
Thank you for completing this survey. If you have any questions, please contact UBC CPD Research Assistant, Jenyo Banjo, at jenyo.b@ubc.ca | 604.875.4111 ext. 21440

If you would like to enter into a **draw to win one of three prizes (an Apple iWatch – latest model, a case of good quality BC wine or a $500 Amazon gift card)** and/or would like to be placed into a pool of potential participants for a **follow-up interview or focus group**, please provide us with your contact information by completing the form available at the following link:

Your personal information will be kept separate from your responses to the needs assessment survey and your confidentiality will be maintained at all times. Prize winners will be notified via email or phone.

**PRIZE DRAW**

Your personal information will be kept separate from your responses to the needs assessment survey and your confidentiality will be maintained at all times.

1. **Contact Information**
   - Name: _________________
   - Email: _________________     Phone: _________________

2. Please rank the available prizes in order of preference to you from 1 to 3 with 1 being “most preferred.”
   - Apple iWatch – latest model
   - A case of good quality BC Wine
   - $500 Amazon gift card

Would you like to be placed into a pool of participants who may be invited to take part in an **interview or focus group discussion** further exploring PI/QI in rural BC?

*NOTE: All interview/focus group participants will receive an honorarium at a rate of $126/hour.*

- Yes
- No
Dear Colleague,

We would like to invite you to participate in the Rural Continuous Quality Improvement (CQI) Needs Assessment study, a province-wide study that seeks to explore what is required to support effective practice improvement/quality improvement (PI/QI) in rural and remote communities in BC. We are hoping that the results will provide a better understanding for improving practice in rural communities, and will assist in determining how best to support rural physicians in effective PI/QI activities.

The Rural CQI Needs Assessment is being developed and implemented by the Rural Continuing Professional Development team within the Division of Continuing Professional Development at the University of British Columbia (UBC CPD) in collaboration with the Rural Coordination Centre of BC through funding support provided by the Joint Standing Committee on Rural Issues.

We are organizing a series of focus groups and would like to invite you to participate in a focus group discussion via teleconference. You will have the opportunity to provide your recommendations for system improvement as well as share your experiences and perspectives on existing PI/QI activities. Your input will be highly valued and findings from this study will be directly relevant to you as they will help shape the future of PI/QI in rural BC.

Participating in the focus group will take up to 90 minutes and participants will be remunerated at the rate of $126 per hour. The focus group will be scheduled at various times in the hope that we can provide you a convenient time to participate. Participants will primarily include rural physicians who provide care in rural and remote BC communities, and/or those who support rural physicians. Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without any consequences.

All data collected in the study will be treated with utmost confidentiality to protect each individual’s identity. The data will (i) be accessible to members of the research team only, (ii) be presented in aggregate format only, and (iii) be included in reports with no individual identifiers. Any contact information you provide will be kept separate from your feedback provided.

There may be minimal risks associated with participation in this study in that you will be invited to generally provide input based on your personal and/or professional experience. Nevertheless, there will not be any individual identifiers in the report(s) of this study. If you have any concerns or complaints about your rights as a participant and/or your experiences while participating in this study, contact the Research Participant
Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free at 1-877-822-8598.

Thank you for considering this request and we sincerely hope you are able to participate in this important study.

Sincerely,

Bob Bluman, MD, CCFP, FCFP, Principal Investigator, Executive Medical Director, UBC CPD, Faculty of Medicine, bob.b@ubc.ca
Brenna Lynn, PhD, Co-Investigator, Associate Dean, UBC CPD, Faculty of Medicine, brenna.l@ubc.ca
Ray Markham, MD, Co-Investigator, Medical Director, UBC Rural CPD, Faculty of Medicine, ray.markham@ubc.ca
Dilys Leung, PhD, MHA, Co-Investigator, Program Manager, UBC Rural CPD, Faculty of Medicine, dilys.l@ubc.ca, 604-875-4111 (ext. 69131)
Oluwajenyo Banjo, MPH, Co-Investigator, Senior Research Assistant, UBC CPD, jeny.o@ubc.ca, 604-875-4111 (ext. 21440)
Appendix E – Focus Group Consent Form

RURAL CONTINUOUS QUALITY IMPROVEMENT NEEDS ASSESSMENT

CONSENT FORM

You are being asked to participate in a study that explores what is required to support effective practice improvement/quality improvement (PI/QI) in rural and remote communities in BC. This study called *Rural Continuous Quality Improvement Needs Assessment* is supported by funding from the Joint Standing Committee on Rural Issues via the Rural Coordination Centre of BC (RCCbc).

The key objectives of the needs assessment are to:

1. increase the knowledge and understanding of current rural PI/QI activities involving rural physicians in BC
2. determine enablers and barriers to engagement with PI/QI
3. develop an approach to increase engagement of rural physicians with PI/QI
4. identify approaches to adaptation of Continuous Professional Development (CPD) to more effectively support PI/QI
5. provide feedback, where appropriate, to other stakeholders regarding actions that would improve rural physician engagement with PI/QI

**Study procedures and data requirement**

Participating in the focus group will take up to 90 minutes and participants will be remunerated at the rate of $126 per hour. Participants will primarily include rural physicians who provide care in rural and remote communities in BC, and/or those who support rural physicians.

We also seek your consent to use audio equipment to record the focus group discussion. The information on the audio recording will be kept strictly confidential and will further enhance our analysis of the feedback received.

**Potential benefits and risks of participating in the study**

By participating in this study, you will have the opportunity to provide your recommendations for system improvement as well as share your experiences and perspectives on existing PI/QI activities. Your contributions and recommendations will be highly valued and will assist in determining how best to support rural physicians in effective PI/QI activities.

There may be minimal risks associated with participation in this study in that you will be invited to generally talk about your personal and/or professional experiences. There will not be any individual identifiers, and all data arising from this research activity will be aggregated and anonymized in all reporting.

**Confidentiality**
All data (including audio recording and transcripts) will be stored in a locked filing cabinet and a secured server at the office of UBC CPD. This data will:

1. Be accessible to members of the study team only
2. Be presented in aggregate format only and included in reports with no individual identifiers
3. Any contact information you provide will be kept separate from your feedback in the study

If you consent to participate in this study, your identity will be kept strictly confidential. The completed consent form will be kept separate from data collected to protect your identity. We encourage all participants to refrain from disclosing the contents of the discussion outside of the focus group; however, we cannot control what other participants do with the information discussed.

**Contacting the study team**

If you have any questions or desire further information about this study, or would like to request a summary of the results, you may contact the Principal Investigator or Co-Investigators using the contact information provided at the end of this document.

**Contact for concerns about the rights of research participants**

Please be aware that you are not waiving any legal rights in signing this consent form. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

**Consent**

Your participation in the focus group is entirely voluntary. You may refuse to participate or you may withdraw from the study at any time without any consequences. You may choose not to answer any question asked during the focus group discussion. If you choose to participate in this study, we ask that you keep a copy of this consent form for your record and fax a signed copy to Attn: Jenyo Banjo at (604) 875-5078.

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Participant Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

**Study team**

Bob Bluman, MD, CCFP, FCFP, Principal Investigator, Executive Medical Director, UBC CPD, Faculty of Medicine, [bob.b@ubc.ca](mailto:bob.b@ubc.ca)
Brenna Lynn, PhD, Co-Investigator, Associate Dean, UBC CPD, Faculty of Medicine, [brenna.l@ubc.ca](mailto:brenna.l@ubc.ca)
Ray Markham, MD, Co-Investigator, Medical Director, UBC Rural CPD, Faculty of Medicine, [ray.markham@ubc.ca](mailto:ray.markham@ubc.ca)
Dilys Leung, PhD, MHA, Co-Investigator, Program Manager, UBC Rural CPD, Faculty of Medicine, [dilys.l@ubc.ca](mailto:dilys.l@ubc.ca), 604-875-4111 (ext. 69131)
Oluwajenyo Banjo, MPH, Co-Investigator, Senior Research Assistant, UBC CPD, [jenyo.b@ubc.ca](mailto:jenyo.b@ubc.ca), 604-875-4111 (ext. 21440)
Appendix F – Focus Group Protocols

RURAL CONTINUOUS QUALITY IMPROVEMENT NEEDS ASSESSMENT

FOCUS GROUP PROTOCOL

FG1: QI Leaders
FG2: Engagement Leaders

RESEARCH QUESTIONS

1. What is the understanding and interest of rural physicians to engage in PI/QI?
2. What is the willingness and readiness of rural physicians to engage in PI/QI?
3. What has enabled rural physician’s success in engaging in PI/QI?
4. What are barriers for rural physicians to engage in PI/QI?
5. What would help for rural physicians to be able to engage more fully PI/QI?

FOCUS GROUP PROTOCOL: QI LEADERS (PHYSICIAN & NON-PHYSICIAN)

Instructions/Reminders to Focus Group Facilitator:

• Introduce yourself and research team members who are also on the line. Explain your role as the facilitator and the roles of the other research team members.

• Thank everyone for their participation in this study.

• Explain that we have chosen a focus group format for this study because it allows us to speak to many participants at one time, and hear about participant needs and experiences in a more relaxed setting compared to a one-on-one interview or a survey.

• Discuss aims of study, research questions, and what we hope to achieve:

  o The ultimate goal of our study is to better understand what is required to support effective practice improvement (PI)/quality improvement (QI) in rural and remote communities in BC.

• Describe the specific purpose of this focus group:
Over the next several weeks we are conducting a number of focus groups and interviews with different groups of rural health care providers in BC with rural physicians, as well as health professionals who have experience and/or expertise in PI/QI. The next step will be to revise our approach and study materials based on your feedback, and disseminate a survey to all physicians in rural BC. Finally, our research team at UBC Rural CPD will be preparing a report based on our findings.

The reason we would like to talk to you today is because all of you are PI/QI leaders in BC. We would like to have your feedback on the process of our study, questions we should be asking, and discuss potential opportunities for impact of the findings. We are hoping to learn more about your experiences with QI/PI, what is working well for you, as well as the challenges you face. All of your experiences and areas of expertise are equally important and we would like to hear from all of you.

There are no right or wrong answers to our questions - we encourage everyone to speak up!

A few reminders and housekeeping items:

1. All participants must have signed the **Consent Form** before beginning the focus group.
2. We are recording today’s call and we will be sending the recording to a transcriptionist.
3. Since there are quite a few people on the line, I would ask that everyone please state your name every time you speak to make things easier for transcriptionist. (Dan: Remind people to state their name if they don’t do it on their own).
4. We are committed to maintaining the confidentiality of focus group participants.
5. Given the need for confidentiality, we would like to ask you all to please maintain the confidentiality of your colleagues on the line. This means that we would like you to refrain from disclosing the content of the discussions outside of the focus group.
6. Participating in this research is entirely voluntary and participants can opt out at ANY time.
7. We expect that this focus group will take 120 minutes. Because we have limited time and a number of questions to ask, it is my job to make sure that our discussion stays on track. Forgive me if I interrupt you to either clarify your statements or to guide you back to the main focus of this discussion.
8. For those connecting via telephone, we ask that you keep your line muted when you are not speaking. If you do not have a mute button on your telephone, you can press *6 to mute the line and *7 to unmute the line.

Now that all of that is out of the way, we’re ready to begin!

**Focus Group Questions - QI Leaders (FG1) and Engagement Leaders (FG2)**

1. Prior to this discussion we have shared with you the questions we intend to ask future focus groups, key informants, and in the survey.
a. Is there any feedback overall?
   i. Could any specific questions be improved? If so, how?
   ii. Can you think of any important questions we are not asking and should be asking?
b. What (if any) additional questions should we be asking each of the proposed focus groups?
c. What (if any) additional questions should we be asking in the survey?
d. What (if any) additional questions should we be asking key informants?

2. Please refer to the Proposed Focus Groups & Sequencing document (below).
   a. Is there any feedback on the process of our study in terms of the themes of each focus group
      and the sequencing of focus groups, the survey, and KIs?

3. How and who should we engage with for the focus groups/survey/key informant interviews?
   a. We are planning on sending the survey to all physicians who live or practice medicine in an
      RSA community in BC, or have previously practiced medicine in an RSA community in BC.
      Should we also include those who have a significant part of practice that involves supporting
      physicians from RSA communities?
      i. Should we also send the survey to stakeholders with particular knowledge and
         understanding of the QI/PI activities in BC, who support QI/PI activities, and/or who
         support rural physicians?
   b. Any suggestions for how to compensate participants for the survey (e.g. prize draw, value)?

Proposed Focus Group (FG3 – FG8)/Survey/Key Informant Interview Questions

Before we begin, we would like to remind you of your rights as a research participant. All data arising from
today’s discussion will be aggregated and anonymized in all reporting associated with this study, and your
identity will be kept strictly confidential. Data collected today will accessible only to members of the research
team, and secured in password protected encrypted files stored within a secured served at UBC. You may
choose not to answer any of the question during today’s discussion, and may withdraw from the study at any
time. Finally, we strongly encourage you to refrain from sharing the contents of today’s discussion outside of
this focus group.

1. Please introduce yourself and tell us where you are living and working right now, and tell us one thing that
   keeps you up at night with regards to PI/QI in rural BC.

2. How much interest is there among physicians in rural BC in improving health services delivery?
   a. To what extent do physicians in rural BC see that it is part of their role?

3. What is the readiness of physicians in rural BC to improve health services delivery?
   a. Are physicians in rural BC willing to engage in PI/QI activities?
4. What is the capability of care providers (i.e. family physicians, specialists, etc.) in rural BC to engage in QI/PI?
   a. Do rural care providers have sufficient knowledge regarding:
      i. Who to engage with for QI/PI?
      ii. How to engage with QI/PI?
      iii. What is quality improvement?
      iv. Data that is useful for QI/PI
      v. Where to find or produce data that is useful for QI/PI
      vi. How to use data that is useful for QI/PI
   a. Do rural care providers have sufficient support to engage in QI/PI?
      vii. Time
      viii. Expertise
      ix. Willing colleagues
      x. Trusted partner
      xi. Helpful programs
      xii. Access to IMIT that can produce high-quality, trusted data
      xiii. Financial support
   b. What is missing that would help?

5. What QI/PI activities have/are occurring that you are aware of (successful and not)?
   a. Please list the activities that come to mind
   b. What has worked in engaging participants in these activities (whether you participated in the activity or you were involved in implementing/evaluating the activity)?
      Prompt: You have mentioned some things that have worked at the _________ (individual, team, microsystem, organizational, environmental) level. How about at the _________ (individual, team, microsystem, organizational, environmental) levels?
   c. What hasn’t worked in engaging participants in these activities (whether you participated in the activity or you were involved in implementing/evaluating the activity)?
      Prompt: You have mentioned some things that haven’t worked at the _________ (individual, team, microsystem, organizational, environmental) level. How about at the _________ (individual, team, microsystem, organizational, environmental) levels?
   d. What has helped in engaging participants in these activities (whether you participated in the activity or you were involved in implementing/evaluating the activity)?
      Prompt: You have mentioned some things that have worked at the _________ (individual, team, microsystem, organizational, environmental) level. How about at the _________ (individual, team, microsystem, organizational, environmental) levels?
   e. What has hindered in engaging participants in these activities (whether you participated in the activity or you were involved in implementing/evaluating the activity)?
      Prompt: You have mentioned some things that have worked at the _________ (individual, team, microsystem, organizational, environmental) level. How about at the _________ (individual, team, microsystem, organizational, environmental) levels?
6. What else **would be helpful** for rural physicians to be able to engage more fully in PI/QI?
   a. Are there existing opportunities that could be made more useful to engage rural physicians in BC more fully in PI/QI? If yes, which existing opportunities and how could they be made more useful?
   b. Does it matter where support for rural physicians to engage in PI/QI comes from?
      i. Physician organization [Doctors of BC, Divisions of Family Practice, medical staff associations (MSA)]
      ii. Practice Support Program (PSP)
      iii. Health Authority
      iv. University (CPD/CME unit, other)
      v. Ministry of Health
      vi. Private resources
      vii. Other
   c. Are there ways that University CPD can provide better support?

7. To what extent do you think that an environment supportive of improvement work assists with recruitment and retention of physicians in rural BC?
   *Probe: Definitely no, no, uncertain, yes, definitely yes?*
   a. Could you explain why/why not an environment supportive of improvement work assists with recruitment and retention of physicians in rural BC?

8. Could PI/QI efforts that work in rural environments be transferable/applicable to non-rural settings?
   a. If yes, please describe?

**Proposed Focus Groups and Methods Sequencing**

**Focus Group 1:** QI leaders (physicians and non-physicians)

**Focus Group 2:** Physician engagement leaders (PSP, Divisions, etc)

**Disseminate Survey**

**Focus Group 3:** General practitioners from divisions/communities – practice-based PI/QI
   a. Fee-for-Service
   b. Alternative Payment Program

**Focus Group 4:** Specialty-based PI/QI

**Focus Group 5:** MSAs - Facilities-based PI/QI

**Focus Group 6:** Team-based PI/QI

**Focus Group 7:** Physician program leaders (JCC)

**Focus Group 8:** Program Regulators

*Key Informant Interviews: Health Authority, program regulators and program leaders*
RURAL CONTINUOUS QUALITY IMPROVEMENT NEEDS ASSESSMENT

FOCUS GROUP PROTOCOL
FG3 – FG5: Practice-based, specialty-based & facilities-based PI/QI

HOUSEKEEPING ITEMS

Introduce facilitators: name and affiliation
Thank participants for their participation
Inform participants that the focus group will last approximately 90 minutes
Briefly describe the Rural CQI Needs Assessment and the purpose of the focus group
Inform participants that the focus group is set to capture different perspectives and that different focus groups are being conducted with the following demographics: practice-based fee-for-service, practice-based alternative payment, specialty-based, facilities-based, team-based, physician program leaders, and program regulators
Remind participants that we are interested in their thoughts and experiences, and that there are no right or wrong answers
Remind participants that the session will be audio-recorded and that we will keep their feedback confidential
Ask participants to state their names when speaking to aid the transcription process
Ask participants to keep discussions during the session confidential

The following protocol represents the questions and topic areas to be discussed. Questions are open-ended and this protocol is designed to be used in a responsive manner with participants i.e. questions may be modified and additional follow-up questions added as needed to fit the flow of the discussion.

Introductions (ask each person to be brief – around 1 minute max per introduction)

Please introduce yourself: name, location of practice, scope of practice etc.

*For this study, we have defined Practice Improvement (PI) as any activity you are involved with that is aimed at improving your practice. Quality Improvement (QI) refers to PI activities that use a specifically structured approach that includes measurement.
QUESTIONS

1. Tell us about your experience with PI/QI.
   Probe [PI/QI ACTIVITIES LIST]: What PI/QI activities have you been involved in, are currently involved in or are aware of?
   Probe [WHAT WORKS]: What worked well for the PI/QI activities you have been involved in? If you are currently involved in PI/QI activities, what is working well?
   Probe [EXISTING SUPPORTS]: What existing supports or resources are you using for PI/QI? Examples: data analysis support, buy-in from staff and colleagues, in-practice coaching, health authority funding support etc.
   Probe: How are they effective in meeting your PI/QI needs?

2. How might you incorporate PI/QI into your usual workflow or practice?
   Probe [PI/QI IN EVERYDAY PRACTICE]: Does PI/QI currently fit into your everyday practice? If so, how? If not, why not?
   Probe [NEEDED SUPPORTS]: What facilitators or supports do you think would be effective in promoting rural physicians’ participation in PI/QI activities?
   Examples: Supports may be internal (e.g. allocated staff time for data extraction and analysis) or external to physicians’ practices (e.g. funding, built-in/dedicated salary time for PI/QI, access to quality feedback). For both, access to trusted, high quality meaningful data.
   Note to facilitator: Explore nuances for different remuneration types (i.e. fee-for-service versus alternative payment).
   Probe: How and by whom would you like these supports to be provided?
   Probe [TIME CONSTRAINT]: Time constraint was one of the barriers identified through the online survey. How would you like to see this barrier addressed?
   Probe: Are there PI/QI activities where you have seen this barrier addressed successfully? If yes, please describe how it was done.
   Probe [OTHER BARRIERS]: Some other challenges identified through the survey were limited knowledge of PI/QI principles and application, and know-how to summarize and interpret data. Can you comment on how these challenges might be addressed?
   Probe [OTHER BARRIERS]: Can you identify any other barriers to PI/QI? How might these barriers be addressed?

3. What are your thoughts on using practice data/clinical information or feedback for PI/QI?
   Probe [DATA SOURCES]: What data sources do you use for PI/QI?
   Examples: EMR data, national datasets, feedback from peers, staff and patients, etc.
   Probe [DATA SOURCE CREDIBILITY]: How do you assess the usefulness and credibility of your data sources?
Probe [DATA SUPPORT]: What specific supports or resources would be helpful to effectively utilize data for PI/QI?
   Examples: funding, data analysis support from coaches, trusted peers, etc. or from administrators or regulators

Probe [PRACTICE DATA COMPARISON]: Some EMRs have the ability to track and compare data across practices and with your peers. Some have found this helpful. Can you comment on if and how this would be useful for your PI/QI work?

Probe [FEEDBACK FOR PI/QI]: Opportunities to give and receive feedback from colleagues, staff or patients can be helpful for PI/QI. What are your experiences and thoughts on this?

4. **How can CPD and other education resources support your PI/QI participation?**

   Probe [TOPICS OF INTEREST]: What topics related to PI/QI would you like to receive education on?
   Examples: education on PI/QI principles, identifying areas where quality care could be improved in your practice or in the population, measuring change in practice etc.
   Probe: How would you like the education to be provided (i.e. delivery format, duration)?

   Probe [VALUE OF HUB]: What is your opinion of the value of a single location (human or electronic) to support your PI/QI efforts (i.e. a hub providing access to a CPD concierge, a robust outline or link to useful learning opportunities, mentors/coaches, tools, repository of PI/QI projects etc.)?

   Probe [VALUE OF COACH/MENTOR]: What is your opinion on having a coach, champion or mentor for PI/QI?
   Probe: What might you expect to gain by working with a PI/QI coach, champion or mentor?
   How could a PI/QI coach, champion or mentor best support your participation in PI/QI?

5. **Have you been involved in collaborative PI/QI? If yes, tell us about your experience.**

   Probe [TEAM-BASED PI/QI]: How do you feel about the opportunity for and value of team-based PI/QI involving (a) other physicians only, (b) multi-professional teams, and (c) representation from other stakeholders e.g. patients?
   Probe: Do you have any safety/vulnerability concerns with team-based PI/QI?

6. **Are there any other issues related to PI/QI in rural BC that you think we haven’t addressed so far that you would like to comment on?**
FOCUS GROUP PROTOCOL

FG6: Team-based PI/QI

HOUSEKEEPING ITEMS

- Introduce facilitators: name and affiliation
- Thank participants for their participation
- Inform participants that the focus group will last approximately 90 minutes
- Briefly describe the Rural CQI Needs Assessment and the purpose of the focus group
- Inform participants that the focus group is set to capture different perspectives and that different focus groups are being conducted with the following demographics: practice-based fee-for-service, practice-based alternative payment, specialty-based, facilities-based, team-based, physician program leaders, and program regulators
- Remind participants that we are interested in their thoughts and experiences, and that there are no right or wrong answers
- Remind participants that the session will be audio-recorded and that we will keep their feedback confidential
- Ask participants to state their names when speaking to aid the transcription process
- Ask participants to keep discussions during the session confidential

The following protocol represents the questions and topic areas to be discussed. Questions are open-ended and this protocol is designed to be used in a responsive manner with participants i.e. questions may be modified and additional follow-up questions added as needed to fit the flow of the discussion.

Introductions (ask each person to be brief – around 1 minute max per introduction)

Please introduce yourself: name, location of practice, scope of practice etc.

*For this study, we have defined Practice Improvement (PI) as any activity you are involved with that is aimed at improving your practice. Quality Improvement (QI) refers to PI activities that use a specifically structured approach that includes measurement.
1. This focus group is about team-based PI/QI. As a member of an active PI/QI team or working group, can you tell us about your experience with team-based PI/QI?
   Probe [TEAM STRUCTURE AND FUNCTION]: Describe how your PI/QI team functions (i.e. administration, scope, membership, activities etc.)
   Probe [WHAT WORKS]: What makes your team effective?
       Probe: What effective aspects would you like to share about team-based PI/QI (e.g. how to engage members, get buy-in from others, make decisions, access supports and resources etc.)?
       Probe: How do you navigate safety/vulnerability concerns within this team context?
   Probe [EXISTING SUPPORTS]: What existing supports or resources are you using for PI/QI (as a team and individually)? Examples: data analysis support, buy-in from staff and colleagues, in-practice coaching, access to trusted high quality meaningful data, health authority funding support etc.  
       Probe: How are they effective in meeting your PI/QI needs?
   Probe [PI/QI IN EVERYDAY PRACTICE]: How do your team-based PI/QI activities fit into your everyday practice?

2. In your opinion, how might rural physicians’ be supported to incorporate PI/QI into their usual workflow or practice?
   Probe [NEEDED SUPPORTS]: What facilitators or supports would be effective in promoting rural physicians’ participation in PI/QI activities?
       Examples: Supports may be internal (e.g. allocated staff time for data analysis) or external (e.g. funding, built-in/dedicated salary time for PI/QI for facilities-based, access to quality third-party feedback) to physicians’ practices, as above – access to trusted high quality meaningful data, access to coaches, mentors, trusted colleagues for support
       Probe: How and by whom would you like these supports to be provided?
   Probe [TIME CONSTRAINT]: Time constraint was one of the barriers identified through the online survey. How would you like to see this barrier addressed?
       Probe: Are there PI/QI activities where you have seen this barrier addressed successfully? If yes, please describe how it was done.
   Probe [OTHER BARRIERS]: Some other challenges identified through the survey were limited knowledge of PI/QI principles and application, and know-how to summarize and interpret data. Can you comment on how these challenges might be addressed?
   Probe [OTHER BARRIERS]: Can you identify any other barriers to PI/QI? How might these barriers be addressed?

3. What are your thoughts on using practice data/clinical information for PI/QI?
   Probe [DATA SOURCES]: What data sources do you use for PI/QI?
       Examples: EMR data, national datasets, feedback from peers, staff and patients etc.
   Probe [DATA SOURCE CREDIBILITY]: How do you assess the usefulness and credibility of your data sources?
Probe [DATA SUPPORT]: What specific supports or resources would be helpful to effectively utilize data for PI/QI? Example: funding, data analysis support etc. from trusted colleagues or coaches or from administrators or regulators

Probe [PRACTICE DATA COMPARISON]: Some EMRs have the ability to track and compare data across practices and with your peers. Some have found this helpful. Can you comment on if and how this would be useful for your PI/QI work?

Probe [FEEDBACK FOR PI/QI]: Opportunities to give and receive feedback from colleagues, staff or patients can be helpful for PI/QI. What are your experiences and thoughts on this?

4. **How can CPD and other education resources support your engagement with PI/QI?**

   Probe [TOPICS OF INTEREST]: What topics would you like to receive education for PI/QI on? Examples: education on PI/QI principles, identifying areas where quality care could be improved in your practice or in the population, measuring change in practice etc.

   Probe: How would you like the education to be provided (i.e. delivery format, duration)?

   Probe [VALUE OF HUB]: What is your opinion of the value of a single location (human or electronic) to support your PI/QI efforts (i.e. a hub providing access to CPD concierge, a robust outline or link to useful learning opportunities, mentors/coaches, tools, repository of PI/QI projects etc.)?

   Probe [VALUE OF COACH/MENTOR]: What is your opinion on having a coach, champion or mentor for PI/QI?

   Probe: What might you expect to gain by working with a PI/QI coach, champion or mentor?

   How could a PI/QI coach, champion or mentor best support your participation in PI/QI?

5. **Are there any other issues related to PI/QI in rural BC that you think we haven’t addressed so far that you would like to comment on?**

**Wrap-up:** Thank everyone for participating. Ask if they would like to be informed once the results of the study have been compiled.
RURAL CONTINUOUS QUALITY IMPROVEMENT NEEDS ASSESSMENT

FOCUS GROUP PROTOCOL

FG7: Physician program leaders

HOUSEKEEPING ITEMS

Introduce facilitators: name and affiliation
Thank participants for their participation
Inform participants that the focus group will last approximately 90 minutes
Briefly describe the Rural CQI Needs Assessment and the purpose of the focus group
Inform participants that the focus group is set to capture different perspectives and that different focus groups are being conducted with the following demographics: practice-based fee-for-service, practice-based alternative payment, specialty-based, facilities-based, team-based, physician program leaders, and program regulators
Remind participants that we are interested in their thoughts and experiences, and that there are no right or wrong answers
Remind participants that the session will be audio-recorded and that we will keep their feedback confidential
Ask participants to state their names when speaking to aid the transcription process
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The following protocol represents the questions and topic areas to be discussed. Questions are open-ended and this protocol is designed to be used in a responsive manner with participants i.e. questions may be modified and additional follow-up questions added as needed to fit the flow of the discussion.

Introductions (ask each person to be brief – around 1 minute max per introduction)

Please introduce yourself: name, organization, position within organization etc.

*For this study, we have defined Practice Improvement (PI) as any activity physicians are involved with that is aimed at improving their practice. Quality Improvement (QI) refers to PI activities that use a specifically structured approach that includes measurement.
QUESTIONS

1. **As a program leader, what are your views on PI/QI?**
   Probe [WHAT WORKS]: What is working well (a) system-wide and (b) with respect to specific PI/QI initiatives or activities your organization may be involved in?
   
   *Probe: In your opinion, which existing PI/QI supports or resources are working and which ones are not? How can the resources or supports be improved? Examples: in-practice coaching, health authority funding support etc.*

   Probe [TEAM-BASED PI/QI]: What are your thoughts on team-based PI/QI?

   Probe [PATIENT MEDICAL HOME AND PI/QI]: What are your views on PI/QI within the context of the Patient Medical Home/Primary Care Home?
   
   Note: “Patient Medical Home (PMH) is a family practice where patients feel most comfortable to discuss their personal and health concerns... A Primary Care Home (PCH) is a PMHs or networks of PMHs linked with health authority and community agency primary care services for coordinated care.” – GPSC, 2015

2. **What are your thoughts on the provincial quality agenda, particularly the interplay between QA and QI? What organizations/key players should be involved?**
   Probe [QI vs. QA]: Quality improvement is often differentiated from quality assurance. What are your views on this differentiation?

   Probe [PEER REVIEWS FOR PI/QI]: What are your thoughts on the use of peer reviews for PI/QI?

3. **From a rural perspective, what direction should PI/QI be taking provincially?**
   Probe [FUTURE DIRECTION]: What do you envision for PI/QI at the provincial level?

   Probe [HOW TO GET THERE]: Considering your vision for PI/QI, what specific strategies are needed to achieve that vision?
   
   *Probe: Who should be involved in developing or mapping out those strategies?*

4. **What would you suggest is the best approach to motivate physicians to participate in PI/QI activities?**
   Probe [BARRIERS]: Not surprisingly, time constraint, lack of access to quality data and lack of support/buy-in (at implementation and system levels) were some of the barriers identified through an online survey disseminated to physicians in rural BC. How might these barriers and other challenges to physicians’ participation in PI/QI be addressed?
Probe [NEEDED SUPPORTS]: What facilitators or supports would be effective in promoting physicians’ participation in PI/QI activities?

Examples: funding, built-in/dedicated salary time for PI/QI for facilities-based physicians, access to trusted, quality data sources and feedback on physicians’ practices.

Probe: How and by whom should these supports to be provided?

5. Quality data and education are two resources for PI/QI. How might these resources be provided to physicians?

Probe: [DATA SOURCES]: What data sources do you think should be made available to physicians for PI/QI?

Probe [DATA SHARING]: How might it be best to address physicians’ safety and confidentiality concerns with sharing practice data?

Probe [TOPICS OF INTEREST]: What topics would you like to see education for PI/QI on?

Examples: education on PI/QI principles, identifying areas where quality care could be improved in your practice or in the population, measuring change in practice etc.

Probe [VALUE OF HUB]: What is your opinion of the value of a single location (human or electronic) to support physicians’ PI/QI efforts (i.e. a hub providing access to CPD concierge, mentors/coaches, tools, repository of PI/QI projects etc.)?

6. Are there any other issues related to PI/QI in rural BC and in general that you think we haven’t addressed so far that you would like to comment on?

Wrap-up: Thank everyone for participating. Ask if they would like to be informed once the results of the study have been compiled.
RURAL CONTINUOUS QUALITY IMPROVEMENT NEEDS ASSESSMENT

FOCUS GROUP PROTOCOL
FG8: Health authorities and program regulators

HOUSEKEEPING ITEMS

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*For this study, we have defined Practice Improvement (PI) as any activity physicians are involved with that is aimed at improving their practice. Quality Improvement (QI) refers to PI activities that use a specifically structured approach that includes measurement.
QUESTIONS

1. **As a program regulator, what are your views on PI/QI?**

   **Probe [WHAT WORKS]:** What is working well (a) system-wide and (b) with respect to specific PI/QI initiatives or activities your organization may be involved in?

   **Probe:** *In your opinion, which existing PI/QI supports or resources are working and which ones are not? How can the resources or supports be improved?*

   **Examples:** in-practice coaching, health authority funding support etc.

   **Probe [TEAM-BASED PI/QI]:** What are your thoughts on team-based PI/QI?

   **Probe [PATIENT MEDICAL HOME AND PI/QI]:** What are your views on PI/QI within the context of the Patient Medical Home/Primary Care Home?

   **Note:** “Patient Medical Home (PMH) is a family practice where patients feel most comfortable to discuss their personal and health concerns... A Primary Care Home (PCH) is a PMHs or networks of PMHs linked with health authority and community agency primary care services for coordinated care.” – GPSC, 2015

2. **What are your thoughts on the provincial quality agenda, particularly the interplay between QA and QI? What organizations/key players should be involved?**

   **Probe [QI vs. QA]:** Quality improvement is often differentiated from quality assurance. What are your views on this differentiation?

   **Probe [PEER REVIEWS FOR PI/QI]:** What are your thoughts on the use of peer reviews for PI/QI?

3. **From a rural perspective, what direction should PI/QI be taking provincially?**

   **Probe [FUTURE DIRECTION]:** What do you envision for PI/QI at the provincial level?

   **Probe [HOW TO GET THERE]:** Considering your vision for PI/QI, what specific strategies are needed to achieve that vision?

   **Probe:** *Who should be involved in developing or mapping out those strategies?*

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Probe [NEEDED SUPPORTS]: What facilitators or supports would be effective in promoting physicians’ participation in PI/QI activities?

*Examples: funding, built-in/dedicated salary time for PI/QI for facilities-based physicians, access to trusted, quality data sources and feedback on physicians’ practices.*

*Probe: How and by whom should these supports to be provided?*

5. **Quality data and education are two resources for PI/QI. How might these resources be provided to physicians?**

*Probe: [DATA SOURCES]: What data sources do you think should be made available to physicians for PI/QI?*

*Probe [DATA SHARING]: How might it be best to address physicians’ safety and confidentiality concerns with sharing practice data?*

*Probe [TOPICS OF INTEREST]: What topics would you like to see education for PI/QI on? Example: education on PI/QI principles, identifying areas where quality care could be improved in your practice or in the population, measuring change in practice etc.*

*Probe [VALUE OF HUB]: What is your opinion of the value of a single location (human or electronic) to support physicians’ PI/QI efforts (i.e. a hub providing access to CPD concierge, mentors/coaches, tools, repository of PI/QI projects etc.)?*

6. **Are there any other issues related to PI/QI in rural BC and in general that you think we haven’t addressed so far that you would like to comment on?**

*Wrap-up: Thank everyone for participating. Ask if they would like to be informed once the results of the study have been compiled.*
# Qualitative Analysis Codebook

## Current Attitudes and Practices towards PI/QI

<table>
<thead>
<tr>
<th>Name</th>
<th>Mnemonic Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>1.1 CURR_PART</td>
<td>Comments regarding level of participation in PI/QI initiatives/activities</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1.2 CURR_SAT</td>
<td>Comments regarding satisfaction with PI/QI resources available</td>
</tr>
<tr>
<td>Knowledge</td>
<td>1.3 CURR_KNOW</td>
<td>Comments regarding current knowledge of PI/QI principles</td>
</tr>
<tr>
<td>Successful PI/QI</td>
<td>1.4 CURR_SUCC</td>
<td>References to PI/QI initiatives or engagements that have worked well or are working well</td>
</tr>
<tr>
<td>Practice Integration</td>
<td>1.5 CURR_INTEG</td>
<td>Discussion on how PI/QI fits (or doesn’t fit) into everyday practice</td>
</tr>
<tr>
<td>Resources</td>
<td>1.6 CURR_RES</td>
<td>What existing supports or resources are being used for PI/QI? (Resource-specific, not references to successful PI/QI initiatives)</td>
</tr>
</tbody>
</table>

## Enablers to PI/QI Involvement

<table>
<thead>
<tr>
<th>Name</th>
<th>Mnemonic Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Improvement</td>
<td>2.1 ENAB_KNOW</td>
<td>Knowledge improvement identified as a facilitator to PI/QI</td>
</tr>
<tr>
<td>Patient Outcomes</td>
<td>2.2 ENAB_OUT</td>
<td>Improved patient outcomes identified as a facilitator to PI/QI</td>
</tr>
<tr>
<td>Compensation</td>
<td>2.3 ENAB_COMP</td>
<td>Monetary compensation identified as a facilitator to PI/QI</td>
</tr>
<tr>
<td>Incentives</td>
<td>2.4 ENAB_INCEN</td>
<td>Non-monetary incentives identified as a facilitator to engaging in PI/QI (e.g. CME credits)</td>
</tr>
<tr>
<td>Data</td>
<td>2.5 ENAB_DATA</td>
<td>Access to relevant data identified as a facilitator to PI/QI (general code; more granular in Data section)</td>
</tr>
<tr>
<td>Inter-Professional Collaboration</td>
<td>2.6 ENAB COLLAB</td>
<td>Collaboration with other clinical practitioners (e.g. coach,</td>
</tr>
<tr>
<td>Champion, mentor, etc.) identified as a facilitator to PI/QI; includes social interaction piece</td>
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<tr>
<td>Feedback</td>
<td>2.7 ENAB_FEED</td>
<td></td>
</tr>
<tr>
<td>Receiving useful and practical practice feedback from peers or governing bodies identified as an enabler to PI/QI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountability</td>
<td>2.8 ENAB_ACCOUNT</td>
<td></td>
</tr>
<tr>
<td>Accountability with fellow participants, including common goal setting, identified as a facilitator to PI/QI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Support</td>
<td>2.9 ENAB_ADMIN</td>
<td></td>
</tr>
<tr>
<td>Receiving support related to in-practice administrative duties identified as an enabler to PI/QI participation/engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee-for-Service Compensation Model</td>
<td>2.10 ENAB_FFS</td>
<td></td>
</tr>
<tr>
<td>Being compensated on a fee-for-service model identified as an enabler to PI/QI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative Payment Plan Compensation Model</td>
<td>2.11 ENAB_APP</td>
<td></td>
</tr>
<tr>
<td>Being compensated on an alternative payment plan model (including, salary, sessional, etc.) identified as an enabler to PI/QI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2.12 ENAB_OTHER</td>
<td></td>
</tr>
<tr>
<td>Any enabler of PI/QI engagement not covered by above categories</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Barriers to PI/QI Involvement**

<p>| Time | 3.1 BAR_TIME |
| Lack of time identified as a reason for not engaging in PI/QI |
| Accessibility | 3.2 BAR_ACCESS |
| Inaccessibility of resources identified as a barrier to engaging in PI/QI (includes education formatting, rural communication challenges, etc.) |
| Sustainability | 3.3 BAR_SUST |
| Inability to sustain PI/QI practices once initiated identified as a barrier to engaging in meaningful PI/QI |
| Knowledge/Work Volume | 3.4 BAR_VOL |
| The volume of knowledge that physicians are expected to keep on top of identified as a barrier to engaging in PI/QI (includes references to burnout and physician wellness) |
| Compensation | 3.5 BAR_COMP |
| Lack of monetary compensation identified as a barrier to engaging in PI/QI |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentives</td>
<td>3.6</td>
<td>Lack of non-monetary incentives identified as a barrier to engaging in PI/QI (e.g. CME credits)</td>
</tr>
<tr>
<td>Data</td>
<td>3.7</td>
<td>Access to relevant data identified as a barrier to PI/QI (general code; more granular in Data section)</td>
</tr>
<tr>
<td>Knowledge of PI/QI Principles</td>
<td>3.8</td>
<td>Lack of knowledge about PI/QI principles and how to apply them identified as a barrier to engaging in PI/QI</td>
</tr>
<tr>
<td>Fee-for-Service Compensation Model</td>
<td>3.9</td>
<td>Being compensated on a fee-for-service model identified as a barrier to PI/QI</td>
</tr>
<tr>
<td>Alternative Payment Plan Compensation Model</td>
<td>3.10</td>
<td>Being compensated on an alternative payment plan model (including salary, sessional, etc.) identified as a barrier to PI/QI</td>
</tr>
<tr>
<td>Safety</td>
<td>3.11</td>
<td>Physician safety/vulnerability identified as a barrier to PI/QI involvement, especially as it lends itself to data-based comparisons, team-based PI, or HA regulation of PI/QI as it transitions towards QA</td>
</tr>
<tr>
<td>Culture</td>
<td>3.12</td>
<td>Culture surrounding PI/QI identified as a barrier to meaningful PI/QI; especially as it pertains to the discrepancies between physicians’ and governing bodies’ perspectives</td>
</tr>
<tr>
<td>Other</td>
<td>3.13</td>
<td>Any barrier to PI/QI engagement not covered by the above categories.</td>
</tr>
</tbody>
</table>

**Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership</td>
<td>4.1</td>
<td>References to the ownership or governance of practice clinical data</td>
</tr>
<tr>
<td>Sharing, Compiling, Disseminating Data</td>
<td>4.2</td>
<td>Indications of willingness to share/distribute practice clinical data; responsibility for compilation and dissemination of useful data</td>
</tr>
<tr>
<td>Access</td>
<td>4.3</td>
<td>Access and availability of data sources as it lends itself to PI/QI initiatives.</td>
</tr>
<tr>
<td>Support</td>
<td>4.4 DATA_SUPP</td>
<td>References to either in or out of practice support for data integration, management, analysis, etc.</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Management</td>
<td>4.5 DATA_MAN</td>
<td>References to the ability to manage, extract, or interpret data.</td>
</tr>
<tr>
<td>Successful EMR Use</td>
<td>4.6.1 DATA_EMR</td>
<td>Current successes in EMR integration into PI/QI</td>
</tr>
<tr>
<td>EMR Gaps</td>
<td>4.6.2 DATA_EMR_GAPS</td>
<td>Gaps in the current applicability of EMR to PI/QI initiatives (includes references to possibilities of data/software systems expansion)</td>
</tr>
<tr>
<td>Sources</td>
<td>4.7 DATA_SOURCE</td>
<td>Sources of potentially useful data besides in-practice EMR.</td>
</tr>
<tr>
<td>Assessment of Usefulness/Quality</td>
<td>4.8 DATA_QUAL</td>
<td>Approaches to assessing the usefulness or quality of available data sources</td>
</tr>
</tbody>
</table>

**Team-Based PI/QI**

<table>
<thead>
<tr>
<th>Value</th>
<th>5.1 TEAM_VALUE</th>
<th>References to the value of participating in PI/QI initiatives from a shared/integrated/team-based approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Involvement</td>
<td>5.2 TEAM_PTS</td>
<td>Role of the patient in PI/QI</td>
</tr>
<tr>
<td>Administrative Involvement</td>
<td>5.3 TEAM_ADMIN</td>
<td>Role of administrative personnel or governing bodies in the PI/QI process</td>
</tr>
</tbody>
</table>

**Future Directions for PI/QI**

<table>
<thead>
<tr>
<th>Educational Resources</th>
<th>6.1 FUT_ED</th>
<th>Suggestions/allusions to desired education resources that would be beneficial for PI/QI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Channels</td>
<td>6.2 FUT_COM</td>
<td>Suggestions/allusions to desired communication channels that would be beneficial for PI/QI</td>
</tr>
<tr>
<td>CPD Hub</td>
<td>6.3 FUT_HUB</td>
<td>Discussions around the viability/usefulness of a centralized CPD hub as it would lend itself to PI/QI</td>
</tr>
<tr>
<td>Culture</td>
<td>6.4 FUT_CULT</td>
<td>Discussion around how the medical culture will need to shift so as to support PI/QI involvement (careful about distinction from 3.12)</td>
</tr>
<tr>
<td>Dedicated Timing</td>
<td>6.5 FUT_TIME</td>
<td>Expressions of the desire for dedicated pre-scheduled CPD days or hours as they would lend themselves towards PI/QI</td>
</tr>
</tbody>
</table>
### Organizational Involvement

<table>
<thead>
<tr>
<th>Other</th>
<th>6.6 FUT_OTHER</th>
<th>Other future directions for PI/QI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Involvement</td>
<td>7 ORGANIZATION</td>
<td>Specific reference to health care organizations or affiliated partnerships as they should be involved in the PI/QI process</td>
</tr>
</tbody>
</table>

## Appendix H – Examples of PI/QI Work Identified in this Needs Assessment Study

This list is by no means complete, just a sample of some of those activities we have come across in this work. We would welcome any additions or suggestions you might have. Please contact rural.cpd@ubc.ca

- Morbidity & Mortality Rounds (Section 51 Activities)
- **GPSC Practice Support Program** (coaches, modules, group learning, coaching)
- **BCCFP Practicing Wisely Program**
- QI through Family Practice Residency Program
- Practice Improvement activities run by Divisions (e.g. NIRD Practice Improvement Groups)
- **CFPC Linking Learning to Practice**
- Local Rounds
- **CPSBC Professional Practice Enhancement Program**
- Maintenance of Competence Program (MOCOMP)
- SSC Leadership Course (Sauder) and Divisions (Beadie)
- MORE OB
- **Specialist journal clubs (e.g., through UBC RCPD)**
- **UBC RCPD Clinical Coaching for Excellence Programs** – RSON, EM, FPA streams
- **UBC CPD Combined APLS/ACLS Course**
- **CASTED course**
- Guidelines and Protocols Advisory Committee
- **UBC RCPD Mentoring Program**
- **Medical Council of Canada 360**
- **CPSBC MSF Assessment**
- BC Medical Quality Initiative
- **BCCFP Real groups**
- Division SGLS
- **BCCSQC Clinician Quality Academy**
- BC Practice Improvement Hub
- Northern Quality Improvement Council
- **Health Data Coalition**
- SSC QI supports through facilities