Report of an evaluation of the Clinical Quality Improvement Program (CQIP)

Submitted to the Health Quality Council

Dr. Lois Berry

May 14, 2018

Table of contents

Acknowledgements

We acknowledge and thank the 21 people who agreed to be interviewed for this evaluation.

From Horizon Strategic Consultants, Laurence Thompson conducted the interviews and analyzed the results. Cathy Jeffery conducted the literature review.

Dr. Lois Berry led the evaluation, reviewed the course materials, interpreted the results, developed the recommendations, and completed this final report.

Summary

Introduction

In 2017 the Health Quality Council, with partners the Saskatchewan Ministry of Health (SKMoH), and the Saskatchewan Medical Association (SMA), implemented a provincial health system learning program, the Clinical Quality Improvement Program (CQIP), to educate emerging physician leaders in quality improvement methods. The Health Quality Council (HQC) engaged Dr. Lois Berry to lead an independent final evaluation of the Clinical Quality Improvement Program (CQIP).

Methods

The evaluation was based on an evaluation framework previously developed by HQC and further developed by Dr. Berry. The framework was based on the four-level Kirkpatrick Model for Evaluation:

- Level 1 – Reaction: How did participants feel about the learning?
- Level 2 – Learning: Did participants learn what was intended?
- Level 3 – Behaviour: Has what participants learned changed their actions?
- Level 4 – Results: Has the learning changed outcomes?

Data collection included a background evidence review, a learning materials review, and interviews with participants, coaches and faculty, and sponsors.

Evidence review

Clinical quality improvement has been identified as an important ongoing activity that can enhance physician, health care team, and system performance to produce good patient outcomes. Clinical health care teams require education training in the skills and competencies of QI because this content is usually not provided in undergraduate or post-graduate health science education. To achieve successful outcomes, QI education and training programs should be underpinned by the principles of adult learning, be offered over a period of time, and incorporate different delivery methods including face to face and distributed learning options. Mentorship and coaching is an important feature of successful QI education and training and should be designed to support participants throughout the training program, extend beyond the training program, and develop mentors and coaches to support ongoing QI initiatives and training. Although QI education and training should be developed for interprofessional health teams, it is important to incorporate measures to ensure the engagement and involvement of physicians. Some strategies to facilitate engagement and involvement of health care professionals include release time, remuneration, mentoring and coaching, garnering input for QI activities, and providing support for data analysis and facilitation of QI operations. There is some research that suggests a connection between QI education and training and good patient outcomes. It is suggested that more research is needed on the impact of the role of mentorship to the acquisition of QI skills and competencies and the spread and sustainability of QI good outcome initiatives.

Findings

Review of materials

A review of the program modules found them to be well crafted, relevant, comprehensive and highly valued by the program participants. Review of posters prepared by the program participants demonstrated that the projects met the broadest definition of clinical quality improvement and provided the participants with experience in leading clinical quality improvement projects. Participants' comments when interviewed supported the reviewer's findings that the project contributed to building their leadership capabilities.

Interview response

Twenty-one interviews were completed, a 55% response rate of 38 participants, coaches, faculty, and sponsors eligible to be interviewed.

Level 1 - Reaction

Fourteen of 16 participants who started the program completed it. Two participants withdrew from the program after Workshop 2 due to time pressures. Workshop attendance was almost 100 per cent among participants who remained in the program.

Almost all participants reported that overall the materials and content were excellent / well done / or timely. Coaches / faculty had a range of evaluations of the materials and content, from adequate to exceptional. These views seemed related to their previous training in quality improvement.

Participants said that overall, the learning activities were good, and the Moodle website was helpful.

Participants had varied views on the pace and flow of the program: good / great / fine (7); could have been faster (4); or too time demanding (2). Coaches / faculty also had mixed views on the pace and flow.

Participants were unanimous that there were many opportunities for networking and that this was one of the most valuable parts of the program. Coaches / faculty said that peer networking opportunities were generally very good.

Almost all participants said that the coaching was valuable. Several said the coaching relationship should be better defined, and that coaches should be co-located in the same town / city. Coaches / faculty said that the extent of their coaching support depended on the participant.

About half of each of the participants said that they used clinical resource analysts and they were helpful, or that they did not use a clinical resource analyst. Two coaches / faculty said the clinical resource analysts were invaluable, but they were put in place too late in the process.

Participants said about the in-person workshops that the location was a convenient central location, that although commuting was a commitment for those from out-of-town, the face-to-face meetings valuable, the hotel and arrangements were fine, and the meals very good. Coaches / faculty had varied, mixed views on the logistics and arrangements, with no clear themes.

Participants were asked what would make the process of delivering CQIP even better. There responses were detailed and ranged widely without clear themes. Coaches and faculty also had varied suggestions for what would make the program better.

Level 2. Learning

Participants, coaches and faculty, and sponsors were asked whether participants learned the skills and developing the knowledge intended by the program in two areas: project development and management, and project documentation.

Participants self-assessed project progress scores showed steady progress through the program. On program completion, participants on average assessed their projects as being between “3. Changes tested, no improvement” and “4. Improvements achieved”.

In interviews, participants reported that they had learned the skills and knowledge in project documentation and project development and management intended by the program. Coaches / faculty and sponsors agreed with this assessment.

Level 3. Behaviour

Coaches / faculty were very positive about their participants applying their knowledge to complete their assigned tasks. In applying their knowledge to their projects, coaches / faculty said participants did well, or their application of knowledge was variable. Asked if they had seen any examples of participants applying their new knowledge in their organization since the CQIP, all sponsors said yes.

Level 4. Results

Participants said the impact of their projects on clinical quality improvement was too early to assess as the project was still underway, or the project had accomplished its objective and now, in some cases, the approach was being expanded to other areas, or that improvements have been made, but are not quantifiable or had not been sustained. Sponsors said that the project had not yet reached a stage where outcomes could be assessed or reported for five participants' projects, and that there was already clinical quality improvement in one participant's project.

Asked about the potential for clinical improvement gains in projects, coaches and faculty said there is potential evident, but it will take more time to demonstrate. One sponsor had already seen clinical improvement, and three were optimistic about the potential for improvement from the projects. The others were not yet able to make an assessment. Five sponsors saw potential for clinical improvement from this ongoing work.

Nine of the participants reported examples of how they are using their learning in other areas or daily work beyond their initial project. Participants said they were unable to assess improvements in clinical quality from their expanded use of their learning yet, as the work was at too early a stage to assess outcomes. Three participants described additional work they were doing through participating on general quality improvement, appropriateness of care, and accreditation preparation committees and initiatives.

Developing a learning network was not explicitly addressed in this evaluation, as it was too soon to evaluate this ongoing impact.

Program costs

Any analysis of program costs and benefits requires detailed cost and benefit information which was not collected, or not provided to the evaluators. We detail the kinds of information that should be collected for any comprehensive cost and benefit assessment.

General evaluation

All ten participants said they would absolutely recommend CQIP to others. Five had already done so. Three sponsors reported that they had already sponsored another participant in the second cohort, and four more would consider it.

Participants said that they discovered that the best way to learn is by doing and that quality improvement opportunities are everywhere in daily work. Coaches and faculty said they learned a great deal from their participation. Sponsors learned that physician leadership can be developed, that the future is in good hands, and the importance of teams in quality improvement initiatives.

Participants said the one most important thing that CQIP does well, that it should keep doing was requiring participants to do a project and the networking and learning from each other. Coaches and faculty said it was selecting excellent participants who are motivated and have the ability to influence the system.

Participants said the one most important thing that would make CQIP even better was engaging more physicians in an expanded program, a more systems-oriented, team-based approach, and providing program follow up and ongoing mentorship.

For barriers that got in the way of their learning, six participants identified lack of time / release from work / work demands / travel time. Two said there were no barriers, and two identified other barriers.

For facilitators of their learning, participants had a wide range of answers. The three reported by two participants each were being able to reduce workload, passion for their project, and online learning.

Asked if there were anything else they would like to say about their experience with CQIP, participants repeated positive comments about the program, said that they appreciated the experience, and that it should continue. Sponsors said CQIP should be more integrated with the new

Saskatchewan Health Authority in selected areas of program improvement, the program should continue, and it should include multidisciplinary teams.

Discussion

In reviewing the findings of the evaluation, the following themes emerged:

- Participants highly valued CQIP.
- The participant group was largely homogeneous with respect to learning needs.
- Participants came from Saskatchewan's large cities.
- Networking opportunities were important.
- Ability to measure sustained behavior change and impact on quality has been limited to date.
- The success of this program supports the importance of educating physicians as clinical change agents.
- CQIP did not address the value of multidisciplinary teams in clinical quality improvement.
- The project development and implementation aspects of the program were highly valued.
- The engagement of sponsors in the program was important.
- The value of the coaching role varied across the program.
- A number of the projects were not completed during the program timeframe.
- The value of the clinical resource analyst varied across the program.

Conclusion

The CQIP is a highly valued, well organized, relevant program that actively engaged Saskatchewan physicians in leading, the development and implementation of clinical quality improvement projects in their own clinical settings. Participants, sponsors and coaches valued the program and its contribution to clinical quality improvement in Saskatchewan.

The evaluation supports continued offering of the program with only minor adjustments. The online modules and workshop format were strongly supported by the participants. The opportunities for networking with greatly appreciated by course participants. The applied nature of the program with the project development process and team formation exercise as its major output was effective. The support roles for sponsors and coaches were valuable, with some attention required to the defining of the sponsor role (see Recommendations).

Recommendations

- Continue the program in its current format, with some revisions.
- Clarify and communicate more effectively the role of the coach.
- Ensure that necessary supports and resources are in place in a timely manner to support the work of the teams.
- Address timelines for participant project completion.
- Develop methods for ongoing networking and creation of a long-term learning network.
- Clarify program goals with respect to participation from a broader representation of Saskatchewan communities.
- Address the role of multidisciplinarity in clinical quality improvement.

Introduction

The Clinical Quality Improvement Program

Program aims

In 2017 the Health Quality Council, with partners the Saskatchewan Ministry of Health (SKMoH), and the Saskatchewan Medical Association (SMA), implemented a provincial health system learning program, the Clinical Quality Improvement Program (CQIP), to educate emerging physician leaders in quality improvement methods. The program was funded by the SKMoH.

The Health Quality Council (HQC) used the following definition of quality improvement for its health system learning program:

> *Clinical quality improvement is an interdisciplinary process designed to raise the standards of delivery of preventive, diagnostic, therapeutic and rehabilitative measures in order to maintain, restore or improve health outcomes of individuals and populations. (American College of Medical Quality (ACMQ), 2010)*

The program aims of HQC's Clinical Quality Improvement Program (CQIP) were that by the end of the program, participants would be able to:

1. Lead and facilitate clinical quality improvement projects;
2. Serve as internal consultants on clinical quality improvement work; and
3. Teach clinical improvement tools and methods to others.

Participants and selection

Potential participants self-nominated or were encouraged to apply by a supervisor or CQIP faculty. Faculty were physicians who had proven leadership qualities and had been involved in quality improvement work previously. Participants required a signature from a sponsor, agreeing to support their participation and project. Sponsors were applicants' department heads or directors in health authorities. The selection process included the following steps:

- Reviewers rated applicants, using a scoring tool, on their proposed project and their experience;
- A selection committee of representatives of the stakeholder groups (SKMoH, SMA, and HQC, along with the Provincial Appropriateness of Care Program, and patients and families) reviewed applications and provided recommendations for admission offers.
- Sponsoring partners (SMA, HQC, SKMoH) approved the final recommended participant list.

Coaches and faculty with training and experience in quality improvement were also recruited. Each participant was assigned a coach. Participants, coaches and faculty were reimbursed for their time and expenses.

Fourteen sponsors sponsored a first cohort of 16 participants, who started the program in April 2017; 14 participants completed the program in December 2017. A second cohort (not included in this evaluation) began the program in November 2017 and has not yet completed.

Delivery model

HQC prepared on-line modules with resource links for participant self-study before each face-to-face session. CQIP delivered four face-to-face two-day workshops for participants in a central location using four physician faculty. Participants were required to select a quality improvement project from their work site, assemble a quality improvement team, work on a specific quality improvement initiative, and report the results during the program. Six peer coaches (three of whom were also faculty) provided support and guidance to the participants and their program project.

Three health regions received funding for clinical resource analysts to act as resources to support measurement for the participants if needed. This role was implemented partway through the

program. Participants were remunerated for their participation in alignment with the rates outlined within the Physician Compensation Quality Improvement Program (PCQIP) administered by the Ministry of Health and funded by the Saskatchewan Medical Association.

Process evaluation (feedback surveys)

During the program, HQC conducted feedback surveys for immediate feedback on the program. These included a mid-point survey of participants and coaches, with both quantitative ratings and qualitative responses, with a response rate of 40 per cent. This survey showed positive evaluations on all components questioned. For workshops 3 and 4, participants completed post-workshop surveys, with full responses from all participants attending. For these two surveys, almost all quantitative ratings of specific components of the program in these three surveys were rated between positively, at 4.0 and 5.0 on a 1.0 to 5.0 Likert scale.

Final (summative) evaluation

The Health Quality Council (HQC) engaged Dr. Lois Berry to lead an independent final evaluation of the Clinical Quality Improvement Program (CQIP). The purpose of the evaluation is to assess the achievement of the program's aims in its first cohort of participants, using an evaluation framework developed by HQC, based on the four-level assessment Kirkpatrick Model for Evaluation

):

- Level 1 – Reaction: How did participants feel about the learning?
- Level 2 – Learning: Did participants learn what was intended?
- Level 3 – Behaviour: Has what participants learned changed their actions?
- Level 4 – Results: Has the learning changed outcomes?

This is the report of that evaluation.

Methods

Framework

The evaluation was based on an evaluation framework previously developed by HQC. This framework, as further developed by Dr. Berry, is attached as Appendix 1. It shows the evaluation components outlined by HQC, those for which HQC had already collected data (which were analyzed as part of this project), and the ones for which we collected primary data. The review team mapped data sources to this framework and designed interview guides and data analyses to answer the questions in the framework. The review team consisted of Dr. Berry, an experienced educational administrator and registered nurse academic, Laurence Thompson, an experienced consultant and program evaluator, and Dr. Cathy Jeffery, a registered nurse and experienced nursing administrator and quality improvement leader.

In overview, the framework included the following domains and sub-domains:

- Context
- Level 1. Reaction
- Level 2. Learning
  - Skills and knowledge
- Level 3. Behaviour (outputs, or actions, by participants as a result of the program)
- Level 4. Results (outcomes by participants)
  - Application
  - Ongoing
- General evaluation
  - Open-ended
  - Barriers and facilitators
  - Other comments

Data collection

Interviews

- HQC sent, in late January 2018, a preliminary notice to all potential interview participants (sponsors, faculty, participants, and coaches), asking them to reply if they do not wish to be surveyed.
- HQC then supplied Dr. Berry email lists for surveys of all CQIP participants (including drop outs), faculty, coaches, and sponsors other than those that declined to be contacted in an initial approach by HQC. The list identified the location where each individual on the list worked, and the role in which they participated in the program.
- Interview requests and reminders were sent in three waves, approximately ten days apart.
- Fifteen to 20-minute interviews were conducted by telephone during February and early March 2018. Interviews closed March 9, 2018.
- At the start of each interview, interviewees were asked for consent to be interviewed, based on the conditions outlined in the interview guides (Appendix 2).
- Those contacted were promised anonymity to HQC in their responses and as to whether they participated or not in the interview.
- Interview questions varied slightly among the three categories of those involved in the program (participants, coaches / faculty, and sponsors). Interview guides are attached as Appendix 2.
- Interviews were conducted by telephone and recorded directly into a computer database.

Evidence review

After discussions with the researcher conducting the program evaluation and a review of the Saskatchewan Health Quality Council (HQC) Clinical Quality Improvement program application guide, a literature review on the broad topic of clinical quality improvement was conducted. The purpose of the literature review was to get an understanding of commonalities in research findings and methodology and to illustrate currently held knowledge on the topic. Search terms included quality improvement; clinical; physicians; physician coaches; mentoring; leaders; interdisciplinary teams; safety; medical quality; and continuing education.

Search terms were applied to the University of Saskatchewan library PubMed, Medline, and CINAHL databases using the date range of January 2011 – January 2018. In addition, articles searched for were in English and both qualitative and quantitative research. The search term of quality improvement coaching yielded in excess of 800 articles. Search term refinement of quality improvement and physician coaching yielded over 80 articles. These articles were scanned for suitability and reference lists were reviewed for additional suitable articles within and outside the date range of the initial search. A general search for the term clinical quality improvement was also conducted to establish congruence with the definition of this term found in the Saskatchewan HQC Clinical Quality Improvement program application guide.

Review of course materials and outputs

Review of the online Moodle modules

The online Moodle modules and project posters were reviewed. Online materials were reviewed in relation to the program objectives, for relevance, creativity, currency and pedagogical approaches. Workshop materials were not included in the review process.

Review of course outputs: project posters

The reviewer assessed the project posters produced by the course participants. These posters summarized the clinical quality improvement projects developed during the course. The intent of this assessment was not to critique the production quality of the posters, but to get a sense of how the choice of topics for the chosen projects meshed with the intended outcomes or objectives of the program.

In-program feedback surveys

HQC provided reports of in-program feedback surveys they had conducted during the delivery of the first cohort of CQIP. Because response rates were lower than in our interviews, covered the same topics, and results were similar, we have not used these data, except for the project progress scores.

Analysis and reporting

Interview comments were recorded as keyboarded notes, then edited after the interview into a narrative form. Comments were analyzed separately from coaches / faculty, sponsors, and participants. Comments were analyzed by themes, with the number responding by theme reported with each theme. In some cases, interviewees made comments that fit more than one theme, or made no substantial comment, so the numbers reported for each theme do not always add to the number of interviewees in that category. Themes are reported in descending order of the number of interviewees who provided comments for each them. Selected illustrative comments are provided for the most frequent themes. Comments reported as quotes are taken from notes, so may not be reported verbatim, but do capture the essence of the interviewee's comment.

Evidence review

The Importance of Clinical Quality Improvement to Healthcare

Clinical quality improvement has been discussed in research and grey literature from the perspectives of types, delivery, and evaluation of training to health care practitioners. Suggestions for successful and sustainable clinical quality improvement have also been identified.

A focus on clinical quality improvement is firmly entrenched in health care (Auerbach, Landefeld & Shojania, 2007; Batalden & Davidoff, 2007). Successful and sustainable quality improvement requires leadership, a team approach, and the knowledge of improvement processes (Batalden & Davidoff, 2007; Leape et al., 2009). It is important to consider an interprofessional approach to sustainable clinical quality improvement (McNamara, Rafferty & Fitzpatrick, 2016). Key to this is the engagement of heath care practitioners in the improvement process (Leape et al., 2009) and in particular physician engagement is identified as important for the implementation and sustainability of quality improvement activities (Caverzagie, Bernabeo, Reddy & Holmboe, 2009).

Importance of Physician Engagement

Along with the acknowledgement that the collaboration of health care professionals working in teams could increase the speed with which quality and safety initiatives are implemented (Leape et al., 2009; Marsden, van Dijk, Doris, Krause & Cochrane, 2012) it is also suggested that quality improvement (QI) cannot be conducted or sustained without the engagement and involvement of physicians (Hampe, 2015; Li et al., 2015). Physicians who have participated in QI education and training report higher satisfaction and more involvement in QI initiatives which enhances physician performance, patient outcomes and QI gains and sustainability (Caverzagie et al, 2009; Cervero & Gaines, 2015; Larkin et al., 2017).

Barriers to Physician and Team Involvement in QI

A general challenge that has been identified to the health care team to be involved in QI initiatives is the lack of education about and training in the skills and competencies required to conduct successful and sustainable QI initiatives (Batalden & Davidoff, 2007; Daniel et al., 2009; Hampe, 2015; Sawka, Ross, Srigley & Irish, 2012). In addition, the factor of release time that is needed to acquire QI skills and competencies and to conduct elements of the QI process presents a challenge in the clinical setting (Leape et al., 2009; Li et al., 2015; Watts et al., 2014). Gaining knowledge and mastery of QI skills and competencies in order to conducting QI initiatives correctly (Batalden & Davidoff, 2007) is time consuming and remuneration models do not always provide an incentive for physicians to be involved (Hampe, 2015; Leape et al., 2009).

Types of Research Conducted

Evaluation of clinical quality improvement initiatives, including training programs, has been studied through the use of both quantitative (Cosimi et al., 2015; Bartman et al., 2017; Larkin et al., 2017; Reichert et al., 2017) and qualitative (Caverzagie et al., Bernabeo et al., 2009; Shaw, Chase, Howard, Nutting & Crabtree, 2012; Watts et al., 2014) designs. In addition, syntheses of systematic reviews and scoping reviews on the topic have been conducted (Cervero & Gaines, 2015; Schwerdtle, Morphet & Hall, 2017).

An approach to building an understanding of the types of quality improvement training and support that facilitate successful outcomes includes the evaluation of an interprofessional training program pre and post competency acquisition (Bartman et al., 2017). Through the use of self-assessment surveys, Bartman et al. (2017) found that participants reported improvement in QI knowledge and competencies which was associated with an increase in QI productivity. Overall gains in QI

competencies also continued after participants completed the training program (Bartman et al., 2017) which could contribute to the sustainability of QI initiatives (Watts et al., 2014).

The evaluation strategy of measuring pre and post gains in QI knowledge, competencies, and productivity has been used with primary care teams (Cosimi et al., 2015; Reichert et al., 2017; Watts et al., 2014). Watts et al. (2014) used a mixed methods approach to gain an understanding of the connection between QI training and resources such as coaching and data analysis support and sustainable QI initiatives. This study revealed that along with training and ongoing support, dedicated assistance with coordination functions could enhance the execution and sustainability of QI initiatives by primary care teams (Watts et al., 2014).

Health care practitioners who participated in or had access to QI training and resources were more likely to report successful experiences with the implementation of or involvement in QI initiatives (Caverzagie et al., 2009; Shaw et al., 2005). In a qualitative study to explore the impact of a hospital-based practice improvement model, physicians identified that new learning about QI principles and activities provided value to their practice and enhanced satisfaction with QI experiences (Caverzagie et al., 2009). The Shaw et al. (2005) qualitative approach to the effectiveness of QI training for practice-based teams revealed that training enhanced empowerment of the team to advance change. In addition, the potential of QI training and collaboratives to disseminate health care innovations was suggested (Shaw et al., 2005).

Through a synthesis of systematic reviews on the topic of Continuing Medical Education (CME), Cervero and Gaines (2015) reported that CME in general has a positive impact on physician performance and patient outcomes. Larkin et al. (2017) conducted a pre and post intervention study to gain an understanding of the effect of a dual intervention of CME and QI coaching on physician practice. The results revealed that this dual intervention approach to training demonstrated success in improving physician performance and QI gains in patient outcomes (Larkin et al., 2017).

Types of Education and Training

Training and acquisition of skills is a key factor to physician and other health care practitioners' participation and leadership in QI (Caverzagie et al., 2009; James & Lazar, 2007; Leape et al., 2009; Li et al., 2015; Marsden et al., 2012). Daniel et al. (2009) suggest that education and training focused on the acquisition of QI skills is needed because of the lack of exposure to and training of the steps of QI in undergraduate or post graduate health sciences education (Daniel et al., 2009; Hampe, 2015; Sawka et al., 2012).

Strategies for the delivery of education about and training of QI skills for clinical quality improvement have been described in the literature. Utilizing adult learning models to design and deliver QI education and training provides an interprofessional approach that can facilitate team learning and support (Bartman et al., 2017; Reichert et al., 2017). Reichert et al. (2017) identified the additional benefit of this collaborative approach to linking QI training and programming with improved clinical outcomes in primary care. The delivery of QI education and training over a period of time facilitated the measurement of the effectiveness of the initiative (Bartman et al., 2017; Cosimi et al., 2015; Larkin et al., 2017; Li et al., 2012; McNamara et al., 2016). Cervero and Gaines (2015) reported more positive outcomes for physician performance and patient outcomes with CME activities that are offered over a period of time which supports the connection between duration and effectiveness of education and training.

A variety of mixed approaches to the design and delivery of QI education and training include the use and offering of formalized sessions, distributed learning resources, and ongoing training and support (Bartman et al., 2017; Caverzagie et al., 2009; Cosimi et al., 2015; Larkin et al., 2017; McNamara, et al., 2016; Reichert et al., 2017). Positive outcomes from QI education and training were associated with learning activities that were interactive, used various methods of delivery and exposure to QI curriculum content (such as didactic, workshop, experiential, and online methods),

and that were focused on the clinical outcomes that participants, including physicians and health care teams consider important (Batalden & Davidoff, 2007; Cervero & Gaines, 2015; McNamara et al., 2016; Watts et al., 2014). This is supported by QI training programs that involved physicians and healthcare teams to focus on clinical issues in their areas of practice (Larkin et al., 2017; McNamara et al., 2016).

Mentorship emerged as an important component of QI education and training. This included mentorship of participants during and after QI education and training programs (Bartman et al., 2017; Batalden & Davidoff, 2007; Cosimi et al., 2015; James & Lazar, 2007; Larkin et al., 2017; Li et al., 2015; Marsden et al., 2012; McNamara et al., 2016; Reichert et al., 2017; Schwerdtle et al., 2017; Sawka et al., 2012; Shaw et al., 2012; Watts, et al., 2014) in addition to developing mentors in clinical quality improvement ongoing (Bartman et al., 2017; Cosimi et al., 2015; Larkin et al., 2017; Li et al., 2015; Marsden et al., 2012; McNamara et al., 2016; Schwerdtle et al., 2017; Sawka et al., 2012). Mentorship was also identified as a key factor in facilitating improvements in clinical practice and patient outcomes (Cosimi et al., 2015; Larkin et al., 2017) and in influencing high physician satisfaction levels when paired with QI training (Marsden et al., 2012). The development of mentorship was identified as having potential to move QI initiatives forward (Batalden & Davidoff, 2007; James & Lazar, 2007; Sawka et al., 2012) and to enhance both the spread of knowledge and training (Marsden et al., 2012; Schwerdtle et al., 2017). In a scoping review of the role of health care provider mentorship, Schwerdtle et al. (2017) suggest that more research is needed on the impact and outcomes of formal, informal, clinical expert, in person, and remote mentorship particularly in low clinical resource contexts.

An interesting finding from a review of the types of QI education and training provided and the outcomes was the issue of data analysis and management. In a pre and post QI education and training program self-reported QI competency survey, Bartman et al. (2017) reported that participants identified the area of least improvement was in the area of data management and analysis. Possible explanations for this finding included difficult mastery of the content, possible deficits in coaching and mentoring in that domain, and less focus by participants in data analysis related to institutional support (Bartman et al., 2017). Watts et al. (2014) suggested one strategy to address this could be to align QI work with other clinical performance metrics so that data could be more easily accessed and translated for QI initiatives by health care teams. Measurement of system performance and patient outcomes is a key competency for clinical quality improvement (James & Lazar, 2007; Sawka et al., 2012). Incorporating strategies to facilitate the acquisition of skills in the area of data management and analysis into QI education and training and the execution of QI initiatives could facilitate the spread and sustainability of good outcomes (Auerbach et al., 2007; McNamara et al., 2016; Reichert et al., 2017).

Facilitators to Physician and Team Involvement in QI

Because clinical QI initiatives require the involvement of health care teams to lead implementation in a timely manner, there should be identification and consideration of the removal of barriers to this important work (Leape et al., 2009). QI education and training curricula should be built on the principles of adult learning and should include input from clinical experts (James & Lazar, 2007; Cervero & Gaines, 2015; McNamara et al., 2016; Reichert et al., 2017) and should offer a combination of learning strategies over a period of time with a mentorship or coaching element (Bartman et al., 2017; Batalden & Davidoff, 2007; Cosimi et al., 2015; Larkin et al., 2017; Marsden et al., 2012; McNamara et al., 2016; Schwerdtle et al., 2017). Key areas to consider are release time to do QI work (Watts et al., 2014; Leape et al., 2009; Li et al., 2015), remuneration for QI work (Hampe, 2015), and support with data acquisition and analysis and facilitation of operations needed to implement QI initiatives (Shaw et al., 2012; Watts et al., 2014).

Findings

Review of course materials and outputs

Review of the online Moodle modules

The CQIP website indicates that the CQIP program is an eleven-month program "designed to build capability for leading improvement work with a particular focus on **clinical** quality improvement" (emphasis in the original). Clinical quality improvement is defined as " an interdisciplinary process designed to raise the standards of the delivery pf preventive, diagnostic, therapeutic and rehabilitative measures in order to maintain, restore, or improve outcomes of individuals and populations" (ACMQ, 2010)

The Moodle site contained 5 modules, each with multiple subsections. The overarching titles included:

- Program Orientation;
- Improvement Science Fundamentals;
- Making Meaningful Improvement: Improvement in Action;
- The Testing and Learning Cycle; and
- Implementing Change.

Each unit generally followed a standard format, concluding with links to the sources cited, and a section titled "Learning more", which contained numerous links to additional resources and background information. Each module contained resources on the foundational theories and approaches to Quality Improvement (QI), and specifically, clinical quality improvement (CQI). Modules included many video links to animated whiteboard presentations and presentations by prominent QI scientists, as well as published articles, PowerPoint slides summarizing theoretical points, and text linking the concepts and providing examples.

The modules were posted on the Health Quality Council website. They were extremely well structured, with engaging content that outlined the ideas well. They were easy to use, and all links were in working order. There were a number of unique touches in the construction of the modules that facilitated the participant's use and learning. For example, included with each video link was a statement indicating how long the video ran, allowing the reader to determine whether they would forge ahead or leave the video to watch for another time. Most of the videos were short (2-5) minutes, which encouraged the participant to carry on.

There was a good balance of resources from internationally recognized leaders in the field, interspersed with examples of local Saskatchewan CQI initiatives. Frequently, reflection questions were included following articles or case studies, challenging the participants to reflect on whether they would have responded in the same way as those in the case study did, what alternate approaches could have been used, and how the article or case study enhanced understanding of the concept that was being addressed in the module.

Although the modules included ample QI theoretical background, they were also highly practical in nature, teaching and demonstrating skills that the participants required in completing their own course projects. All of the modules included a section titled "Next Steps in Project Work" which included specific directions and expectations regarding where the participants should be in their project work. Specific directions were given for preparation for the next scheduled workshop, as well as stated expectations for the timing of coaching check-ins.

There was considerable consistency between the reviewer's findings regarding the modules and the feedback provided by the participants. As noted in the feedback during interviews (p.10), participants' comments about the modules included phrases such as "remarkable", "relevant", "timely", "methodical", "hands-on" and "important information".

Review of course outputs: project posters

Topics of projects completed by course participants included:

1. Antimicrobial stewardship rounds in ICU;
2. Reduction of unnecessary tests in the management of pediatric bronchiolitis;
3. Reducing wait times and increasing early treatment in pediatric psychiatry;
4. Optimizing use of palliative radiation for patients with bone metastasis (reducing inappropriate use);
5. Reducing unnecessary preoperative investigations;
6. Establishing protocols for assessing risk, guiding treatment, and reducing risk for venous thromboembolism for abdominal/pelvic cancer patients;
7. Transition to use of ultrasound rather than CT angiography in patients with endovascular abdominal aortic aneurism repair;
8. Reducing the use of ultrasound in the diagnosis of clinical inguinal hernias;
9. Improving management of patients with COPD exacerbation (timely community referral);
10. Developing a breast pathology subspecialty model to improve accuracy of diagnosis of breast pathology, reduce turnaround time, and improve care;
11. Determining the state of and improving internal medicine discharge summaries;
12. Use of a shared care model to reduce time to psychiatric consultation; and
13. Increasing the uptake of HIV testing .

The focus of the projects fell into the following categories:

- Reducing unnecessary care (2, 4, 5,7, 8);
- Increasing access to care: (3, 9, 12, 13); and
- Improving the quality of and standardized approaches to care: (1, 6, 7,9, 10, 11).

Each of these projects met the broadest definition of clinical quality improvement. They fell within the categories of preventive, diagnostic, therapeutic and rehabilitative measures, and focused on maintaining, restoring, or improving the care of individuals or populations. As the course participants led the development and implementation of the projects, one could conclude that the project provided them with experience in leading a clinical quality improvement project. The reviewer was unable to comment on the contribution of the experience to the development of participant leadership capabilities from the assessment of the posters, but participants commented when interviewed that the project definitely contributed to the building their leadership capabilities.

Participant characteristics

Participant characteristics (of 15) included:

- By gender: male (9), female (6);
- By career stage, generally early to early-mid-career (from interview comments); and
- By location: Saskatoon (9), Regina (3), and regional cities (3).

Interview response

- Twenty-one interviews were completed, a 55% response rate of 38 participants, coaches, faculty, and sponsors eligible to be interviewed. There were three refusals. The balance of 14 eligible interviewees did not respond to the three waves of request and reminders.
- Of interviews completed, 5 were coaches / faculty (56% response rate), 10 were participants (67%), and 7 were sponsors (47%). (One respondent had a dual role as a coach and sponsor, but was interviewed as a sponsor.)

- Positive responses for interviews to the three waves of requests / reminders were 8 (21%), 5 (13%), and 8 (21%), respectively.

Context

Involvement in CQIP

Participants reported that they became involved in CQIP by seeing advertising and applying (5) or being approached by a senior manager / sponsor and encourage to apply (5). (Numbers in parentheses indicate the number with each response.) Six had been already involved in quality improvement, while four were new to the area.

Coaches and faculty reported that they became involved in CQIP by already being involved in provincial or RHA QI initiatives (2) or being asked by HQC (1).

Sponsors reported that they became involved in CQIP by encouraging a colleague they supervised to apply (5), being approached by the applicant (1), or being approached to act as a sponsor by their supervisor (1).

Sponsors who encouraged colleagues / reports to apply said that they selected whom to ask based on the participants' interest in and enthusiasm for quality improvement (3), the importance of the participants' work responsibility to quality improvement initiatives (2), and the sponsor's ability to work well with the participant (1).

Roles

Coaches and faculty described their roles as follows:

- Coaches coached one to four participants. Some coaches / faculty reported attending some or all four workshops.
- Several coaches / faculty reported previous involvement in provincial quality improvement initiatives and having taken the Intermountain health system quality improvement course in Utah. Others had less previous experience.
- Learners required little coaching (1).

Sponsors described a range of roles and involvement with their participants as:

- Providing time off for participants to participate (2);
- Ensuring participants had the support and teams they needed for their projects (2);
- Reducing the scope of the participant's projects to make it manageable (1);
- Playing a limited role, relying on the participant to contact him / her if needed (1);
- Provided advice on team building (1);
- Organizing Health Region meeting with participants and various experts / supports (1); and
- Attending project team meetings (1).

Sponsors also reported a range of how often they were in contact with participants while the program was running from ongoing discussion to minimal contact:

- Had ongoing, informal discussions (1);
- Met weekly (1);
- Attended team meetings (1);
- Met several times (1);
- Had minimal contact (3).

One of the sponsors had a participant who dropped out part way through the program.

Sponsors described a range of contacts with participants since the program completed:

- Ongoing contact in same department / project / initiative (4);
- Encouraged participant to present to and mentor colleagues (1);
- Awareness of the ongoing QI work of the participant (1); and

- No ongoing contact (1).

Level 1 - Reaction

Engagement in the program

To assess to what extent participants were engaged in the program, we examined available data provided by HQC on the 16 original participants' use of coaching time, participant on-line engagement, workshop attendance, and graduation.

- Coaching time billed by coaches was 44.5 hours, although HQC cautions that not all coaches may have billed all their hours devoted to coaching.
- Workshop attendance (Table 1) was almost 100 per cent among participants who remained in the program.
- We did not have useable data on online engagement from HQC. However, in interviews, all participants interviewed provided feedback on the online modules, indicating that they had accessed them.
- Fourteen of 16 participants starting the program completed it. Two participants withdrew from the program after Workshop 2 due to time pressures.

Table 1. Workshop attendance

Workshop	Attendance / 16 original participants	
	Number	%
1	15	94
2	15	94
3	14	88
4	13	81

Assessment of the learning experience

Participants and coaches / faculty were asked to assess the learning experience in specific areas:

- Materials and content;
- Learning activities;
- Pacing and effort;
- Networking and peer support;
- Coaching support;
- Other program supports; and
- Logistics and arrangements.

Participants and coaches / faculty were also asked what would make delivery of the CQIP program even better (improvements).

Materials / content

Participant responses on materials content were:

Almost all participants reported that overall the materials and content were excellent / well done / timely (9):

> *For a one-year program in this time constraint a lot was covered. More could have been covered in depth, but in reality, participants had only so much time.*

Very thorough, very positive. Content was very positive. Some of it was quite surprising to me, such as the topics around different ways of thinking, creativity, personal development.

The content was remarkable and very timely. A lot of hard work went into creating the online modules, with relevant content and updated with new literature. The content was very relevant. I appreciated learning about how to shift from relying on research methods to CQI methods.

Excellent. It was a really good general overview of QI methods.

It was very thought out, a methodical approach to the content. Overall it was very appropriate. I felt comfortable by end that I had the background to do my own projects.

The program offered a wide variety of content, centred on evaluating whether change is occurring, working with teams, working and with challenging situations. Overall the content was very good, relevant, with a lot of hands-on advice provided from experienced speakers.

- Would have liked reflection on the on-line modules during the workshops (1).
- More focus on the process [of what, was not clear] (1)
- More content before the determination of a project (1).
- More on change processes and interdisciplinary teams (1).

I would have liked a bit more discussion on day-to-day realities of doing this -- the psychology of change. QI is basically a change process that can involve many professionals. Change is never easy. Also change always involves other programs and professionals. The CQIP program is focussed on physicians; for the health system to benefit from it, it should be beyond physicians.

- Metrics session was a favourite (1).

One session where a person gave a session on metrics for quality improvement using different methods was my favourite session. It was new approach into looking at data and how much data you need to demonstrate a significant change, moving away from research methodology to [operational] quality improvement using run charts. I also had the opportunity for individual consultation on metrics for my project.

Coaches / faculty had a range of evaluations of the materials and content, from adequate to exceptional. These views seemed related to their previous training in quality improvement. Those who had had more training were more critical, those with little previous training were very positive.

Excellent!

It was exceptional.

The content was reasonable. It helped to understand the process. There could be room to improve, yes.

The cohort was . . . very engaged in lifelong learning. So, it was not a matter of us teaching, but of the cohort learning. Deficiencies in the content were irrelevant. These learners could track down the materials on their own. Content was not ideal, but was adequate.

Learning activities

Asked to assess the learning activities (other than the project) participants said:

- Overall, the learning activities were good (5)

The structure made sense . . . . Congruence was great, made it both relevant and practical.

All contributed to the overall learning. The program ended up being a lot more than I expected because of the learning opportunities.

They were very applicable. We did quite a few activities in the workshops. Everyday experiential learning helped put theory into practice.

- The Moodle website was helpful (5).

  The online modules were well put together and had important information. they provided a minimum of what you needed to know, with links to more articles and video presentations for more in-depth learning. That was very helpful.

  They were good. The Moodle website was very helpful. I could go at my own pace, it had excellent resource materials. You could go as deep as you wished.

- The networking and exchange was excellent (2).

  When we met in person, it was great to be able to give feedback to each other. All of us had different backgrounds, and our projects were diverse, but we were able to give feedback to each other to enhance our projects. We were all engaged in each other's' projects. That was a surprise [given the diversity of our projects].

- Other (1 response each):
  - Text books were not used;
  - Reading materials were good;
  - Focus should be on team building and engaging people;
  - Workshops were helpful; and
  - The chat function on the Moodle was awkward -- perhaps use Twitter to interact between sessions.

Coaches / faculty views on the materials and content were generally positive, although there were some critiques.

Web site content and structure was pretty light and did not stress important things or go into depth enough, but learners tracked down other resources.

Some content delivery by experts was excellent, high-quality.

Good. One thing that could be done better is to have some extra activities. Some days did run short -- although the sessions were very intense.

In workshops, there was lots of time for group discussion. It was fine -- collaborative, with lots of opportunities for discussion.

On-line modules give a lot of useful material. The material sometimes was borrowed from some other places and that was useful. Sometimes it was not clear how to use it.

Pacing, effort

Asked to assess the pace and flow of the program, participants reported that:

- It was good / great / fine (7).

  Once it got going it was very good.

  Very manageable. I expected a bit more reading. It was lighter than I expected. Workshops were nicely spaced.

  It was great. It was important that participants had to do their homework before we met in person. Access to the online modules worked well with our schedules. The modules were provided well in advance of sessions. For workshops the purpose was to enhance the content and not to review it all again. That worked really well. The program was really well organized around physician schedules.

Fine. The program was extremely well paced. It gave time for self study between the modules.

- The pace could have been faster (4).

  The pace could have been brisker.

  Pace was appropriate given that workshops were two-day quarterly weekends. They could have picked the pace up a little on last afternoon of each session, but the value of those and of the evening meals was the interpersonal / interprofessional relationships that were built up. You see the value later when you meet with fellow participants again [and have a connection].

  There was time at the beginning that could have been used better. It felt like nothing much was happening, then we had our first workshop.

  The last session was a bit slow. That was the wrap-up session.

- Time management was a concern (2).

  I struggled to find the time to get ready for everything. I used holiday time.

  The pace of the rest of my life interfered sometimes!

- Theory should have been introduced earlier (1).
- Workshops should have been spaced out more (1).

Some coaches / faculty interviewed were more critical in their assessments (2). The points they made were:

- Timing should have been over an academic, rather than a calendar year, as "summer holidays occurred during the meat of the projects".
- The pace of the workshops lagged when there was not a "deep dive" into the content. Some of the networking time dragged.
- There should have been more support up front to get the projects started.
- There could have been more teamwork development early on.

- Others were satisfied with the pace and flow (2):
  - The content progressed well, from concepts to learning specific skills.
  - The pace was very good; results depended on the motivation of the participants.

Networking and peer support

Asked about peer networking opportunities among participants and between participants and coaches or faculty, participants were unanimous that this was one of the most valuable parts of the program:

- There were many, valuable opportunities for networking (10)

  It was an invaluable piece of participating in the program. We don't have that many opportunities to get together in that way with like-minded people with similar enthusiasm and interest in QI.

  Networking was a surprising and absolutely invaluable opportunity. The suppers and the time for networking were one of the most valuable parts, especially for those of us who work in small centres.

  This was one of the perks for sure -- a fantastic opportunity to meet with colleagues across the province.

  Wonderful. It was excellent. Social occasions were good. But now the program is done, the peer networking is done too.

  When talking with coaches and faculty it meant we could interact in a very different way. It created a camaraderie. It allowed us to know a little about each other

beyond our professional interfaces. We also talked around bigger system issues. The value of this program is underappreciated at the time. There are fruits to come down the road as we better understand the systems beyond our personal fiefdoms.

That part was essential to the program for personal learning and for stimulating my thoughts from what others were doing in their projects. The projects were quite diverse, so we learned from each other. It was like a brainstorming session.

- One participant also noted in particular that faculty were approachable (1)

Coaches / faculty said that peer networking opportunities were generally very good.

A lot of that was scheduled. A lot occurred off line, at social event. It was a very natural interaction. Relationships among participants. were developed quickly and naturally.

With coaches, networking was under-utilized.

Very good -- one of the highlights. Every session did a social gathering in the evening - that really helped to bring the group together.

Coaching support

Asked in interviews about coaching support, participants said that:

- Coaching was valuable (9)

  My relationship with my coach in particular was great. We were able to set aside time to have coffee and discuss my project and to get feedback. I was really impressed with how devoted participants and my coach were to the projects.

  Mine was very good. My coach was always available and [her/his] feedback was very valuable. His viewpoint was different enough that he could think of things I hadn't thought of.

  I was fortunate to have very good local support from a coach with a lot of experience and who was a local colleague.

  It was good. [S/he] was practical and grounded in reality and knowledgeable about the change management process. Coaches should be people who have both feet on the ground.

  Discussions and advice were very helpful.

- The coaching relationship should be better defined (3).

  I didn't use my coach very well. My coach stepped back and waited for us to come to them. I would have benefited from them reaching out more. It was valuable, I just didn't take advantage of it.

  Coaches really relied on participants to approach them. Coaches were there to provide backup and support.

- Coaches should be co-located (2).

  My coach was not in the same location, so that was more challenging.

- Most coaches attended all workshops (1)
- Coaches could have been used more effectively (1).

  I wish [coaches] could be used more effectively and meaningfully. . . . One of the most important parts of the project is that on day 1 we should be split into smaller groups to have a deeper look into each project, made up of people with different backgrounds, and each group should have a coach who is not involved in the project. Spend two hours on this on day one. This could also be an exercise on module learning, reflecting on what we have studied.

- Coaches should have coaching training (1).

Coaches / faculty said that the extent of their coaching support depended on the participant (2). Two reported that coaching general went very well, one wished the candidate had had more contact with her/him.

> *This worked very well.*
>
> *I touched base a lot and provided some high-level support.*
>
> *One individual I had very little contact with, and their project went very well. I was not used a lot as a coach.*
>
> *It depended a lot on the candidate. Some used me very effectively. A couple I wish had used me more than they did. We were guided not to chase after them.*
>
> *Very good. There were monthly calls among coaches and faculty organized by HQC. They were fine. It was nice to check in for 15 minutes or so. My participant was talented and sailing along quite nicely.*

Other program supports

In interviews with participants, we asked specifically about clinical resource analysts provided part way through the program to support data gathering and analysis.

Participants said that:

- They used clinical resource analysts / they were supportive (5).

> *I had access to this . . . . [S/he] was kind enough to be constantly in touch, to offer support. I also had local support, so that was not an issue.*
>
> *Clinical resource analysts were available. I didn't require a lot of their support. They were always available, reaching out. My project did not require a lot of outside support.*
>
> *There was extremely useful support from the statistics service. It was delayed getting going, but then . . . was very helpful. At the start there was a misunderstanding about their role and our needs -- they came at things from a research background, rather than QI. It took a while for them to reach an understanding of our QI needs.*
>
> *I did use this support. . . . A position was created to support my project as well as the other projects. That was hugely beneficial.*

- They did not use a clinical resource analyst (4).

> *Mine came on board near the end of the project, so I did not use it at all. It would have been a big asset.*
>
> *For my project I did not really use [her / him] as much as others did.*
>
> *I didn't use the clinical resource analysts because I didn't get the data collected in time, but I will now use them as my project finishes.*
>
> *I did not directly use the clinical resource analyst. . . . I was aware of [it], but didn't use it because I already had access to similar support.*

- Sponsors should have more involvement (1).

> *I wish that program sponsors were involved, at least in the first workshop. This would help define expectations, projects, support. They came only to the capstone ceremony.*

Two coaches / faculty said the clinical resource analysts were invaluable, but they were put in place too late in the process.

Participants used the clinical resource analysts; I encouraged them strongly. They . . . . needed this support [as otherwise analysts would require data sharing agreements for central analysts to use.] . . . . Problem was RHAs took a long time to hire analysts. In the end it all worked.

We were late getting clinical resource analysis up and running. The program would not work without the clinical resource analysts, admin support, etc.

One coach / faculty was unware of this resource.

Logistics and arrangements

Participants had the following comments about the in-person workshops:

- Location
  - Location was good for those from Saskatoon / convenient central location (6).
  - Commuting was a commitment for those from out-of-town, but the face-to-face meetings were a bonus (2).
- Hotel / general arrangements
  - Hotel / arrangements were good / fine / comfortable / wonderful (7).
  - Access and parking were good (1).
- Meeting room
  - Room was cramped (1).
  - Room was too cold (1).
- Meals
  - Meals were amazing / very good (4).

Coaches / faculty had the following comments:

- Location
  - Meeting in Saskatoon seemed convenient for people (1).
  - Having a 2-day session to justify travel was good (1).
- Hotel / general arrangements
  - Staying in same hotel overnight worked well (1).
  - Did not like hotel (1).
- Meeting room
  - Needed more breakout space (1).
  - Small, hot and stuffy (1).
- Meals
  - Food was great / good (2).
  - Not great (1).

Suggested improvements in delivery

Participants were asked what would make the process of delivering CQIP even better. There responses were detailed and ranged widely. They included:

- Address sustainability of the project after the CQIP program (2).

  Development of a follow-up process for participants to have ongoing mentoring . . . . long-term program management and mentorship of the participants.

- Miscellaneous (1 mention each)
  - Call participants improvement facilitators, rather than participants.
  - Encourage people from smaller hospitals to be more involved in CQIP.

- The defect check sheet should be part of the documentation used.
- Hold the first face-to-face session a little sooner.
- Pair people to participate together in projects.
- Give students an opportunity to touch base with faculty between sessions.
- Local factors were bigger barriers for me -- getting the information I needed, getting road blocks removed. They were sorted out.
- Use the CQIP projects to look at improvements that would have a broad impact on the system and that benefit patient care.
- At the front end, pair physicians up with support personnel (team) instead of having to create a team on your own.
- Plan for the fact that chart data is not complete for three months after a patient admission.
- It would have been helpful to have information from the workshops to help develop my project.
- More connections between administrators (sponsors) and physicians to support projects.

Coaches and faculty said that what would make the program better would be:

- A learner-driven philosophy (1);

  To realize we are not teaching, that participants are learning. A lot of time was spent on web content, when it could have just been assigned readings, flipped classroom mode.

- More activities when the program lagged (1);
- More support to get projects up and running (1);
- A social night before the first workshop (1); and
- Nothing (1)

Level 2. Learning

Skills and knowledge gained

Participants, coaches and faculty, and sponsors were asked whether participants learned the skills and developing the knowledge intended by the program in two areas: project development and management, and project documentation.

Sponsors reported that from what they had seen, their assessment of how well the participant(s) learned the skills and developed the knowledge intended by the program was that the participants they sponsored learned well.

[S/he] learned a lot, and of course has more to learn.

I would say [s/he] did advance [her/his] learning. [S/he], like many participants, already had the right mindset, already had a pre-existing interest and had already done some of his own learning. So CQIP reinforced what [s/he] already knew.

Project development and management

During the program, HQC asked participants to assess their project progress at each workshop. The responses showed steady progress through the program. Their scores at the fourth, final workshop showed that on average, participants assessed their projects as being between "3. Changes tested, no improvement" and "4. Improvements achieved".

Table 2. Project progress during the program

Workshop	Average Project Progress Score
1	1.6

2	2.0
3	3.1
4	3.7

Scale categories are:
1 Project established
2. Project planning
3. Changes tested, no improvement
4. Improvements achieved
5. Sustained improvement
Source: Adapted from the *Assessment Scale for Collaboratives,* Institute for Healthcare Improvement (2004). Available from www.ihi.org/resources/pages/tools/assessmentscaleforcollaboratives.aspx

In interviews, participants reported that:

- Yes, they learned the skills and knowledge (7)

  Two important lessons that I am thankful for learning are effective communication and engagement with my colleagues and the human dimension of change.

  I am confident in trying to do more. I can start and develop a project and know where to find help.

  I benefitted from learning about project management in building a team and learning those skills.

  They did a very good job in teaching us the basics.

  I feel like I could, going forward, do another project.

- One knew the skills already, but learned more (1).

  I was familiar with the tools before . . . . [but] it really sensitized me to the opportunities for improvement in our data collection.

- Did not directly address this question (2).

Coaches / faculty reported that, overall, participants learned the skills and developed the knowledge intended by the program:

> *A+. They really learned the skills, despite the shortfalls.*
>
> *Pretty much all of them put a lot of effort in and came away with what was intended.*

Specifically, in project development and management, coaches and faculty reported that all participants they coached did well.

> *Very well. We had very good conversations where [s/he] would run stuff by me, and I would give thoughts about scope, to narrow it, as it was too ambitious to start.*
>
> *They learned adequately. All projects went forward.*
>
> *They learned a lot about the role of the sponsor, how that helps with a project to remove barriers, etc.*
>
> *They did very well. They wanted to learn and wanted to do things, so did very well.*
>
> *Some of them made more progress than others -- but in a way the ones that struggled the most learned the most.*

Sponsors reported that participants learned a lot / advanced their learning / reinforced what they already knew (4);

[The participant] learned a lot. [S/he] already had already done some QI work. But now [s/he] has street cred. [S/he] always was concerned about quality. What [s/he] learned is that [s/he] can build teams in our group, and that is happening.

I saw tremendous growth. It was quite exciting to be involved in. At first [s/he] was tentative because it is a lot of work. As [s/he] took the sessions and came back, you could see the lights go on as to how to work in the system and use data to support [her/his] proposal. Each time we met [s/he] had another aha about how the system could support [her/him].

Other sponsor comments included (1 each):

- A participant needed to focus more on team building, rather than doing individual work;
- A participant learned how to build teams; and
- The CQIP program did a great job.

Project documentation

Most participants' assessment of their learning of skills and knowledge in project documentation, such as A3s, driver diagrams, and run charts was positive (6)

Good. Some were more useful than others. It was good to be exposed to the breadth of what is available. Workshops were really helpful. It was one thing to read about these tools, but being able to ask questions of someone who had used them, working through examples, was really helpful.

I am aware they are there and that I could use them. I am not competent, but I have the knowledge to get started.

We had a chance to learn the language and try everything out. Now we have to apply that knowledge. They did a very good job in teaching us the basics.

These were very helpful. Prior to CQIP I did not understand how much they could help you do a project.

- Two participants reported that they were already familiar with the tools.
- One participant did not yet feel confident enough to use the tools.
- One participant did not respond to this question.

Coaches and faculty members assessment of how well participants learned project documentation was overall positive (4), but one participant critiqued the teaching of these tools:

They learned very well. They are using it now.

They learned them adequately but fairly superficially. . . . . We could do a better job of teaching these.

Sponsors' assessments of the same area were generally that the participants learned these skills and knowledge (5). Several sponsors also commented that they were generally more familiar with projects of participants than with the skills they had learned.

I think [s/he] did okay. I know [s/he] used them, but [s/he] didn't actually share them with me.

Level 3. Behaviour

Application of knowledge and skills during the program

Coaches / faculty were asked how well participants applied their knowledge during the program. Coaches / faculty were very positive about their participants applying their knowledge to complete their assigned tasks.

All were prepared, they were exceptional in that way.

100% complete. Excellent poster and presentation.

Project progress

In applying their knowledge to their projects, coaches / faculty said:

- Participants did well (2).

  Project tools were entirely appropriate to the problems they chose. A problem with Lean had been that participants were required to use every tool on every project. That did not make sense. In contrast, here every project had a tool set, they could choose to apply.

  Project was very practical and appropriate.

- Participants' application of knowledge was variable (2).

  At the end of the day they all got it, but for some it took longer.

  They applied it and found some errors in it and learned all the pitfalls of QI and were able to address them. Now they are expanding and using the skills very well.

Ongoing application

Asked if they had seen any examples of participants applying their new knowledge in their organization since the CQIP, all six sponsors said yes.

Now [s/he] is thinking and structuring the questions, engaging other physicians and others in the project. [S/he] is scoping the project.

The participant is very involved in high-quality Connected Care teams in our areas. I see the struggle to use the tools. We need more physicians to know the tools before widespread use.

Level 4. Results

Project impacts

Improvements achieved and sustained

Participants were asked what, if any, had been the impact of their projects on clinical quality improvement. Responses included:

- The project is still underway, so it is too early to assess impact (4).

  I have a team here; the project is still going on. I have taken some simple measures, and have achieved the measures I aimed for. The next part of the project was to select the treatment part. That is the next step, to implement that.

- The project accomplished its objective; now, in some cases, the approach is being expanded to other areas (4).

  Since we started the intervention . . . we have seen a 20 per cent decrease in use of [inappropriate treatment] and a rise in use of [more appropriate treatment].

  The impact is ongoing. The little area I worked on [in my project] has been completed. Now I have been tasked with taking on other areas.

  The impact was an increased referral rate to the local program to the point that the program had to re-evaluate their capacity to take on new patients.

  To sustain it is the key now.

- Improvements have been made, but are not quantifiable or have not been sustained (2).

  A different way of thinking about things. When I run into a road block at work I have a way to approach it. I don't get frustrated like I used to. I have ways to approach change.

There has been an improvement in awareness and some increase in opportunities for testing. It has not been sustained; we have had successful trials, now we have to sustain it.

Among sponsors, two of seven sponsors interviewed had participants who withdrew from CQIP before starting a project. One sponsored two participants. Of the six participants assessed by six sponsors, all six sponsors were familiar with their participants' projects. Their assessments of participant project outcomes were that the project had not yet reached a stage where outcomes could be assessed or reported for five participants' projects, and that there was already clinical quality improvement in one participant's project.

Potential for improvement

Asked about the potential for clinical improvement gains in projects, coaches and faculty said there is potential evident, but it will take more time to demonstrate (4).

Potential was evident at the sign out. . . . Gains in patient care were evident in all projects. Patient care improvement was part of the orientation from the outset. All projects kept that focus

There are some examples of where it has already gone on. Some are continuing to finish their projects and spread it elsewhere, and to continue their projects in their clinical areas.

I think it will improve, but it will take a little more time.

Sponsors were also asked about the potential for clinical improvement gains from the projects. One sponsor had already seen clinical improvement, and three were optimistic about the potential for improvement from the projects. The others were not yet able to make an assessment. Comments included:

There is already clinical improvement in [one area]. Now we need to apply the same principles to [other similar areas].

Not yet; it has not moved to that extent yet.

I haven't yet seen the final project report.

There is good potential. The participant also started to realize some of the issues of working within the system [to make changes]. S/he learned a lot.

Five of the sponsors saw potential for clinical improvement from this ongoing work.

This [project] is a first step to spread the concept through the [organization].

From a patient perspective, if we can stay on track to get them the right prophylaxis we can prevent harm to them.

[S/he] will continue to be an advocate for this work and continue the work he started in his project.

Ongoing quality improvement results

Application of learning to ongoing quality improvement work

Asked, "What use of your learning are you making now in your work", nine of the participants reported examples of how they are using their learning in other areas or daily work beyond their initial project.

Scheduling of patients.

The program has given me some tools to move forward with a lot of projects we were going to do, but now I can do a much better job of them.

It is important to find innovative strategies that are less resource intensive. We are launching a mobile app with . . . recommendations and pathways . . . to use locally.

I am now looking at our office and how to use data to improve office efficiency.

I am pushing IT and health info management people [for better data].

Now it is part of our area portfolio to continue this [quality improvement] in our [broader] service line.

This project has spawned another project around . . . protocols across [our city. . . . We are getting [an interprofessional] working group together.

Yes, I am making use of it in other groups and committees, applying the knowledge in these areas, such as working with teams.

- One person was still engaged in the initial project, and had not yet expanded their focus beyond that work.

Participants said they were unable to assess improvements in clinical quality from their expanded use of their learning yet, as the work was at too early a stage to assess outcomes.

Involvement in other quality improvement work

Asked what other clinical quality improvement work they were involved in since they completed the CQIP, most participants referred to the ongoing improvement work they had described in response to the previous question. Three participants did refer to additional general quality improvement work they were doing through participating on general quality improvement, appropriateness of care, and accreditation preparation committees and initiatives.

Developing a learning network

This sub-domain of the HQC evaluation framework was not explicitly addressed in this evaluation, as it was too soon to evaluate this ongoing impact. The framework called for assessing participation in improvement activities and in CQIP roles of faculty or coach.

Program costs and benefits

Any analysis of program costs and benefits required detailed cost and benefit information which was not collected, or not provided to the evaluators. This section details the kinds of information that should be collected for any comprehensive cost and benefit assessment.

Costs

In order to assess this, the reviewers would have required detailed data from HQC and others on program costs, including volunteer time and staff time covered under other budgets. The categories of costs that should be included in any cost analysis include the following:

Coaching and faculty time

The number of coaching hours for the program submitted for reimbursement was 44.5 hours. However, HQC reports that not all coaches may have billed for their full hours. Cost of these 44.5 hours was not available to the review team.

Participant time

We did not have data on participant time spent in involvement in the course. Participants were reimbursed for some of their participation time. This was not reported to us.

Materials

We did not have data on costs for developing program materials.

Other resources

We did not have data on costs of other resources used, such as staff time in project teams, or clinical resource analysts.

Comment on costs

One coach / faculty commented on costs:

One thing we did poorly was to feed back to the Ministry of Health on the economics of the projects. The Ministry of Health sees that they are throwing $1.1M at this project to improve care. The literature says costs should come down. So, the Ministry of Health wants to see where the savings are. Some participants did do this spontaneously. So, the ADM who attended sign out was impressed by the projects that identified cost savings.

Benefits

Quantification of benefits would require at least data on costs of care and patient costs and time before and after a project quality intervention. Ideally, it would use before and after costs of care and patient costs and time in an intervention group, relative to a comparison group where there had not been an intervention (such as in another site). These data can often be collected or estimated from available health system data systems, but require a planned approach to do so.

General evaluation

Recommendation to others

Participants

Asked if they would consider recommending this program to a colleague, all ten participants responded yes, absolutely. Five had already done so.

Sponsors

Sponsors were asked if they would consider sponsoring another participant. Three sponsors already had sponsored another participant in the second cohort. Four more would consider it (two with conditions).

We have. We are doing another participant now We desperately wanted to continue the momentum.

Yes. It is a great program. The learnings from the first one will help us align capacity to better deliver on our strategic priorities.

Yes, with certain conditions . . . with more direction on what to do to fulfill a sponsor role.

Learnings

Participants

Asked, "What did you learn about quality improvement in doing your project?" participants said that they learned:

- The best way to learn is by doing (2).

  How important it is to do a project as part of this program. Doing something is the best way to learn about it. Having done the project, I learned quite a bit about both the theory and the application of QI.

  I learned that there are multiple different ways and tools that can be used. The best thing is just to get started and do something.

- Quality improvement opportunities are everywhere in daily work (2)

  The biggest thing I learned is that once you have the mindset of QI, there is opportunity for QI every day. It changes your mindset.

  It doesn't matter what you are doing, you can always find something to work on to improve quality . Unless you actually look at it and ask questions, you cannot say whether or not you are doing quality work.

- The importance of teams in quality improvement (1).

A key message I learned was that it is not about the person doing the project trying to do it [by themselves], it is a team effort. It is about what I can do for others to improve QI, not what others can do for QI.

- It takes time (1).

  I learned that it takes a long time, and that you have to take it in small steps. It is a "lifestyle" change in a department. All the skills are learnable. Any adult can learn this.

- The difference between research and quality improvement (1).

  The crucial thing was the difference between quality management and research. The main thing was how to deal with imperfect data and how to use iterative PDSA cycles for change management. That struck me so hard I will never forget that. It changed the way I approach everything in my position.

Coaches and faculty

All four coaches and faculty said they learned a great deal from their participation:

I learned as much or more as the participants. I have been doing this work for years, but every time you encounter a new clinical setting it challenges how you apply the tools, how you define the problem.

Every person that I coached I learned from their project and the challenges they faced, and I learned from the connections I made with participants and other faculty.

At the capstone meeting it really confirmed that good quality improvement should drive down costs, from viewing the projects.

I have done QI for [many] years; this gave me a real opportunity to learn some of the stuff.

Sponsors

Asked, "What did you learn via your involvement in the program?" sponsors said that they learned:

- That physician leadership can be developed, and so the future is in good hands (4);

  You can develop physician leadership through doing QI projects. It is an opportunity to develop physician leadership.

  It was so inspiring to see the whole cohort. . . . It was really exciting to see the leaders that were developed. . . . . It helped me to see how we can help our physicians with some of their clinical challenges.

  [H]ow excited physicians were about the skills they learned and the project they had at the final presentations. It made me feel like health care is going to be in good hands with the young people in health care in this province.

- The importance of teams in quality improvement initiatives (3);

  I learned I could delegate to others [quality improvement]. As a change agent I am not the most popular person. I am gratified how many have bought into [the participant's] ideas. I am very impressed by the team [s/he] built.

  It is difficult for a single physician to effect change. Having a team attend the program together would be more beneficial. It is hard to have an individual go and try to do everything by themselves in a system that may not be ready for change. It is easier to go with a team -- that means it is a shared group activity.

  [I learned] how little most physicians understand the operational side of the system. We need early pairing of a physician with a good inter-professional team, so the team owns the issue.

- To scope projects to a definable, achievable goals (1); and
- Nothing (1).

Program strengths

Participants were asked the one most important thing that CQIP does well, that it should keep doing. Answers varied widely, but focussed around the projects, and networking and learning from each other.

Projects (5)

- Requiring participants to do a project (2)

  > *It is important to try to combine the knowledge with a relevant project in your own practice. Working through something as you learn makes it more meaningful and realistic.*

- Engaging patients in projects (1)
- Learning to gathering data in a practical way to use for change management (1).
- Learning about project management (1).

Networking and learning from each other (3)

- Networking (1).
- One-on-one training with the group and the team members in the workshops in face-to-face meetings (1).
- Learning from peers and from expert speakers about the change process (1).

Other

- Engaging emerging leaders and building their skills (1)

Coaches and faculty said that what CQIP does well is:

- Select excellent participants who are motivated and have the ability to influence the system (2);
- Take a standard approach to clinical quality improvement across the provincial system (1); and
- Offer in-person workshops (1).

Program improvements

Participants were asked the one most important thing that would make CQIP even better. Answers included engaging more physicians in an expanded program, a more systems-oriented, team-based approach, and providing program follow up and ongoing mentorship, as well as various miscellaneous suggestions.

- Engaging more physicians, expanding the program (4)

  > *Engagement of physicians. Physicians are still not ready to get fully involved in CQI initiatives.*
  >
  > *Making sure we train more physicians with that language and those skills.*

- A more system-oriented / interdisciplinary team-based approach (2).

  > *A more holistic approach. . . . It could be made even better by bringing in administration and building connections and relationships, so administration understands what is happening and physicians understand how administration looks at QI and how we can work together.*

- Program follow up / ongoing mentorship (2).

  > *The post-program part -- keeping people involved -- could be more structured to keep people involved in their projects.*

- Miscellaneous suggestions included (1 each):
  - Only minor changes;

- More support in deciding on a project;
- Assuring time release;
- Reducing travel;
- More emphasis on human change and psychology and the change process; and
- Maximize the order of learning in the workshops (theory before projects).

Coaches / faculty said that what would make CQIP better is to (1 each):

- Continue to do it;
- Include training on crucial conversations and team dynamics;
- Do deeper dive into content, especially on the second day of workshops, with less unstructured time;
- Connect the program with strategic priorities identified by the Health Authority;
- Avoid “preaching” in workshop presentations.

Barriers

Participants

Asked if there were there any barriers that got in the way of their learning, six participants identified lack of time / release from work / work demands / travel time. Two said there were no barriers, and two identified other barriers.

- Lack of time / release from work / work demands / travel time (6);

  Clinical work. I did have time release, but there was no one to replace me.

  Finding the time to do this work even though we are supposed to get protected time. In fact, this was "lip service"; it was very difficult to turn this into reality. Our department is terribly understaffed.

  Personal motivation, needing to set aside the time in your schedule to work on the modules. Also getting together a local team -- people were busy in other activities. Eventually I did get a team together, but not always the same group as we started with.

  A practicing clinician would have difficulty doing the project I did. It was a system project. The program could be more mindful of junior clinicians who are not in a position to influence processes as much. So, projects should be smaller, or there should be a commitment from the whole service area to send colleague to the sessions to learn and help a whole system process in the group.

  For those of us in Regina the travel and staying in Saskatoon was more of a barrier. Most attendees were from Saskatoon.

- No barriers (2);
- Forming a team (1); and
- Getting physician engagement locally (1).

Facilitators

Participants

Asked what most facilitated their learning, participants had a wide range of answers. The three reported by two participants each were being able to reduce workload, passion for their project, and online learning.

- Being able to reduce workload (2)

  I was fortunate in that I had time. I modified my clinical workload accordingly. If you had not modified your workload, it would have been difficult.

- The project (2)

The personal drive to make change with my project drove me to do more and learn more.

- Online learning (2);

  The online modules. I could do them on my own time.

- Other (1 participant noting each):
  - The need for change;
  - Coaching;
  - The variety of ways to learn;
  - Support from colleagues and family;
  - Living in the city where the workshops were delivered;
  - Reimbursement to recognize this as a valued activity;
  - Previous QI work experience and training;
  - Inspiring stories from speakers;
  - Multiple learning strategies; and
  - Communication from organizers.

Other responses

Interviewees were asked if there were anything else they would like to say about their experience with CQIP.

Participants

Participants overall repeated positive comments about the program, that they appreciated the experience, and that it should continue. There was also advice about the strengths of the program and how to improve it.

- Appreciated the program, it should continue (6).

  It was an excellent experience. I feel privileged to have been able to participate. It is a fantastic program and I hope the funding continues. Kudos to whoever developed it. I think it will change the climate and the culture of this province for the better.

  With it being a program that you apply for, you obtain participants who are highly motivated to do the work.

- Advice on strengths and improvements (4)

  There are three important things -- good communication and rapport with your fellow physicians (locally) to engage them in your work. 2. Overcoming the barriers in the local situations. 3. How to negotiate and overcome those barriers.

  Projects should be designed to wrap up during the time period.

  I appreciate being able to provide feedback. The program is becoming more well known. Keeping the program visible through the SMA is important. I see lots of references to it. It should also be highlighted to the general population.

  It would be interesting to build an alumni group and get together and talk about our projects over time.

Coaches / faculty

Coaches and faculty added an additional comment:

We are unique in Saskatchewan. CQIP is a collaborative effort between HQC, the College of Physicians and Surgeons, the Saskatchewan Medical Association, the Ministry of Health, all working together in the same direction. I don't think that could be done in any other province.

Sponsors

Sponsor comments included that:

- The program should be more integrated with the new Saskatchewan Health Authority in selected areas of program improvement (3);

  There could be more formal interactions with the provincial health authority in directed areas of improvement.

  The SHA now covers the entire province. We need to integrate quality improvement through programs, not just through individual physicians.

- They would like to see the program continue (2);

  I hope the program remains. It is an extremely good idea. I love the concept. It is great to have a forum for people to express QI ideas. It improves practice.

  My sense of it is that is it really good. I look at the range of participants it is attracting, and it is precisely the people we want to be involved in this program -- people who are emerging leaders in the organization.

- The program should include multidisciplinary teams (2);

  In the second year the integration of teams is a good idea, in teams that include not just physicians.

- The program is targetted at the right audience, emerging leaders (1); and
- The work of the instructors and curriculum developers was excellent (1).

Discussion

In reviewing the findings of the evaluation, the following themes emerged:

Participants highly valued CQIP.

The evaluation data shows that participants, coaches and sponsors were pleased with the content and processes of the program. They found it well organized, relevant, and well-paced. They found the online modules valuable, relevant and easy to use. They valued the workshops, especially presentations on such topics as use of metrics, and found the networking opportunities highly valuable.

The participant group was largely homogeneous with respect to learning needs.

The uniformly positive responses of the participants and their affirming endorsement of the program indicates that the group members had similar requirements of the program and that it was able to meet those needs effectively. This would indicate that the screening process used for applicants (which was not part of this review) was effective in providing a group of participants ready to embrace what the course had to offer.

Participants came from Saskatchewan's large cities.

Twelve of the participants were from Saskatchewan's two largest cities, while three came from regional cities. There were no participants from health centers in smaller communities, leaving this demographic unrepresented in program clinical quality improvement initiatives.

Networking opportunities were important.

Participants welcomed the social time provided by shared meals and other such opportunities to engage with fellow participants around their learning experiences.

Ability to measure sustained behavior change and impact on quality has been limited to date.

At the time of the evaluation, only one "check-in" evaluation has been done, and it did not have full participation of the group, so ability to track sustained learning and the creation of a learning network is limited at this time.

The success of this program supports the importance of educating physicians as clinical change agents.

The literature reviewed for this evaluation suggests that quality improvement (QI) cannot be conducted or sustained without the engagement and involvement of physicians (Hampe, 2015; Li et al., 2015). This evaluation supports these findings. The clinical quality improvement projects selected and developed by the physicians involved in this project could not have been successful without physician engagement.

CQIP did not address the value of multidisciplinary teams in clinical quality improvement.

Multidisciplinarity is embedded in the definition of clinical quality improvement (HQC, 2017). A review of the literature supporting clinical quality improvement indicates that successful and sustained quality improvement requires interprofessional team approaches involving health care practitioners (Batalden & Davidoff, 2007; Leape et al., 2009; improvement (McNamara, Rafferty & Fitzpatrick, 2016). While some of the physicians involved in this program developed multidisciplinary teams to engage in their projects, the leadership of the group remained with the physician. No content was included in the program on the importance of multidisciplinarity in CQI, the professional cultures of diverse professions with respect to change, and the role of shared leadership in clinical quality improvement.

The project development and implementation aspects of the program were highly valued.

The participants emphasized the value of the practical experience of leading the development and implementation of their projects, and an interest / commitment to continuing this work in the future.

The engagement of sponsors in the program was important.

Sponsors were essential to the success of the program in supporting and enabling the participants' engagement, providing assistance and advice in the creation of project teams, and supporting changes in the participants' day to day work in order to allow them to manage the demands of the program.

The value of the coaching role varied across the program.

The role played by coaches varied significantly. While some maintained ongoing and frequent contact with the participants, others waited for participants to indicate a need to connect. Some participants indicated that coaches should have more training for the role.

A number of the projects were not completed during the program timeframe.

As a result, it was difficult to evaluate the effectiveness of the projects in relation to program goals.

The value of the clinical resource analyst varied across the program.

In some cases, this role was not put in place in a timely fashion. In other cases, the intent of the role it was not clearly understood. While a number of participants found the role of this data specialist position very helpful, others indicated that the position was filled too late in the project to be helpful, or that they did not get their data collected in time to use this resource. Others found that they did not need this resource.

Conclusion

This evaluation of CQIP found it to be a highly valued, well organized, relevant program that actively engaged Saskatchewan physicians in leading, the development and implementation of clinical quality improvement projects in their own clinical settings. Participants, sponsors and coaches valued the program and its contribution to clinical quality improvement in Saskatchewan.

The evaluation supports continued offering of the program with minor adjustments. The online modules and workshop format were strongly supported by the participants. The opportunities for networking with greatly appreciated by course participants. The applied nature of the program with the project development process and team formation exercise as its major output was effective. The support roles for sponsors and coaches were valuable, with some attention required to the defining of the sponsor role (see below).

Recommendations

The following recommendations arise from the themes identified in the evaluation process:

Continue the program in its current format, with some revisions.

This overall recommendation is based on the quality of the educational materials and the strongly favorable, enthusiastic response to the program of the participants, coaches and sponsors.

Clarify and communicate more effectively the role of the coach.

Given the feedback from some participants regarding confusion around the coaching role, attention is required in defining the role, communicating that role to coaches and participants, and providing training and clarification of expectations to coaches.

Ensure that necessary supports and resources are in place in a timely manner to support the work of the teams.

Hiring into the clinical resource analyst positons did not occur in some health regions in a timely manner. This impacted the usefulness of the position in supporting the work of some of the project teams. Challenges in this area may be mitigated by the move to one Saskatchewan Health Authority, rather that requiring participants to deal with multiple jurisdictions, as was the case during this first offering of the CQIP program.

Address timelines for participant project completion.

In a number of cases, projects were not completed during the program. Program organizers should determine whether completion of projects during the program is an important expectation. Is it important that the participant experience completion of the project during the program, so that they can also experience the processes of program evaluation, and building on the evaluation of program outcomes in planning further projects? If this is deemed important, more guidance could be provided to participants in framing projects that are doable within the timeframe of the program.

Develop methods for ongoing networking and creation of a long-term learning network.

In order to sustain the momentum created by this program, mechanisms should be developed for ongoing networking for program participants, and connection of this group of participants with subsequent cohorts of participants in the program. Creation of an ongoing academy of program graduates would signal the value placed on clinical quality improvement leadership by the Health Quality Council and external program sponsors.

Clarify program goals with respect to participation from a broader representation of Saskatchewan communities.

The participants in the initial offering of CQIP were all from larger Saskatchewan cities. Consideration should be given by program organizers with respect to whether representation is desired from smaller centers in order to address the clinical quality improvement requirements in smaller community facilities as well as larger urban centers.

Address the role of multidisciplinarity in clinical quality improvement.

The evidence supports the engagement of physicians in clinical quality improvement as an important aspect of its success. However, it also indicates that the success and sustainability of clinical quality improvement requires interprofessional approaches. While many of the physician participants in the program formed interdisciplinary teams in order to complete their projects, they were not provided with any course material with respect to the challenges of interprofessional collaborative practice and the importance of shared leadership. The Canadian Interprofessional Health Collaborative (2010) identifies specific competency development needed in order for teams of professionals to work effectively together. The six competency domains identified by in their National Interprofessional Competency Framework include: interprofessional communication; patient/client/family/community centered care; role clarification; team functioning; collaborative

leadership/and interprofessional conflict resolution (Canadian Interprofessional Health Collaborative, 2010)). CQIP program organizers should address their priorities with respect to balancing the recognized importance of physician engagement and leadership in CQI against the importance of a multidisciplinary approach to CQI in the Saskatchewan context, and the implications of this multidisciplinary approach on the program content and makeup of the program participant groups.

References

American College of Medical Quality. (2010). *Definition of Clinical Quality Improvement* Retrieved from www.acmq.org / policies / policies1and2.pdf)

Auerbach, A.D., Landefeld, C.S. and Shojania, K.G. (2007). The tension between needing to improve care and knowing how to do it. *The New England Journal of Medicine*, 357(6), 608-613.

Batalden, P.B., and Davidoff, F. (2007). What is "quality improvement" and how can it transform healthcare? Quality and Safety in Health Care, 16, 2-3.

Bartman, T., Heiser, K., Bethune, A., Crandall, W., McClead, R., Davis, T. and Brilli, R. (2017). Interprofessional QI training enhances competency and QI productivity among graduates: Findings from Nationwide Children's Hospital. *Academic Medicine*, 93, 292-298.

Canadian Interprofessional Health collaborative. (2010). *A National Interprofessional Competency Framework*. Retrieved from www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf

Caverzagie, K.J., Bernabeo, E.C., Reddy, S.G and Holmboe, E.S. (2009). The role of physician engagement on the impact of the hospital-based practice improvement module (PIM). *Journal of Hospital Medicine, 4*(8), 466-470.

Cervero, R.M and Gaines, J.K. (2015). The impact of CME on physician performance and patient health outcomes: An updated synthesis of systematic reviews. *Journal of Continuing Education in the Health Professions, 35*(2), 131-138.

Cosimi, L.A., Dam, H.V., Nguyen, T.Q., Ho, H.T., Do, P.T., Duc, D.N., Nguyen, H.T., Gardner, B., Libman, Pollack, T. and Hirshhorn, L.R. (2015). Integrated clinical and quality improvement coaching in Son La Province, Vietnam: A model of building public sector capacity for sustainable HIV care delivery. *BMC Health Services Research. 15* (269), 1-9.

Daniel, D.M., Casey, D.E., Levine, J.L., Kaye, S.T., Dardik, R.B., Varkey, P. and Pierce-Boggs, K. (2009). Taking a unified approach to teaching and implementing quality improvements across multiple residency programs: The Atlantic health experience. *Academic Medicine, 84*(12), 1788-1795

Hampe, H. M. (2015). Physician-led sepsis quality improvement team. *Critical Care Nursing Quarterly, 38*(20), 188-199.

James, D. & Kirkpatrick, W. (2018). Kirkpatrick's *Four Levels of Training Evaluation.* Retrieved from https://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick-Model

James, B.C. and Lazar, J.S. (2017). Sustaining and extending clinical improvements: A health system's use of clinical programs to build quality infrastructure. In *Practice-based learning and improvement: A clinical improvement action guide*. Nelson, E.C., Batalden, P.B. and Lazar, J.S. Eds. Joint Commission on Accreditation of Healthcare Organizations, p. 95-108.

Larkin, A., LaCouture, M., Geissel, K., Barr, P., Bates, E.R., Cannon, C., and Bhatt, D. (2017). Quality improvement in management of acute coronary syndrome: Continuing medical education and peer coaching improve antiplatelet medication adherence and reduce hospital readmission. *Critical Pathways in Cardiology, 16*(3), 96-101.

Leape, L., Berwick, D., Clancy, C., Conway, J., Gluck, P., Guest, J., Lawrence, D., Morath, J., O'Leary, D., O'Neill, P., Pinakiewicz, D., and Isaac, T. (2009). Transforming healthcare: A safety imperative. *Quality and Safety in Healthcare, 18*, 424-428.

Li, J., Hinami, K., Hansen, L.O., Maynard, G., Budnitz, T., and Williams, M.V. (2015). The physician mentored implementation model: A promising quality improvement framework for health care change. *Academic Medicine, 90*, 303-310.

Marsden, J., van Dijk, M., Doris, P., Krause, C. and Cochrane, D. (2012). Improving care for British Columbians: The critical role of physician engagement. *Healthcare Quality, 15*(5), 51-55.

McNamara, D.A., Rafferty, P. and Fitzpatrick, F. (2016). An improvement model to optimize interdisciplinary learning. *International Journal of Health Care Quality Assurance, 29*(5), 550-558.

Reichert, S.M., Harris, S.B., Tompkins, J.W., Belle-Brown, J., Fournie, M., Green, M., Han, H., Kotecha, J., Mequanint, S., Paquette-Warren, J., Roberts, S., Russell, G., Stewart, M., Thind, A., Webster-Bogaert, S. and Birtwhistle, R. (2017). Impact of a primary healthcare quality improvement program on diabetes in Canada:

evaluation of the Quality Improvement and Innovation Partnership (QIIP). *BMJ Open Diabetes Research and Care, 5*, doi: 10.1136/bmjdrc-2017-000392.

Saskatchewan Health Quality Council Clinical Quality Improvement Program. (2017a). *Application guide*. Retrieved from https://hqc.sk.ca/education-learning/learning-programs

Saskatchewan Health Quality Council Clinical Quality Improvement Program. (2017b). *Definition of clinical quality improvement.* Retrieved from https://hqc.sk.ca/education-learning/learning-programs

Sawka, C., Ross, J., Srigley, J., and Irish, J. (2012). The crucial role of clinician engagement in system-wide quality improvement: The Cancer Care Ontario experience. *Healthcare Quarterly, 15*, 38-41.

Shaw, E.K., Chase, S.M., Howard, J., Nutting, P.A. and Crabtree, B.F. (2012). More black box to explore: How quality improvement collaboratives shape practice change. *Journal of the American Board of Family Medicine, 25*(2), 1-9.

Schwerdtle, P., Morphet, J. and Hall, H. (2017). A scoping review of mentorship of health personnel to improve the quality of health care in low and middle-income countries. *Globalization and Health, 13*(77), 1-8.

Watts, B., Lawrence, R.H., Singh, S., Wagner, C., Augustine, S., and Singh, M.K. (2014). Implementation of quality improvement skills by primary care teams: Case study of a large academic practice. *Journal of Primary Care & Community Health, 5*(2), 101-106.

Appendix 1. Map of data sources to HQC Evaluation Framework

S: Survey
FG: Focus group
FFF: Fast Feedback form
Other (see italicized Notes for detail)
Red-shaded x: data planned but apparently not collected
Green shaded x: to be done by Dr. Berry

Evaluation Focus	Key Questions	Target audience	Method / approach					Timing	Notes / Considerations	Kirkpatrick Level
			S	FG	FFF	O	I			
User experience of program related to program aim A	How do participants find the learning experience? Key areas: Materials / content Site navigation Learning activities Pacing, effort Faculty, coach support Other program supports (funding, guest faculty, sponsor, etc.)	Participants	x					Program mid-point Program end	Mid-point survey will focus on questions that would allow for program modifications during session. Program end survey will focus on overall experience and identify potential changes for future cohorts.	1
	How do coaches feel about the learning program? How does faculty feel about the learning program? Key areas: Materials / content Learning activities Coaching support Other program supports	Coaches Faculty	x	x			x	Program mid-point Program end	One-hour focus group, along with online survey, were planned. HQC did conducted a feedback webinar with the faculty / coaches at the end of program.	
	How do sponsors feel about the learning program? Key areas: Sponsor experience Program supports Information flow	Sponsors	x				x	Program mid-point Program end	A survey was conducted, but had a low response rate.	
Program effectiveness related to program Aims A, B, C	Are the workshops effective? Do they contribute to the intended outcomes? Key areas: Pace, flow Materials / content	Participants Coaches faculty			x		x	End of workshop		2

Evaluation Focus	Key Questions	Target audience	Method / approach					Timing	Notes / Considerations	Kirkpatrick Level
			S	FG	FFF	O	I			
	Learning activities Peer networking opportunities Faculty (provincial and guest) Logistics (adequate venue for learning, food, etc.)									
	Are participants learning the skills and developing the knowledge intended by the program? Key areas: Project development and management Project documentation (A3, driver diagrams, etc.) Project outcomes Completion of assigned tasks	Participants Coaches Faculty				x	x	End of workshop Capstone presentation Post program assessment	*Peer and coach feedback* *Self-assessment* Feedback was provided in small groups during workshops, and was not captured.	
	Are participants applying what they have learned? Key areas: Project progress Clinical improvement gains	Participants Coaches				x	x	End of workshop	*Project progress score* *Capstone presentation* Note: There are many factors that could potentially impact project progress, of which the learning program is just one.	3
	Has the learning endured? Key areas: Current use of tools / methodology Improvements achieved Sustained improvement Involvement in other improvement work	Participants	x				x	6 months post-capstone		3, 4
	Are we developing a learning network? Key areas: Participation in improvement activities (i.e., SACI) Participation in CQIP roles (faculty, coach)	Participants Coaches Faculty				x		Bi-annual (coordinated with launch of next CQIP cohort)	*Retention rate* *Conversion rate* Retention rate looks at number of existing coaches / faculty who are willing to take on roles in following 2-3-year period Conversion rate looks at number of CQIP graduates who take on coaching / faculty roles in following 2-3-year period	2, 3, 4

Evaluation Focus	Key Questions	Target audience	Method / approach					Timing	Notes / Considerations	Kirkpatrick Level
			S	FG	FFF	O	I			
Other program elements related to program Aims A, B, C	Program costs – how much did program cost? Key areas: Coaching and faculty time Participant time Materials Other resources	All program supports				x		End of program	*Costing analysis* *Program costs*	N/A
	Program engagement – to what extent were participants engaged in the program? Key areas: Coaching time Workshop attendance Program graduation Online engagement Participant recommendation of program	Participants	x			x		End of program	*Coaching hours billed* *Moodle reports* *Participant survey* *Attendance sheets* *Completion rate*	1

Appendix 2. Interview guide for coaches and faculty

Text of emailed invitation to coaches and faculty:

We are requesting your help in evaluating the Health Quality Council's the Clinical Quality Improvement Program (CQIP) program for which you have been a coach and or faculty.

Your input will be used to assess how well the CQIP program is working and how it can be improved for future participants. We ask for 20 minutes of your time in a telephone interview. If you participate, we will send you a short report of the results.

If you are willing to help, please respond to this email to give us two 20-minute time slots between now and Feb 16 when we could call you for an interview.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan, currently serving as the U of S Interim Assistant Vice Provost, Health.

If you agree to an interview, we will send you the interview questions in advance.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share who has participated with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be included in an evaluation report Dr. Berry will provide to HQC. She may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca.

If you have concerns or questions about the *administration* of this survey, contact If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Interview introduction

[Introduction to be shared with the interviewee in advance when scheduling the interview, and to be read to the interviewee when contacted before the interview unless they decline. In all cases, the interviewee will be asked for consent.]

This interview is part of an evaluation to assess how well the CQIP program is working and how it can be improved. The interview will take about 20 minutes to complete. If you participate, we will send you a short report of the results.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share that information with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be used to assess how the CQIP program is working for participants, and how it can be improved. Dr. Berry will provide an evaluation report to HQC, and may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca.

If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Do you consent to proceed with this interview under those conditions?

Record whether Yes or No: _____ Date: _____ Interviewer: _____

Domain	Interview questions	Probes
Context	1. What has been your role in the Clinical Quality Improvement Program, or CQIP?	
Process	2. Looking back now overall at the <u>first</u> CQIP you were involved, what is your overall assessment of: 2.1. the content of the CQIP 2.2. the pace and flow of the program 2.3. the learning activities 2.4. peer networking opportunities among participants and between participants and coaches or faculty 2.5. the coaching support you provided 2.6. the logistics and arrangements 2.6. any other program supports	Such as the venue and location, the food, etc. Such as the clinical resource analysts
	3. What would make the process of delivering CQIP even better?	
Outcomes		
Skills and knowledge	4. What is your assessment of how well the participants learned the skills and developed the knowledge intended by the program? 4.1. project development and management? 4.2. project documentation, such as A3s, driver diagrams, etc.?	
Application	5. What is your assessment of how well the participants applied their knowledge during the program? 5.1. completion of assigned tasks? 5.2. projects? 5.3. potential for clinical improvement gains in their projects?	

General evaluation		
Open-ended	6. The one most important thing that CQIP does well, that it should keep doing, is . . .	
	7. The one most important thing that would make CQIP even better would be . . .	
Else	8. Were there any unintended benefits to you for your own learning?	
	9. Tell us anything else you would like to say about your experience with CQIP and the content:	

Appendix 3. Interview guide for sponsors

Text of emailed invitation to coaches and faculty:

We are requesting your help in evaluating the Health Quality Council's the Clinical Quality Improvement Program (CQIP) program for which you have been a sponsor of one or more participants.

Your input will be used to assess how well the CQIP program is working and how it can be improved for future participants. We ask for 15 minutes of your time in a telephone interview. If you participate, we will send you a short report of the results.

If you are willing to help, please respond to this email to give us two 20-minute time slots between now and Feb 16 when we could call you for an interview.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan, currently serving as the U of S Interim Assistant Vice Provost, Health.

If you agree to an interview, we will send you the interview questions in advance.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share who has participated with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be included in an evaluation report Dr. Berry will provide to HQC. She may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca.

If you have concerns or questions about the *administration* of this survey, contact If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Interview introduction

[Introduction to be shared with the interviewee in advance when scheduling the interview, and to be read to the interviewee when contacted before the interview unless they decline. In all cases, the interviewee will be asked for consent.]

This interview is part of an evaluation to assess how well the CQIP program is working and how it can be improved. The interview will take about 20 minutes to complete. If you participate, we will send you a short report of the results.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan, currently serving as the U of S Interim Assistant Vice Provost, Health.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share that information with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be used to assess how the CQIP program is working for participants, and how it can be improved. Dr. Berry will provide an evaluation report to HQC, and may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca.

If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Do you consent to proceed with this interview under those conditions?

Record whether Yes or No: _____ Date: _____ Interviewer: _____

Domain	Interview questions	Probes
Context	1. Tell me about your role in the first Clinical Quality Improvement Program, or CQIP that ran from April through November last year: 1.1. How was the participant or participants that you sponsored selected? 1.2. What contact did you have with the participant(s) and the program while it was running? 1.3. What contact have you had with the participant(s) you sponsored since the program completed?	
Outcomes		
Skills and knowledge	2. From what you have seen, what is your assessment of how well the participant(s) learned the skills and developed the knowledge intended by the program? 2.1. project development and management? 2.2. project documentation, such as A3s, driver diagrams, etc.?	
Application	3. Are you familiar with the project that the participant(s) completed during the CQIP? 4. If so, what is your assessment of the potential for clinical improvement gains in your organization from that (those) project(s)?	
	5. Have you seen any examples of the participant(s) applying their new knowledge in your organization since the CQIP? Please describe. 6. (If yes:) What is the potential for clinical improvement gains in your organization from that (those) example(s)?	

General evaluation		
Open-ended	7. Would you consider sponsoring another participant? Why or why not?	
Else	8. What did you learn via your involvement in the program?	
	9. Tell us anything else you would like to say about your experience with CQIP and the content:	

Appendix 4. Interview guide for participants

Text of emailed invitation to participants:

We are requesting your help in evaluating the Health Quality Council's the Clinical Quality Improvement Program (CQIP) program in which you have been a participant.

Your input will be used to assess how well the CQIP program is working and how it can be improved for future participants. We ask for 20 minutes of your time in a telephone interview. If you participate, we will send you a short report of the results.

If you are willing to help, please respond to this email to give us two 20-minute time slots between now and Feb 16 when we could call you for an interview.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan, currently serving as the U of S Interim Assistant Vice Provost, Health.

If you agree to an interview, we will send you the interview questions in advance.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share who has participated with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be included in an evaluation report Dr. Berry will provide to HQC. She may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca. If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Introduction

[Introduction to be shared with the interviewee in advance when scheduling the interview, and to be read to the interviewee when contacted before the interview unless they decline. In all cases, the interviewee will be asked for consent.]

This interview is part of an evaluation to assess how well the CQIP program is working and how it can be improved. The interview will take about 20 minutes to complete. If you participate, we will send you a short report of the results.

We are interviewing on behalf of Dr. Lois Berry, who is leading the project as an independent evaluator engaged by the Health Quality Council. She is an Associate Professor in the College of Nursing at the University of Saskatchewan.

Your interview results will be anonymous. We will not publish your name or disclose whether or not you participated in an interview in our report, nor will we share that information with the Health Quality Council or your Employer. We may use quotes from what you say, but we will not use any quote that could identify you. You may decline to answer any question, and you may withdraw from the interview at any time.

The overall results of the evaluation, including a summary of the interviews we have done, will be used to assess how the CQIP program is working for participants, and how it can be improved. Dr. Berry will provide an evaluation report to HQC, and may also publish a research article on the results of the evaluation.

If you have any concerns or questions about the *overall evaluation*, contact Dr. Lois Berry at lois.berry@usask.ca. If you have concerns or questions about the *administration* of this survey, contact Laurence Thompson at Laurence.Thompson@HorizonStrategies.ca.

Do you consent to proceed with this interview under those conditions?

Record whether Yes or No: _____ Date: _____ Interviewer: _____

Domain	Interview questions	Probes
Context	1. Tell me how you got involved in the Clinical Quality Improvement Program, or CQIP?	
Process	2. Looking back now overall at the CQIP you were involved in, now that you have finished, what is your overall assessment of: 2.1. the content of the CQIP 2.2. the pace and flow of the program 2.3. the learning activities 2.4. peer networking opportunities among participants and between participants and coaches or faculty 2.5. the coaching support 2.6. the logistics and arrangements 2.6. any other program supports	 Such as the venue and location, the food, etc. Such as the clinical resource analysts
	3. What would make the process of delivering CQIP even better?	
Outcomes		
Skills and knowledge	4. What is your assessment of how well you learned the skills and developed the knowledge intended by the program? 4.1. project development and management? 4.2. project documentation, such as A3s, driver diagrams, etc.?	
Application	5. What did you learn about quality improvement in doing your project? 6. What, if any, has been the impact of your project on clinical quality improvement since you finished it?	
Ongoing	7. What use of your learning are you making now in your work? 8. What improvements in clinical quality, if any, have you been able to make? 9. What clinical quality improvement work are you involved in since you completed the CQIP?	Ask for examples of each.
General evaluation		
Open-ended	10. The one most important thing that CQIP does well, that it should keep doing, is . . .	
	11. The one most important thing that would make CQIP even better would be . . .	
	12. Would you recommend this program to a colleague? Why or why not?	
Barriers & facilitators	13. Were there any barriers that got in the way of your learning?	
	14. What most facilitated your learning?	
Else	15. Tell us anything else you would like to say about your experience with CQIP and the content:	