CLINICIAN Quality ACADEMY | *building advanced improvement capability for BC*

Clinician Quality Academy Evaluation

Cohort 1

April to November 2016

Clinician Quality Academy Evaluation

Contents

Executive Summary

BC Patient Safety & Quality Council (the Council) launched Clinician Quality Academy (CQA) in 2016 as a professional development program adapted from BC Quality Academy but designed specifically for practicing physicians, to support them and other clinicians in leading quality improvement and safety initiatives in any health care setting.

A comprehensive evaluation of Cohort 1 (Apr to Nov 2016) was conducted to determine the success of the CQA program in building participant knowledge, skills and confidence around the core components of improving quality. In addition, the evaluation aims to identify program strengths and areas of improvement.

Some highlights include:

- From pre- to post-program, there were improvements in all 31 knowledge and skills categories, with an average of 45-point increase;
- Survey results suggest that skills learned within the program are being applied to real-world contexts and have increased the effectiveness of participants in the workplace
- 98% of participants agreed that information learned during the residency sessions would be used in future practice; and
- 100% of respondents in a follow-up survey would recommend the CQA to others.

Areas of strength include:

- Multi-modal delivery of content, including case studies and clinical examples;
- Group work, interaction and networking with peers;
- Diversity of faculty and advisors;
- Overall curriculum and content areas (depth and breadth);
- Time to discuss projects and application;
- Utilization of team building, rapid-cycle testing, and data for improvement methods;
- Engaging People in Improving Quality (EPIQ) toolkit for facilitation; and
- Organization and logistics support provided by Council staff.

Continuous improvement of programs and services are the cornerstone of Council activities. The following are recommendations for improvement:

- For session delivery:
    - Continue to work with faculty on interactivity of sessions, especially webinars; and
- Improve the connection of concepts between residencies and between faculty members. For quality improvement projects:
    - Improvement Advisors to connect with participants prior to Residency 1, specifically on project identification and scoping.
    - Focus on importance of team building and engaging stakeholders early on.

For additional insights, it would be useful to survey and engage executive sponsors and organizational leaders that support improvement work to better understand organizational perspectives on successes, barriers and overall impact of the program.

Based on experience in Cohort 1, there are now multiple mechanisms (such as pre- and post-program assessments, residency evaluations and post-program interviews) to continually reflect, assess and improve the program for future participants as needs and the environment evolve.

Introduction

This report presents the evaluation findings from the BC Patient Safety & Quality Council's (the Council) Clinician Quality Academy (CQA) Cohort 1 that ran from April to November 2016.

"The interaction with other change makers is invaluable, as are the opportunities to learn from those in the biz!"

The Need

The provision of high-quality, patient-centred, cost-effective health care is a priority for British Columbia. According to BC's Health Quality Matrix (Appendix A), quality in healthcare is comprised of multiple dimensions, with a variety of interdependent aspects across and within all areas where health care is delivered and received.

Quality improvement (QI) in health care is a systematic approach to making changes that lead to better patient outcomes and stronger health system performance (Lynn 2007). Fundamental changes that result in improvement "alter how work is done; produce visible, positive differences in results relative to historical norms; and have a lasting impact" (Langley 2009). For these changes to occur, those working within the system must be equipped with the knowledge and skills to enable their contributions towards these efforts.

Clinicians are leaders within all parts of the health system and play a key role in leading and engaging discussions in improving the quality of care. With the increased demands on our current system and ever-expanding role of physicians and others practicing at the point-of-care, building skills and capacity in QI will assist in growing systems-thinkers throughout health care. Whether in clinical, administrative or teaching roles, clinician responsibilities increasingly require QI knowledge and skills. For example, attending physicians supervising residents who undertake a QI project may find it challenging to advise when they are not equipped with QI skills themselves. Integrating QI into practice is a competency a physician is expected to continue developing. The Royal College recently updated the CanMeds competency framework and one of the significant updates was the explicit integration of QI as a core competency (Wong 2017).

The Council launched the BC Quality Academy (QA) program in 2010 for all health care professionals to build QI knowledge and skills. The program was developed based on the experience of international organizations like the NHS Institute for Innovation & Improvement and Intermountain Healthcare's Advanced Training (ATP) Program. In reviewing the participant groups in the first 10 cohorts of QA, point of care clinicians were an under-represented discipline; for example, only 10 physicians were among the 320 graduates (3% of total). Anecdotal evidence suggested that scheduling of QA sessions was not conducive to a practicing clinician's schedule. Also, physicians indicated that Continuing Medical Education (CME) credits, peer to peer learning, relevant examples and teaching modalities consistent with their medical education were important enticements for professional development opportunities.

To better reach this specific audience, the Quality Academy program structure and curriculum was adapted and tailored to the needs of practicing clinicians. The Clinician Quality Academy (CQA) was launched and established with its first cohort of participants in April 2016.

The Clinician Quality Academy

Clinician Quality Academy (CQA) is a professional development program adapted from BC Quality Academy but designed specifically for practicing physicians, to support them and other clinicians in leading quality improvement and safety initiatives in any health care setting. For example, residency sessions were condensed and scheduled at the end of the week and into the weekend. As well, each residency included an integrative, clinical case study to better fit with learner needs. The curriculum also aligns with existing programs that support clinicians to take on formal leadership roles such as the Sauder Physician Leadership Program at the University of British Columbia and the Simon Fraser University Leadership and Management Development Program.

The CQA aims to reach specialists, general practitioners and other clinical providers working in multiple settings such as hospitals, primary care and long-term care, both urban and rural. It aims to support clinicians in becoming more effective clinical champions and leading improvement initiative in health care, whether they have formal leadership roles or not.

Structure

Delivered over an eight-month period from April to November, participants learn to identify gaps in quality and safety and lead improvement projects to address opportunities with the goal of continuous improvement.

As shown in the following figure, the CQA program consists of 65+ hours of direct learning time via four residencies (nine days of in-person learning), webinars and the provision of an improvement advisor for each participant. Participants learn through a combination of didactic and interactive lessons, and by applying their learning with their improvement teams in their practice settings with a quality improvement project.

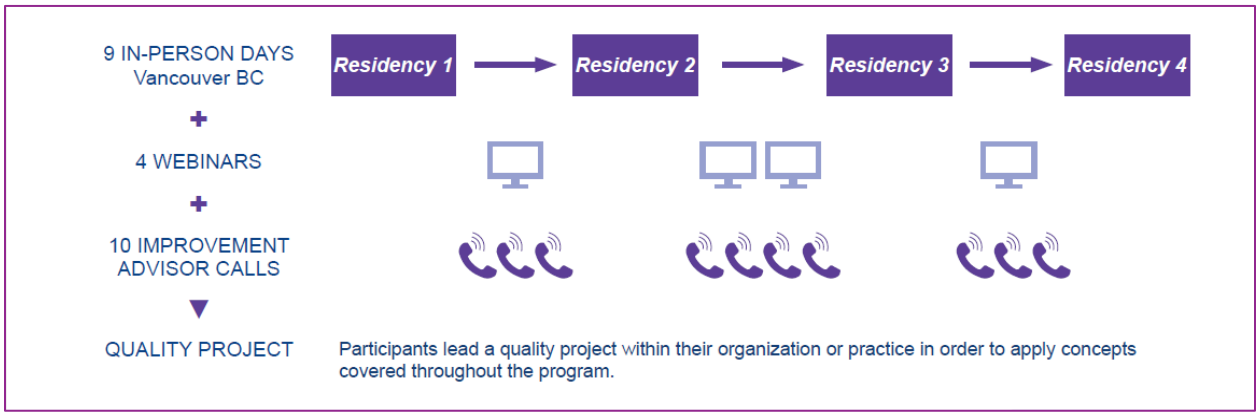

Figure 1: Clinician Quality Academy structure

Four in-person residencies provide 9 full days of in-person learning, with lessons covering theory and techniques which speak to the core components of QI. Lessons cover theory and technique of the core components of QI. Webinars take place between residencies to continue and supplement learning with relevant topics.

Each student in CQA is assigned an Improvement Advisor to act as an individual coach and provide guidance on the application and analysis of the theory.

Finally, participants apply and demonstrate their acquired knowledge in these areas through the design, implementation and evaluation of a quality project within their own work setting. They learn to form an improvement team, set aims, collect data, and test change ideas in real-time. By gradually embedding a quality improvement lens into their practice, participants become systems thinkers and enhance the delivery of care in all dimensions of quality. Their projects are supported by an executive sponsor that assists in aligning the project with the strategic priorities of both the organization and the Ministry of Health. Projects continue after participants graduate from CQA, which includes evaluations of their long-term impacts.

Curriculum

The Clinician Quality Academy regards quality improvement as a specialized, evidence-informed body of knowledge that is vital to improving health care. Aligned with principles of adult learning, the curriculum

is learner-centered, providing participants with the opportunity to navigate the content in a way that is most meaningful for them.

Clinician Quality Academy curriculum includes a breadth and depth of topics related to quality: patient safety; process and systems thinking; engaging others; leading change; measurement, using data and innovation; and spread and sustainability.

Key topics addressed throughout the curriculum include:

- Quality and Safety Culture
- Model for Improvement
- Lean
- Positive Deviance
- Statistical Process Control
- Measurement Strategies for Quality Improvement
- Human Factors
- Resilience and Reliability Science
- Understanding and Reducing Variation
- Complexity and Systems Process/Theory
- Spread and Sustainability
- Social Movement and Large-Scale Change
- Culture of Innovation and Thinking Differently
- Teamwork and Communication
- Strategies for Engaging Patients and Families
- Group Facilitation, Conflict Resolution and Leadership Skills
- Coaching and Mentoring for Improvement Skills
- Link Between Cost and Quality
- High Performing Healthcare Systems

The table below summarizes the topics by residency.

Residency Session 1	**Residency Session 2**	**Residency Session 3**	**Residency Session 4**
• Understanding & Defining Quality • BC Health Care System • Culture as A Core Driver of Improvement • Improvement Models • Ethics • Building Projects & Driver Diagrams • Leadership & Framing for Engagement • Being an Effective Change Agent • Measurement for Improvement & Displaying Data • The Life-Cycle of Improvement & Sustainability • Developing, Testing & Implementing Changes • Integrative Case Study	• Theory of Profound Knowledge • Engaging Patients • Liberating Structures • Mapping & Understanding Processes • Human Factors & Teamwork & Communication • Variation - The Measurement & Clinical Perspective • Statistical Process Control • Integrative Case Study • Optional – Control Charts	• Design Thinking for Innovation • Improving the Patient Experience • Resilience & Reliability • Liberating Structures • Strength Deployment Inventory • Organizational Energy • Review of Measurement for Improvement • Advanced Control Charts • Stratification & Drilling Down • Integrative Case Study • Optional – Control Charts	• Using Public Narrative • Rapid Fire: Sharing Quality Projects • The Economics of Improving Health Care Quality • Teaching Improvement • Patient Perspective of Engagement • Spreading Improvement • Moving Forward in Your Role • Celebrations
Webinar Topic • Building Effective Teams	**Webinar Topic** • High Performing Systems	**Webinar Topic** • Digital Media for Improvement	**Webinar Topic** • Using Gamification for Improvement

Table 1: Clinician Quality Academy Curriculum

Clinician Quality Academy Faculty are 25 experts in a diverse range of fields group of over 25 experts in their respective fields. Participants learn from these leading experts and are exposed to a diverse collection of tools, techniques, and frameworks for quality improvement. The program takes an integrative approach, with a focus on sense-making and analyzing the commonalities among models, as opposed to the promotion of any one model.

Participants are supported to develop critical thinking skills to apply the most appropriate and effective methods to make improvements in their individual practice contexts. Learning is intended to be an active process, with participants applying their new knowledge to a specific project, with guidance from the program faculty and advisors.

Finally, the Clinician Quality Academy fosters an environment of peer-learning. The CQA participants bring different areas of knowledge to the program. Through CQA, they are encouraged to exchange ideas across sectors, which reinforces learning, and works to establish a network of support that extends beyond the conclusion of the program.

Two cohorts have graduated since inception in April 2016. The third cohort of participants will graduate in November 2018. Early findings from the first cohort were used to inform the subsequent ones.

"[The most valuable part was] sessions with my advisor - it helped me translate theory into action. Helped me have milestones to push me to digest the material. I also really enjoyed the residency sessions. Learning along with diverse colleagues has built enthusiasm, commitment and hope."

About the Evaluation

Purpose

The purpose of this evaluation is to determine the success of the CQA program in building participant knowledge, skills and confidence around the core components of improving quality, from the learner's perspective. In addition, this evaluation aims to identify program strengths and areas of improvement to ensure future cohorts can optimize the impact of their time spent in course, as well as the benefits to their practice.

Questions

The evaluation of the Clinician Quality Academy was guided by the following questions:

1. Did the program reach the intended participants (REACH)?
2. What is the impact VALUE of the Clinician Quality Academy?
    a. How did participants react to the program (REACTION)?
    b. To what extent did participants improve knowledge and skills (LEARNING)?
    c. To what extent did participants change their behaviour back in the workplace because of their training (BEHAVIOUR)?
    d. What organizational benefits have resulted from the training so far (RESULTS)?
3. What is working particularly well and why (STRENGTHS)?

4. What are the opportunities for improvement (IMPROVEMENTS)?

The Kirkpatrick model was used as the framework to understand the value (Question 2) of the Clinician Quality Academy. The Kirkpatrick model is primarily used to attribute how behaviour is impacted by participant learning and how learning is influenced by participant reactions to the program. Additional information about the Kirkpatrick model can be found in **Appendix B**.

Scope

The evaluation focused on the first cohort of Clinician Quality Academy participants between April and November 2016.

Data Sources

This evaluation used both quantitative and qualitative data collection methods. Table 2 provides an overview of the key stakeholder groups and the sources used to collect data from each group.

Data collection sources included:

- Participant application and executive sponsor registration forms;
- Participant pre-program and post-program self-assessment surveys on skills and knowledge;
- Residency session and webinar evaluations;
- Participant surveys and semi-structured interviews (post-program); and
- Teleconference huddles.

Stakeholder group	Description of stakeholder group	Data collection (response rate)
Cohort 1 Participants	28 participants; diverse clinical specialties and geographical distribution from around BC	Application and registration forms (100%) Pre-program self-assessment survey (100%) Residency #1 evaluation (73%) Residency #2 evaluation (84%) Residency #3 evaluation (64%) Residency #4 evaluation (54%) Webinar Feedback (50%, 65%, 67%) Post-program self-assessment survey (100%) Post-program semi-structured interviews (38%) 12-month follow-up survey (65%)
Improvement Advisors	5 experts in improvement science who individually advise participants	Monthly huddle notes – qualitative (100%)
Faculty	25 experts from diverse backgrounds who deliver the content	Pre- and post-debrief notes – qualitative (100%)
Advisory Committee	Together with the staff of the BCPSQC, the Advisory Committee provides insights and expertise into the development and ongoing evolution of this program.	Discussion and meeting notes (100%)

Table 2: Evaluation stakeholders and data collection method

Participant data was collected at four key stages throughout the Clinician Quality Academy:

- Prior to the Clinician Quality Academy (collected in March 2016) to establish a baseline;
- Throughout the Clinician Quality Academy (from April to November 2016);
- Immediately after completing Clinician Quality Academy (collected in November 2016); and
- 12-months post Clinician Quality Academy (collected in December 2017).

Additional details about each of the methods are provided in **Appendix C**.

Evaluation Findings

1. REACH: Did the program reach the intended participants?

The CQA program targets practicing clinicians within British Columbia who want to improve their practice, primarily physicians, though participants may also include other clinicians like dentists, chiropractors, midwives, pharmacists and nurse practitioners.

Data sources include participant application forms, pre-program surveys and post-program interviews. It provides a profile of the Cohort 1 participants, including their roles, QI goals, past QI training or knowledge, and learning needs.

Participant characteristics

Participants in CQA Cohort 1 were a diverse group of 28 practicing clinicians from BC. Ten participants were general practitioners in family medicine, while 18 participants were specialists with 12 different specialties represented. All held a clinical role; 11 of the 28 participants (40%) had an additional role in either education or leadership or both, with titles such as Department Head, Medical Director and Physician Lead.

As represented below, 22 (80%) of participants are from three organizations: Provincial Health Services Authority (PHSA) such as BC Cancer Agency and BC Women's and Children's Hospital, from Island Health and from Vancouver Coastal Health Authority (VCH). The balance worked at universities, Interior Health and the Division of Family Practice. Geographically, 23 (82%) participants were from Vancouver or Victoria. The balance came from other communities across the province.

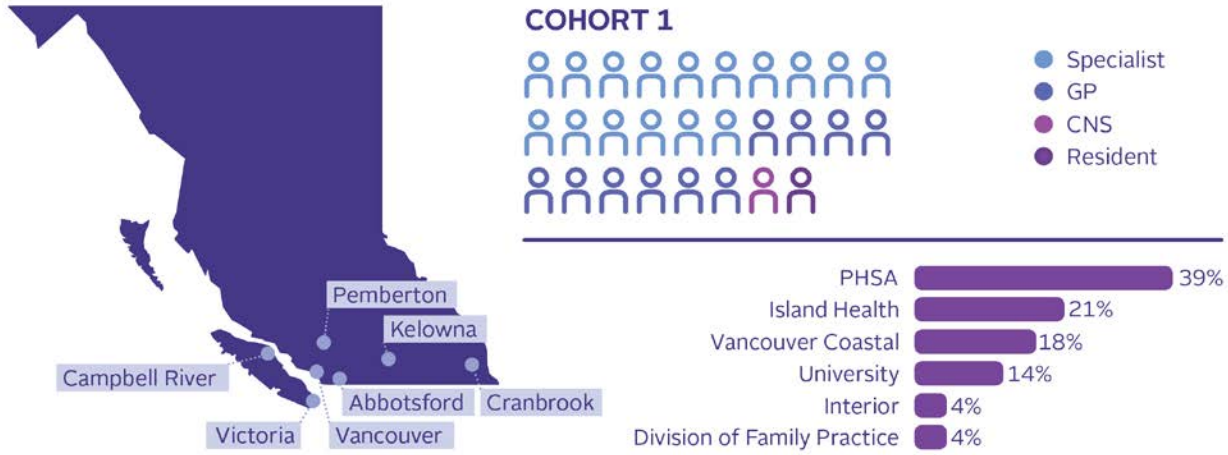

Figure 2 and 3: Participants by Profession, Organization and Geography

Participant prior experience

While background and experience in quality improvement was not necessary to participate in the program, there was a wide range of knowledge, from those who had "never heard of it before" to Medical Quality Directors & Sauder graduates that have background in some aspects of QI, particularly the generalized topics of leadership, teamwork and managing conflict.

"Being exposed to the levels of expertise and enthusiasm and commitment, from both the faculty and especially the participants, has shaped my practice over the past several months."

Participant goals and learning needs

A variety of reasons prompted clinicians to enrol in the CQA program. Almost all participants indicated a need to increase their comfort and confidence in applying the theory, language, thinking, methods and tools of quality improvement, to ultimately become more effective in leading quality improvement teams and projects in their work. Some indicated that they wanted to embed quality improvement into daily work. Others identified specific skills, such as measurement or planning for sustainability, that they hoped to learn. Several participants identified a specific project or patient outcome they intended to achieve as their motivation for enrolling.

In the interviews, participants also shared that they wanted additional structure through systematic and formal QI learning to supplement the informal learning received within the workplace.

2. What is the impact VALUE of the Clinician Quality Academy?

The Kirkpatrick model was used as the framework to understand the impact value of CQA.

REACTION: How did participants react to the program?

This question evaluates the degree to which participants find the training engaging and relevant to their work. A positive participant experience is important to remain engaged with the program and develop the knowledge, skills and behaviours required.

Data sources include session evaluations, pre- and post-course questionnaire and residency feedback. Also, additional feedback was obtained through semi-structured interviews that were conducted immediately after program completion in December 2016.

Session Evaluations

Each session (40+ sessions over 8 months) was evaluated on two domains:

- The information was communicated clearly and effectively; and
- The information was presented at an appropriate level for this stage in my career.

The figures below show the aggregate rating across all sessions in all residencies, plus a summary of qualitative feedback.

Over 95% of participants agreed or strongly agreed that the session content was communicated clearly and effectively, and that the information was presented at an appropriate level.

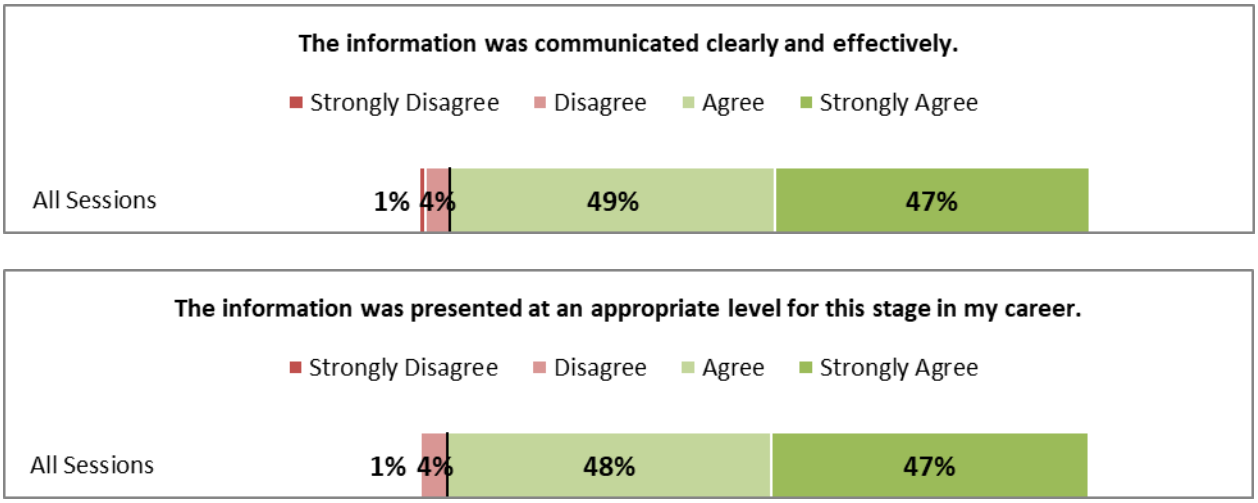

Figure 4: Information Presentation and Appropriateness

Qualitative comments suggested that participants appreciated the quality of teaching by Faculty members, especially those sessions that employed interactive approaches to adult learning, relevant case studies and real-life clinical examples. They also enjoyed the opportunity to network and learn with peers in small group exercises and discussions.

Curriculum content, depth and breadth also garnered positive feedback from participants. Topics that related directly to participant projects (e.g. improvement models, measurement, life cycle of improvement projects, process mapping, measurement, spread and sustainability) and the system in which improvements take place (e.g. culture, ethics, organizational energy) received the most positive feedback. Novel approaches to improvement (e.g. human factors, liberating structures, engaging patients, design thinking) were also appreciated by participants. A small number of topics (e.g. reliability) had more mixed reviews. While the topics themselves were interesting, there needed to be better connections with how to apply the ideas and how they fit with the rest of the curriculum.

Project applicability, connection to additional resources and integration between content topics, while positive, were identified as areas to continue to strengthen for future cohorts.

Residency Feedback

At each residency, participants were asked to rate, on a 4-point scale from strongly disagree to strongly agree, their level of agreement on 6 statements for the residency:

- Overall, this residency met my expectations;
- The residency session provided adequate networking opportunities;
- I was given the right information to feel prepared for the residency session;
- The information I learned will be used in my future practice;
- The faculty office hours were a good use of time; and
- The social activities were a good use of time.

As shown below, 96% to 100% agree with these statements. The questions about the use of information in future practice garnered the most positive response (71.2% strongly agree, 27.3% agree), followed closely by the statement that the residency met overall expectations (65.7% strongly agree, 29.9% agree).

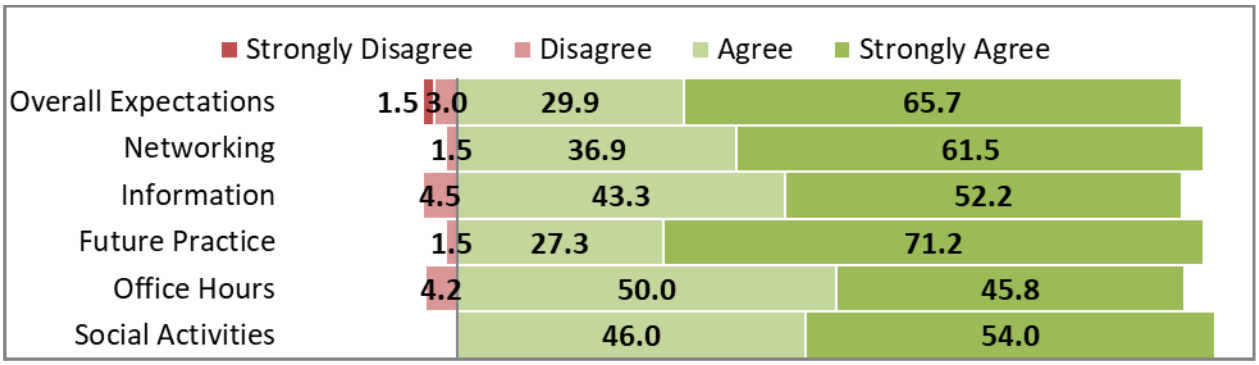

Figure 5: Residency Feedback

Participant comments suggested that residencies were well-organized and flowed well between days and between residencies. Some felt a bit of "information overload" and experienced long days at times, yet by the end of the program, they also indicated that the content came together cohesively. Social activities and office hours were appreciated even if not attended by all.

Webinar Feedback

Participants were also asked to provide feedback on webinars, where each were rated on five statements. Over 78% of respondents agreed on each of the statements, with "information communicated clearly and effectively" garnering the most positive response (97% agreement).

"I am starting to feel like we are a cohort and I am a part of it in a group sense and a qi movement sense. I think this is because we are more into our own projects and thinking about each others - and were more active learners."

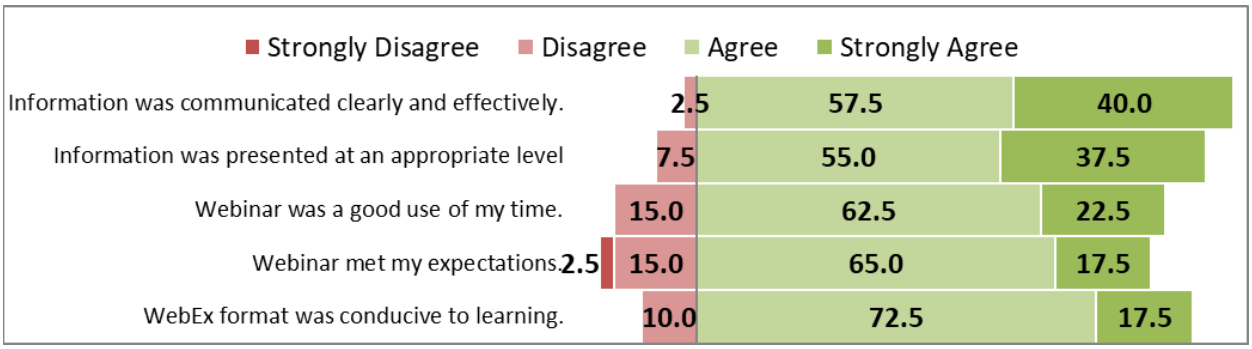

Figure 6: Webinar Feedback

Qualitative feedback suggested that participants appreciated the content, especially when presenters were able to initiate discussion and interaction with the technology and, reflect on opportunities to apply the content to quality improvement projects.

Pre-& Post-Program Questions on Objectives

Prior to attending Clinician Quality Academy, participants were asked to set two personal and/or organizational objectives. Twenty-seven participants of 28 (93%) identified at least one objective, with 75% identifying two.

In the post-program self-assessment, participants were then asked to rate, on a scale of 1 to 10 whether they felt that those objectives were accomplished, what contributed most to accomplishing this objective and what could have helped accomplish the objective further. The average rating on whether the participant achieved their objective was 7.9 (out of 10). Positive contributing factors include access to faculty and improvement advisors to help guide participants in their application of theory, methods and tools, a robust curriculum with engaging approaches to learning, peer to peer networking, having a quality improvement project and timely resources.

"I am really enjoying this course. It is highly educational and really making me think about my day to day practice as I work, as well as system improvement."

Two universal themes for what would have helped achieve objectives were more time and organizational factors, such as staffing and support.

Participant interviews

Immediately following the program, a sample of participants were interviewed with semi-structured questions.

When asked about overall experience with the program, responses were mostly positive and reflected some common themes. Participants appreciated and enjoyed the delivery approach (less didactic, more interaction, small group discussions), the structure and the diversity of topics, faculty and participants.

> *"The timing on the weekends, the spacing of the residencies, the use of webinars in-between, building it on the basis of a quality project, and then an individual advisor; all of that made for a very comprehensive learning experience."*

A final question was whether the participant would recommend the program to others. Every participant interviewed said "yes" with only one participant providing a qualifier, that participants should come in with a specific project as "it is not a program you can audit".

> *"I thought [the program] was really good and it was unique and different from anything I've experienced before."*

> *"I think you have a great program. I really enjoyed it and it is one of the most useful things I've done in years."*

LEARNING: To what extent did participants improve knowledge and skills?

This question determines the degree to which participants acquired the intended knowledge, skills, attitudes, confidence and commitment based on their participation in the course. Participants must be able to apply them effectively in their workplace. This leads to personal development, as well as achieving longer-term organizational benefits.

Data sources include pre- and post-program self-assessments on 31 knowledge and skills related to quality improvement (e.g., technical and people skills, improvement concepts) and a rating of self-confidence after each residency and 12-months after completion.

Pre- and Post-Program Self-Assessment

Prior to the program and immediately following, each participant was asked to self-assess their level of skill and knowledge on a variety of topics on a numerical score from 0 to 100, from "No Knowledge" to "Wisdom". This questionnaire was adapted from the Institute for Healthcare Improvement (IHI).

"[The most valuable part was] sessions with my advisor - it helped me translate theory into action. Helped me have milestones to push me to digest the material. I also really enjoyed the residency sessions. Learning along with diverse colleagues has built enthusiasm, commitment and hope."

A detailed list of these content areas and the rating scale is included in the Program Self-Assessment Skills and Knowledge tool in **Appendix D**. Also included is the pre- and post-program self-assessment ratings.

In general, on the pre-assessment, the average rating was 20.2 points, with interpersonal (soft) skills rated the highest while niche topics (specific) rated lower. For example, participants had a relatively high prior knowledge and skills with group facilitation (median 40), conflict resolution (median 38), teamwork (median 47) and leadership (median 50). Lower rated knowledge included complexity, reliability, social movement theory, positive deviance, spread and economics of improvement (all median 0). Skills and knowledge related directly to improving quality, such as systems thinking (median 7), human factors (median 7), Improvement Model (median 3), Lean (median 7) were areas for development.

From pre- to post-program, there were improvements in all 31 knowledge and skills categories, with an average of 45-point increase.

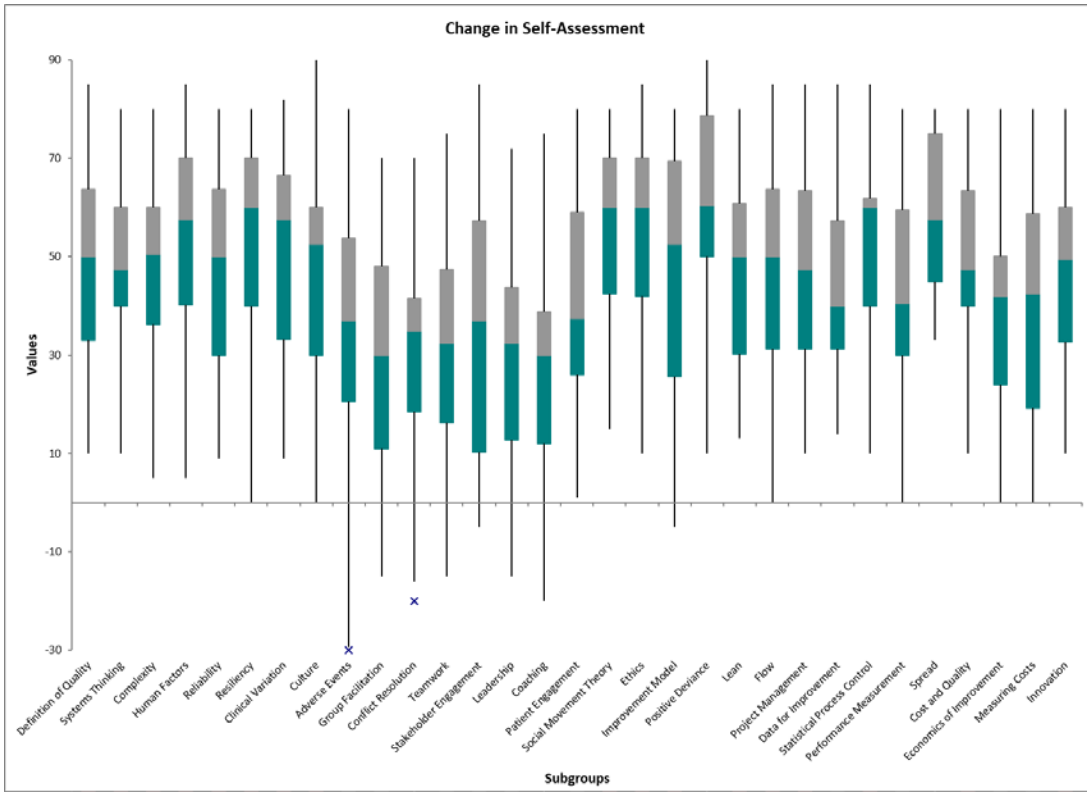

Figure 7: Change in Self-Assessment from Pre- to Post-Program

The biggest improvements in skills and knowledge occurred with human factors, resiliency, social movement theory, ethics, positive deviance and statistical process control.

Confidence Scores

Participants were asked to rate their confidence on a scale of 1-10 in leading quality and safety initiatives at each residency and one year after program completion. Confidence appeared to improve throughout the program with a small decline post-program.

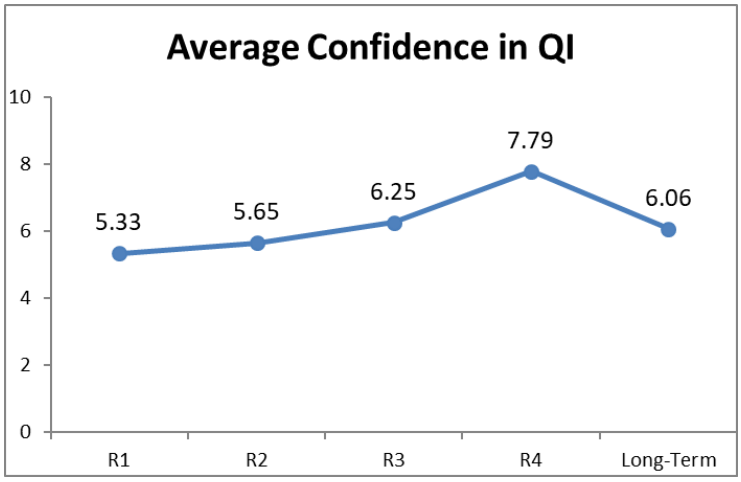

Figure 8: Average Confidence in Quality Improvement

Participant interviews

Participants were interviewed immediately following the program in December 2016 and then surveyed one year after program completion.

One of the survey questions asked, "How often do you discuss information from the following themes: Measurement, Culture/Engagement, Models of Change, Large Scale Change, Innovation, Managing Projects?". 100% of respondents indicated that culture/engagement and innovation were discussed often and sometimes, while 93.8% indicated the same for managing projects. The least discussed topics were models of change and large-scale change.

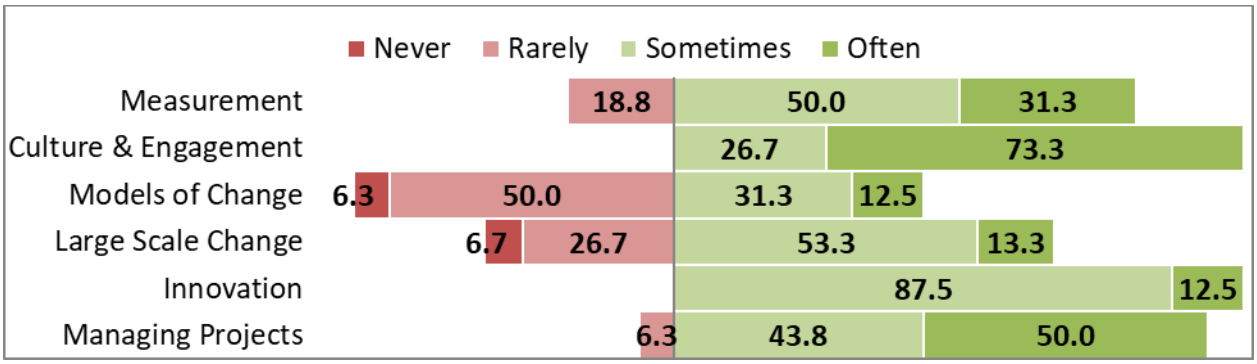

Figure 9: Use of Methods and Concepts

Another interview question asked, “What barriers or challenges did you encounter when you attempted to apply concepts learned in residency to your quality project? What kinds of things helped?”. Many barriers and challenges identified related to the context and system to which the improvements were being applied. Organizational competing priorities, having enough (protected) time, lack of access to project support and turnover were identified as barriers. Participants indicated that having deadlines within CQA, access to improvement advisor support, a local improvement team (including a project sponsor and project support) and topics within the curriculum helped overcome some of these challenges.

BEHAVIOUR: To what extent did participants change their behaviour back in the workplace because of their training?

"I really enjoyed working with this like-minded peer group on our common challenges."

This level of evaluation determines the degree to which participants apply what they learned during training when they return to their clinical practice. The goal of the program is to ultimately embed a quality improvement approach in ongoing practice and enabling improvement at a local, organizational and regional level, regardless of the setting or role held.

Data sources include pre-program questionnaire, residency evaluations and post-program interviews and surveys.

Residency Evaluations

At the end of each residency, participants were asked to rate their level of agreement with:

- The information I learned will be used in future practice; and
- Please describe up to three actions you will initiate when you get back to your practice/organization.

Over 98% of participants agreed that information learned during the residency would be used in future practice.

The three most common actions that participants wanted to initiate upon returning to their practice were engaging others, improving measures and applying the tools learned in each residency. Most indicated that they wanted to work and focus on their quality improvement projects. In the final residency, many participants started to include "teaching others" in their action items.

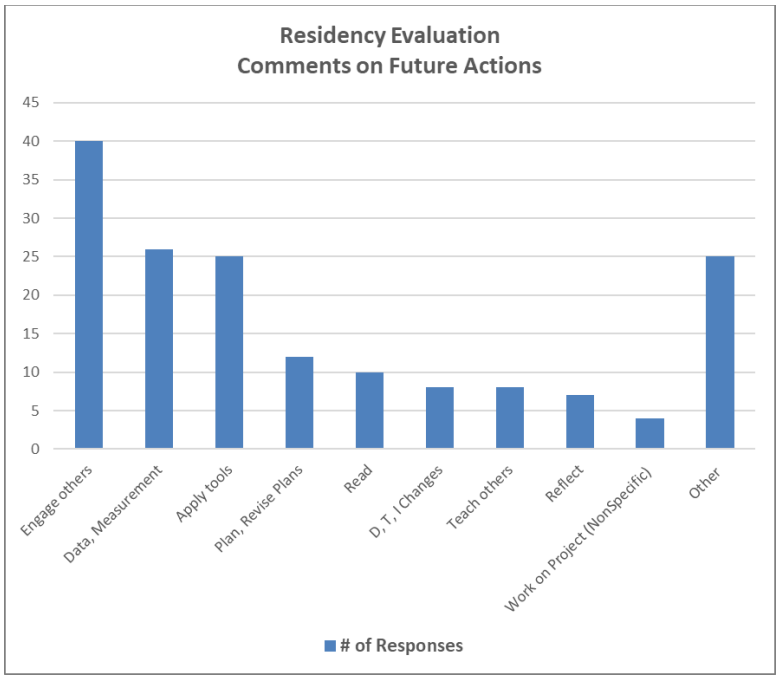

Figure 10: Residency Evaluations Comments on Future Actions

Pre-Program Questionnaire and Post-program semi-structured interviews and survey

In the pre-program questionnaire, participants were asked to predict the impact, if any, that Clinician Quality Academy would have their practice? Participants had high expectations, ranging from improved effectiveness and efficiency with QI skills, methods and tools to significant improvements in patient care, processes and outcomes. Many also indicated that they would appreciate being able to take a reflective and critical eye to the quality improvement initiatives in their work environment, both as formal and informal leaders.

Twelve months later, a survey was distributed. Participants were asked to state their level of agreement with the following statements:

- I apply the skills I learned at the Clinician Quality Academy to my current work; and
- My training at the Clinician Quality Academy has increased my effectiveness in my job.

Results suggest that skills are being applied (73.3% of respondents strongly agree, 26.7% agree) and these have increased effectiveness (50% strongly agree, 43.8% agree).

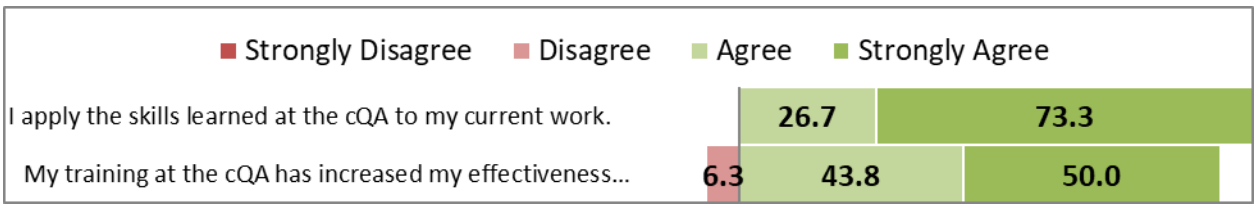

Figure 11: Application of Skills and Effectiveness

Even with high expectations at the onset, participants' assessments of impact on daily practice were achieved.

RESULTS: What organizational benefits have resulted from the training so far?

This level of evaluation determines the degree to which targeted outcomes occur because of the training and support. Participation in the program should have a direct and explicit link to improving quality. There should be a system-wide benefit as more and more alumni permeate the health care system. Organizational and systemic benefits are the most difficult to measure and determine. Impact of the projects and participant work may not be realized immediately and sometimes, for years.

This section provides indicators that there are benefits being realized one-year post-program either through the quality projects undertaken or mentoring/coaching that participants are doing with their peers. Organizational sponsors view alumni as local experts in QI after graduating.

Data sources include post-program interviews and surveys.

A measure of application to practice is whether quality improvements continued beyond CQA. When asked in the post-program survey, over 56% of participants indicated that their projects had been completed and 43.8% indicated that projects were ongoing. No projects had been discontinued. The majority (43.8% agree, 50% strongly agree) of projects met the stated aims and participants felt that the project was a useful way of applying CQA content (25% agree, 75% strongly agree) and that CQA had a positive impact (18% agree, 81% strongly agree).

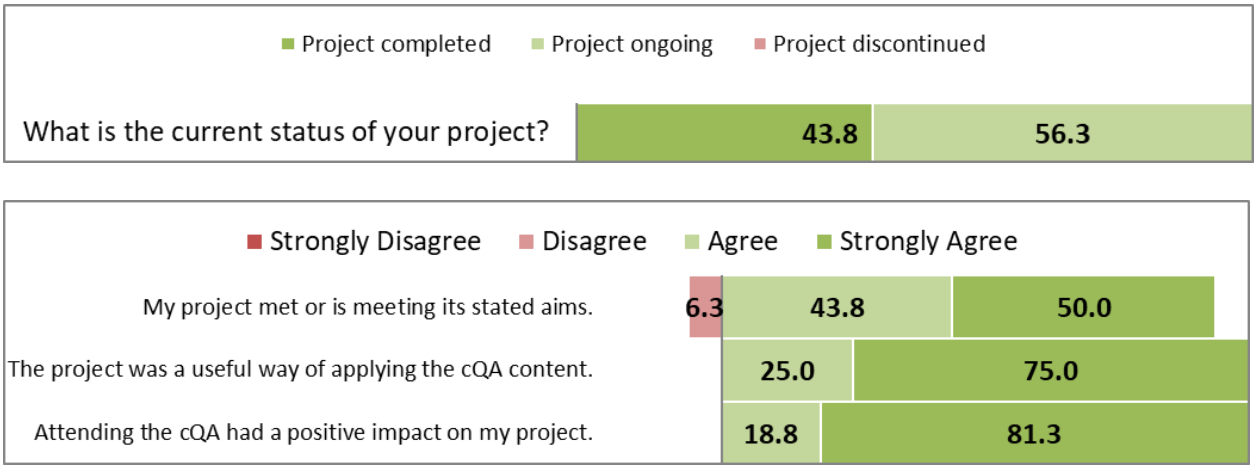

Figure 12: Project Status Post-Program

One hope is that graduates of CQA would be interested and available to teach and mentor others because of their learning. Over 80% (12 of 15 respondents) indicated in the post-program survey that they had mentored others since attending CQA. When asked how comfortable they were in mentoring others, on a 10-point scale, from uncomfortable to very comfortable, the median score was approximately 5.8 out of 10.

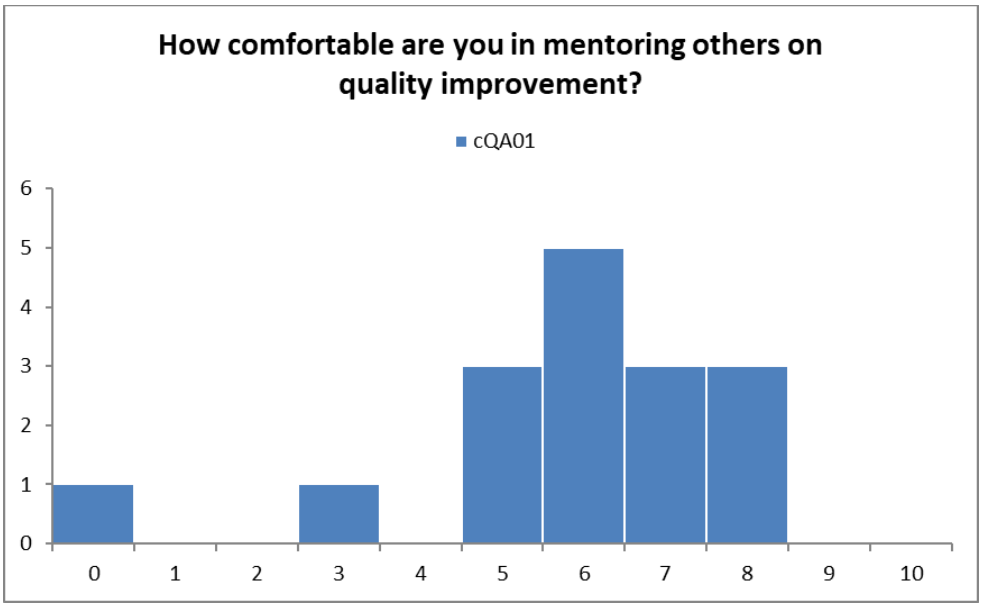

Figure 13: Comfort in Mentoring Others

3. STRENGTHS: What is working particularly well?

Understanding what worked well (and why) is important to enable the Council to continue to leverage its strengths and celebrate successes.

Data sources included open-ended questions and qualitative responses from session and residency evaluations, participant semi-structured interviews and the 12-month follow-up survey. In addition, at every Faculty, Improvement Advisor and Advisory Committee discussion, three debrief questions were posed:

- What is working well?
- What isn't working as well?
- What could we improve for next time?

Overall, Clinician Quality Academy was a valuable time commitment for participants. There was general agreement across participants. In the follow-up survey, 100% of respondents agreed (13% agree, 87% strongly agree) with the statement that "I would recommend the CQA to others".

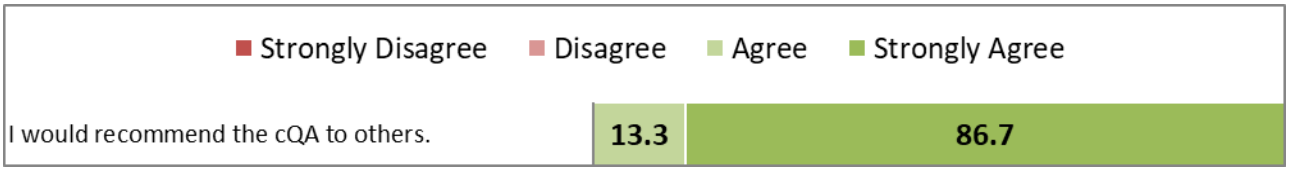

Figure 14: Recommend to Others

Also, based on qualitative feedback, participants appreciated:

- Multi-modal delivery of content, including case studies and clinical examples

- Group work, interaction and networking with peers
- Diversity of faculty and advisors
- Overall curriculum and content areas (depth and breadth)
- Time to discuss projects and application
- Utilization of team building, rapid-cycle testing, and data for improvement methods
- Engaging People in Improving Quality (EPIQ) toolkit for facilitation. Several educational sessions have since been led by graduates in their regions.
- Organization and logistics support provided by Council staff

4. IMPROVEMENTS: What are the opportunities for improvement?

In the spirit of improvement, program organizers were relentlessly seeking to understand what is not working well and what can be improved to address those opportunities. In many cases, when the feedback was actionable right away, adjustments were made.

Based on qualitative feedback, the following themes emerged:

- Even more case studies and practice examples;
- More help scoping quality improvement projects earlier on; and
- More assistance in engaging stakeholders early

A common challenge for any quality improvement initiative is competing priorities and finding time to work on the system, as well as in the system.

Conclusion and Recommendations

"[It] was a really good to work through an example, mirroring the stage most of our projects are at."

Using all the quantitative and qualitative data gathered, the following questions might be asked:

- What are the implications of these strengths and opportunities for improvement?
- What should be done differently in future offerings of the Clinical Quality Academy?
- What should be monitored or evaluated further?

Overall, Clinician Quality Academy exceeded expectations of participants and organizers alike. It complements the traditional Quality Academy while addressing the specific needs of clinicians. In addition, there are multiple mechanisms to continually reflect, assess and improve the program for future participants as needs and the environment evolve.

The following recommendations are to be considered for Cohort 2 and beyond:

- For session delivery:
    - Continue to work with faculty on interactivity of sessions, especially webinars; and
    - Improve connectedness of concepts between residencies and faculty.

- For quality improvement projects:
    - Improvement Advisors to connect with participants prior to Residency 1, specifically on project identification and scoping.
    - Focus on importance of team building and engaging stakeholders early on.

To extend the reach of CQA, a promotional video was completed in 2017 to communicate the purpose and benefits of participating in CQA. https://youtu.be/nxbkWoC5T0s

For additional insights, it would be useful to survey and engage executive sponsors and organizational leaders that support improvement work to better understand organizational perspectives on successes, barriers and overall impact of the program.

Exhibits and Tables

References and Resources

Bevan, H. How can we build skills to transform the healthcare system? Journal of Research in Nursing first published on January 22, 2010 as doi:10.1177/1744987109357812.

Kirkpatrick, James. Kirkpatrick's Four Levels of Training Evaluation. 2016.

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Lynn, et al. The ethics of using quality improvement methods in health care. Ann Intern Med. 2007 May 1;146(9):666-73. Epub 2007 Apr 16.

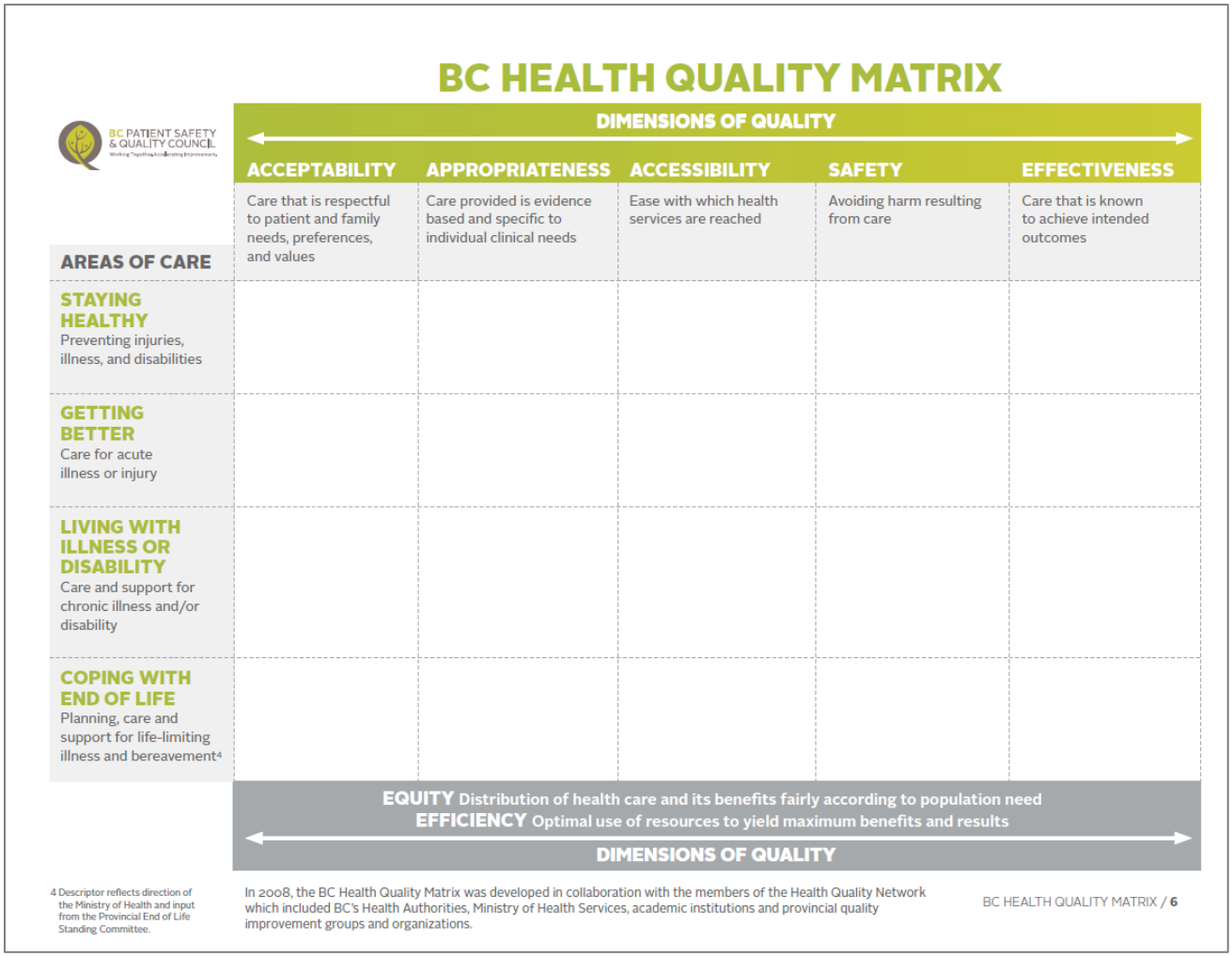
Wong BM, Ackroyd-Stolarz S, Bukowskyj M, Calder L, Ginzburg A, Microys S, Stang A, Wallace G. The CanMEDS 2015 Patient Safety and Quality Improvement Expert Working Group Report. Ottawa: The Royal College of Physicians and Surgeons of Canada; 2014 Feb.

CLINICIAN Quality ACADEMY

building advanced improvement capability for BC

Appendices

Appendix A – BC Quality Matrix



BC HEALTH QUALITY MATRIX

BC PATIENT SAFETY & QUALITY COUNCIL

DIMENSIONS OF QUALITY

AREAS OF CARE	ACCEPTABILITY Care that is respectful to patient and family needs, preferences, and values	APPROPRIATENESS Care provided is evidence based and specific to individual clinical needs	ACCESSIBILITY Ease with which health services are reached	SAFETY Avoiding harm resulting from care	EFFECTIVENESS Care that is known to achieve intended outcomes
STAYING HEALTHY Preventing injuries, illness, and disabilities					
GETTING BETTER Care for acute illness or injury					
LIVING WITH ILLNESS OR DISABILITY Care and support for chronic illness and/or disability					
COPING WITH END OF LIFE Planning, care and support for life-limiting illness and bereavement[4]					

EQUITY Distribution of health care and its benefits fairly according to population need
EFFICIENCY Optimal use of resources to yield maximum benefits and results

DIMENSIONS OF QUALITY

4 Descriptor reflects direction of the Ministry of Health and input from the Provincial End of Life Standing Committee.

In 2008, the BC Health Quality Matrix was developed in collaboration with the members of the Health Quality Network which included BC's Health Authorities, Ministry of Health Services, academic institutions and provincial quality improvement groups and organizations.

BC HEALTH QUALITY MATRIX / 6

Dimensions of Quality

- Acceptable
- Appropriate
- Accessible
- Safe
- Effective
- Equitable
- Efficient

Across the continuum (areas of care):

- Staying healthy
- Getting better (after acute illness or injury)
- Living with illness, disease or disability
- Coping with end of life

Appendix B – Kirkpatrick Model

Level 1: Reaction
The degree to which participants find the training favorable, engaging and relevant to their jobs.

Level 2: Learning
The degree to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training.

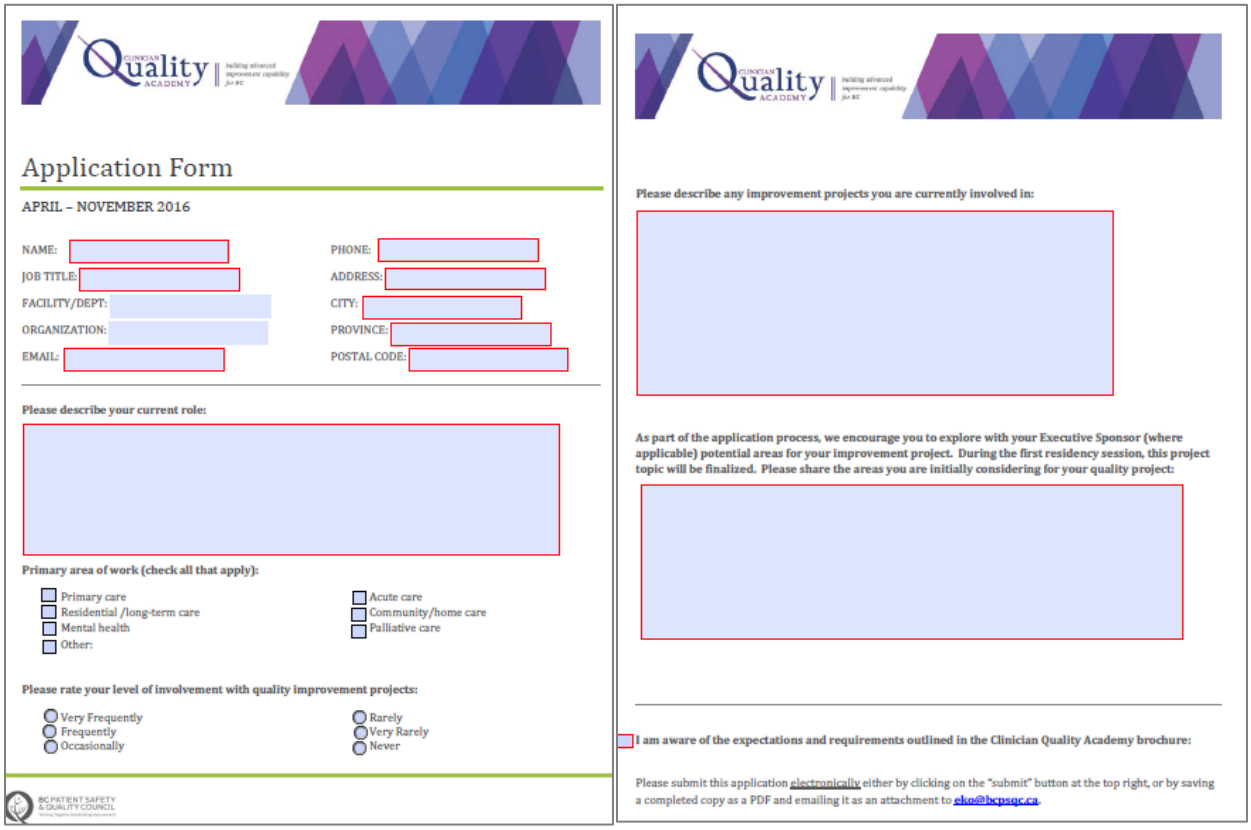
Level 3: Behavior
The degree to which participants apply what they learned during training when they are back on the job.

Level 4: Results
The degree to which targeted outcomes occur as a result of the training and the support and accountability package.

Appendix C – Data Collection Tools

Application Form

Potential participants completed an application form that outlined demographics, current role, demographics and motivation for participation in the program.



Application Form

APRIL – NOVEMBER 2016

NAME: PHONE:
JOB TITLE: ADDRESS:
FACILITY/DEPT: CITY:
ORGANIZATION: PROVINCE:
EMAIL: POSTAL CODE:

Please describe your current role:

Primary area of work (check all that apply):

- Primary care
- Residential /long-term care
- Mental health
- Other:
- Acute care
- Community/home care
- Palliative care

Please rate your level of involvement with quality improvement projects:

- Very Frequently
- Frequently
- Occasionally
- Rarely
- Very Rarely
- Never

BC PATIENT SAFETY & QUALITY COUNCIL

Please describe any improvement projects you are currently involved in:

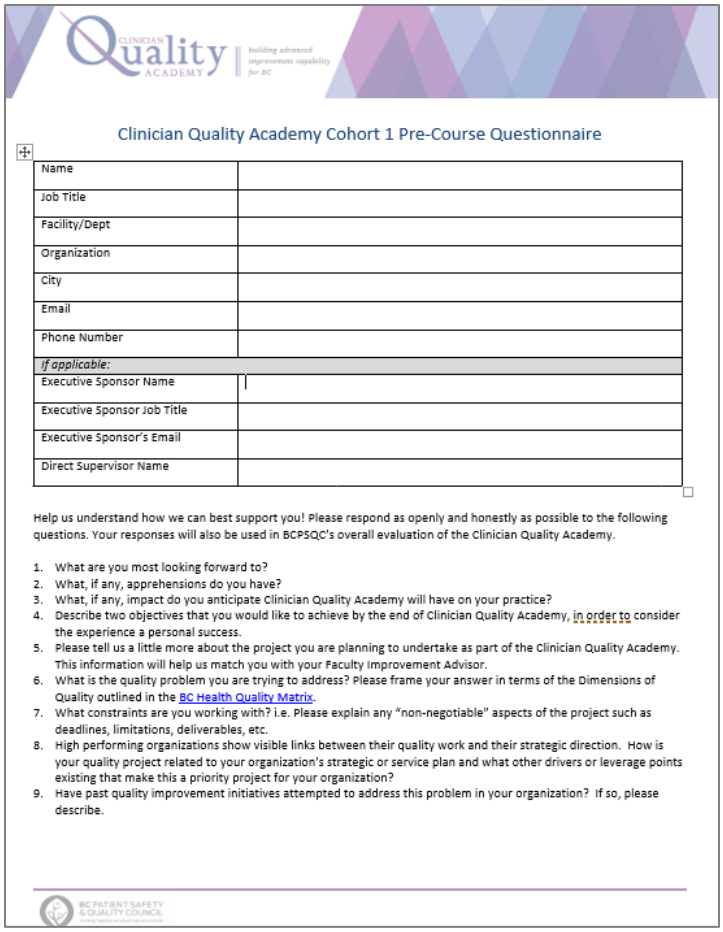
As part of the application process, we encourage you to explore with your Executive Sponsor (where applicable) potential areas for your improvement project. During the first residency session, this project topic will be finalized. Please share the areas you are initially considering for your quality project:

I am aware of the expectations and requirements outlined in the Clinician Quality Academy brochure:

Please submit this application electronically either by clicking on the "submit" button at the top right, or by saving a completed copy as a PDF and emailing it as an attachment to eko@bcpsqc.ca.

Registration Form

Once accepted into the program, participants completed registration information that provided more information about their proposed quality improvement project and their personal goals, apprehensions, predictions and organizational constraints.



Clinician Quality Academy Cohort 1 Pre-Course Questionnaire

Name	
Job Title	
Facility/Dept	
Organization	
City	
Email	
Phone Number	
If applicable:	
Executive Sponsor Name	
Executive Sponsor Job Title	
Executive Sponsor's Email	
Direct Supervisor Name	

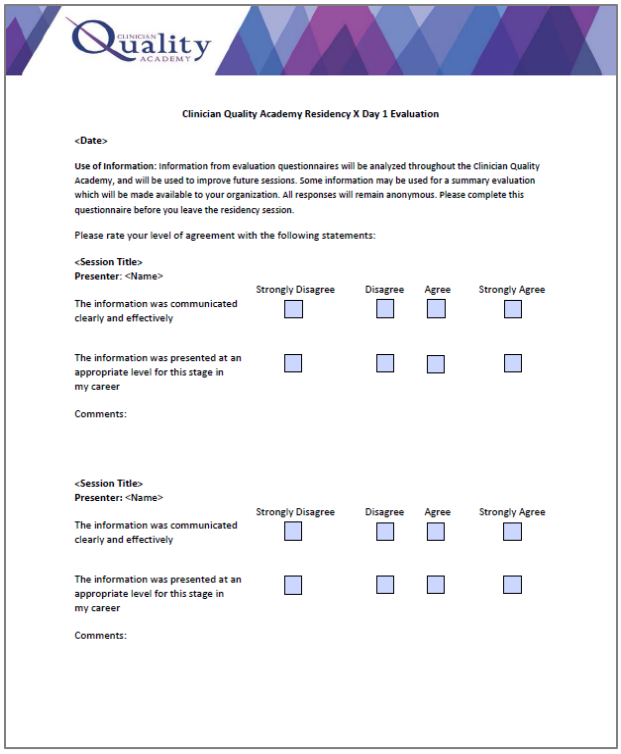
Help us understand how we can best support you! Please respond as openly and honestly as possible to the following questions. Your responses will also be used in BCPSQC's overall evaluation of the Clinician Quality Academy.

1. What are you most looking forward to?
2. What, if any, apprehensions do you have?
3. What, if any, impact do you anticipate Clinician Quality Academy will have on your practice?
4. Describe two objectives that you would like to achieve by the end of Clinician Quality Academy, in order to consider the experience a personal success.
5. Please tell us a little more about the project you are planning to undertake as part of the Clinician Quality Academy. This information will help us match you with your Faculty Improvement Advisor.
6. What is the quality problem you are trying to address? Please frame your answer in terms of the Dimensions of Quality outlined in the BC Health Quality Matrix.
7. What constraints are you working with? i.e. Please explain any "non-negotiable" aspects of the project such as deadlines, limitations, deliverables, etc.
8. High performing organizations show visible links between their quality work and their strategic direction. How is your quality project related to your organization's strategic or service plan and what other drivers or leverage points existing that make this a priority project for your organization?
9. Have past quality improvement initiatives attempted to address this problem in your organization? If so, please describe.

Pre- and Post- Program Self-Assessment Survey – see Appendix C

Residency Evaluation

At each residency, participants were invited to provide feedback on every topic presented and, on the sessions overall. Plus, participants were asked to identify 3 actions because of their learning.



Clinician Quality Academy Residency X Day 1 Evaluation

<Date>

Use of Information: Information from evaluation questionnaires will be analyzed throughout the Clinician Quality Academy, and will be used to improve future sessions. Some information may be used for a summary evaluation which will be made available to your organization. All responses will remain anonymous. Please complete this questionnaire before you leave the residency session.

Please rate your level of agreement with the following statements:

<Session Title>
Presenter: <Name>

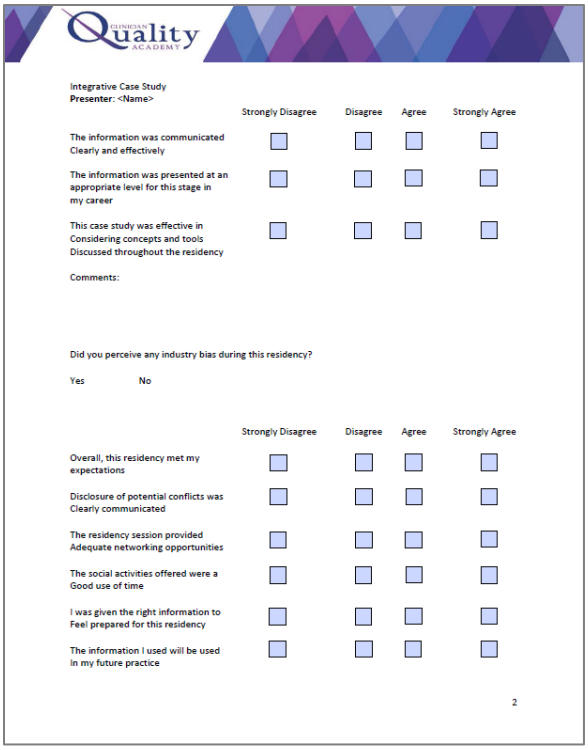
	Strongly Disagree	Disagree	Agree	Strongly Agree
The information was communicated clearly and effectively	☐	☐	☐	☐
The information was presented at an appropriate level for this stage in my career	☐	☐	☐	☐

Comments:

<Session Title>
Presenter: <Name>

	Strongly Disagree	Disagree	Agree	Strongly Agree
The information was communicated clearly and effectively	☐	☐	☐	☐
The information was presented at an appropriate level for this stage in my career	☐	☐	☐	☐

Comments:



Integrative Case Study
Presenter: <Name>

	Strongly Disagree	Disagree	Agree	Strongly Agree
The information was communicated Clearly and effectively	☐	☐	☐	☐
The information was presented at an appropriate level for this stage in my career	☐	☐	☐	☐
This case study was effective in Considering concepts and tools Discussed throughout the residency	☐	☐	☐	☐

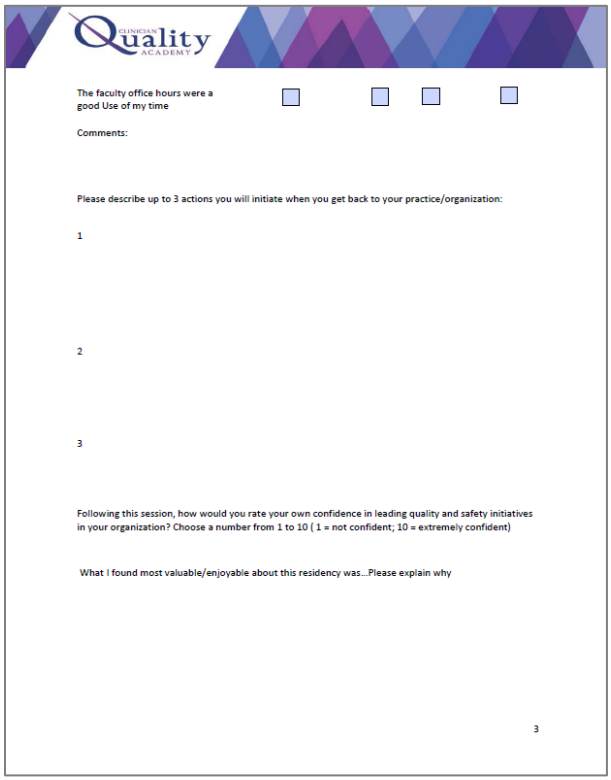
Comments:

Did you perceive any industry bias during this residency?

Yes No

	Strongly Disagree	Disagree	Agree	Strongly Agree
Overall, this residency met my expectations	☐	☐	☐	☐
Disclosure of potential conflicts was Clearly communicated	☐	☐	☐	☐
The residency session provided Adequate networking opportunities	☐	☐	☐	☐
The social activities offered were a Good use of time	☐	☐	☐	☐
I was given the right information to Feel prepared for this residency	☐	☐	☐	☐
The information I used will be used In my future practice	☐	☐	☐	☐

2



The faculty office hours were a good Use of my time ☐ ☐ ☐ ☐

Comments:

Please describe up to 3 actions you will initiate when you get back to your practice/organization:

1

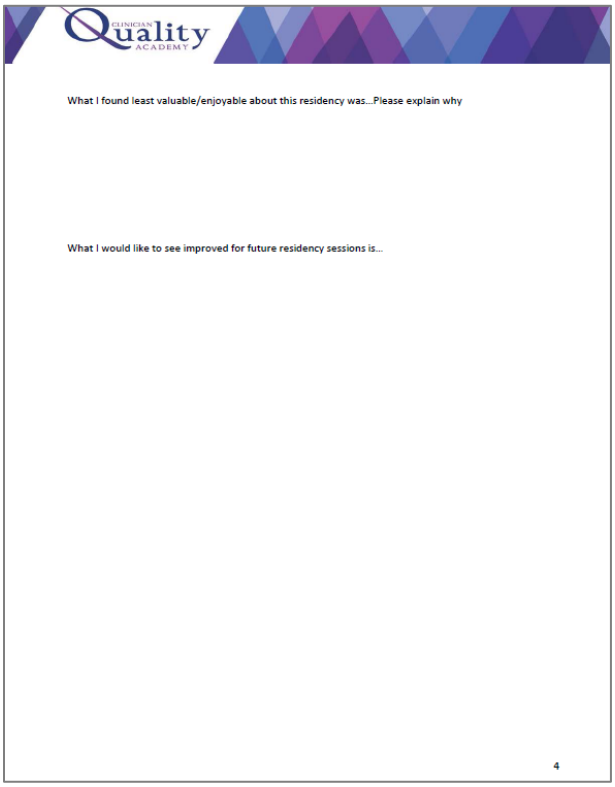
2

3

Following this session, how would you rate your own confidence in leading quality and safety initiatives in your organization? Choose a number from 1 to 10 (1 = not confident; 10 = extremely confident)

What I found most valuable/enjoyable about this residency was…Please explain why

3



What I found least valuable/enjoyable about this residency was…Please explain why

What I would like to see improved for future residency sessions is…

4

Webinar Feedback

At the end of each webinar, participants were asked to complete a short survey using the following questions:

To what extent do you agree with the following statements (strongly agree to strongly disagree)

1. The information was communicated clearly and effectively.
2. The information was presented at an appropriate level for this stage in my career.
3. The Webinar was a good use of my time.
4. The Webinar met my expectations.
5. The WebEx format was conducive to learning.
6. Open ended comments about content
7. Open ended comments about format

Post-program Semi-structured Interviews

A sample of participants were contacted after Residency #4. The following questions were used to guide a discussion to solicit qualitative information about their experience with the program.

Demographics

1. What is your primary role? And if applicable, with what organization and department?
2. Any additional roles or positions held?
3. How long have you been a practicing clinician?
    a. When did you complete MD program?

Program

4. What prompted your enrollment in the Clinician Quality Academy program?
    a. How did you hear about the program?
5. How was your experience with the program overall?
    a. What went well? What could be better?
    b. Residencies? Webinars? Scheduling, attendance, effective?
6. What were the biggest strengths of the program? And the biggest weaknesses?
7. What topics did you find most valuable?
    a. Any topics that you wish were covered? Or covered in more or less detail?
    b. What factors contributed to your learning?
8. Do you have any feedback on the presentation styles?
9. Do you have any feedback on the venue or logistics (like meals, start times, etc.)?

Quality Project

10. What about your quality project?
    a. What factors moved progress forward? What factors hindered your progress?
    b. What resources or tools did you utilize that helped the most?
11. What barriers or challenges did you encounter when you attempted to apply concepts learned in residency to your quality project?
    a. What kinds of things helped?
    b. Can you tell me more about/expand on that?
12. What was your experience with your Improvement Advisor?
    a. Was their role clear from the start?
    b. Any ideas on how to optimize Improvement Advisor calls?
    c. Future Cohorts
13. What advice would you give a physician starting Clinician Quality Academy that you wish you'd received?
    a. What do you wish you'd known at the start?
    b. What would you tell yourself if you could go back and talk to yourself prior to beginning?
    c. What are some lessons learned?
14. Overall, how could Clinician Quality Academy be better for the next cohort?
15. Would you recommend the program to others?
    a. What aspect of the program would you recommend most or were most helpful?
    b. Did you feel that the training was worth your time?
16. Is there anything else?

Follow-up Survey (12 months post-program)

Twelve months post-program, participants were surveyed using the following questions.

Rate agreement, from strongly agree to strongly disagree unless otherwise stated.

1. What is the current status of your project? (discontinued, ongoing, completed)
2. My project met or is meeting its stated aims.
3. The project is a useful way of applying the Clinician Quality Academy content.
4. Attending the Clinician Quality Academy had a positive impact on my project.
5. Have you mentored others in QI since attending the Clinician Quality Academy? (Yes or no)
6. How confident are you in mentoring others?

Appendix D – Skills & Knowledge Content Areas

This skills and knowledge self-assessment was adapted from IHI Improvement Advisor program. Each participant completed the assessment prior to attending Residency 1 and after Residency 4 (as part of the post-program survey). When they completed the assessment after the final residency, two additional questions were asked.

Knowledge/Skills Self-Assessment	First, choose your STAGE and then, type the SELF-ASSESSMENT NUMBER that best describes your level within the stage.					
	No knowledge (√)	**Information** Know what the tool is (1-20)	**Skill** Can apply in identified situations (21-40)	**Knowledge** Know how, when and where to use (41-60)	**Understanding** Experience with tool; can explain why (the theory) (61-80)	**Wisdom** Can teach theory and use of the method (81-100)
EXAMPLE 1				*45*		
EXAMPLE 2		*5*				
1. Definition of Quality						
2. Systems Theory						
3. Complexity Science						
4. Human Factors Concepts						
5. Reliability Science						
6. Concept of Resiliency in Healthcare Organizations						
7. Link between Variation in Clinical Practice and Quality						
8. Role of Culture in Quality and Safety						
9. Management and Prevention of Adverse Events						
10. Group Facilitation Skills						
11. Conflict Resolution Skills						
12. Teamwork Principles						
13. Stakeholder Engagement Skills						
14. Leadership Skills						
15. Coaching and Mentoring Skills						
16. Patient and Family Involvement in Quality Improvement						

Knowledge/Skills Self-Assessment	First, choose your STAGE and then, type the SELF-ASSESSMENT NUMBER that best describes your level within the stage.					
	No knowledge (√)	**Information** Know what the tool is (1-20)	**Skill** Can apply in identified situations (21-40)	**Knowledge** Know how, when and where to use (41-60)	**Understanding** Experience with tool; can explain why (the theory) (61-80)	**Wisdom** Can teach theory and use of the method (81-100)
17. Social Movement Theory						
18. Ethics in Quality Improvement						
19. The Model for Improvement						
20. Positive Deviance						
21. Lean/Toyota Production System Concepts						
22. Improving Flow (demand and capacity)						
23. Project Management in Quality Improvement						
24. Using Data for Improvement						
25. Statistical Process Control Theory						
26. Performance Measures (e.g. dashboard measures)						
27. Principles of Spread and Sustainability in QI						
28. Costs Associated with Low Quality in Health Care						
29. Health Economics Principles						
30. Measuring Costs and Benefits						
31. Principles of Highly Innovative Organizations						

Post-Program Questions:

Please tell us how successful the Clinician Quality Academy was in meeting your personal objectives that you entered on your Clinician Quality Academy pre-work.

Objective 1:

On a scale of 1-10 how much do you feel the objective has been accomplished

Not accomplished 1 2 3 4 5 6 7 8 9 10 Fully accomplished

What contributed most to accomplishing this objective?

What could have helped accomplish the objective even more?

Objective 2:

On a scale of 1-10 how much do you feel the objective has been accomplished

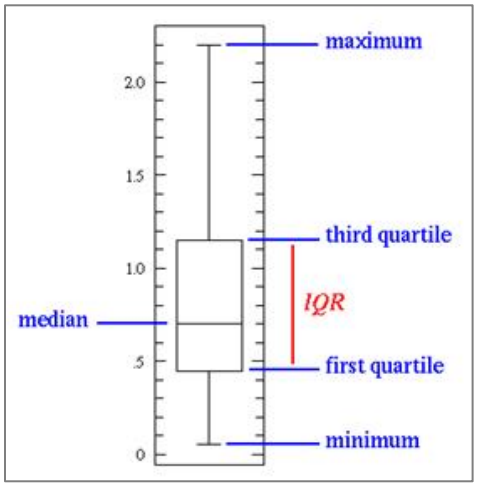
Not accomplished 1 2 3 4 5 6 7 8 9 10 Fully accomplished

What contributed most to accomplishing this objective?

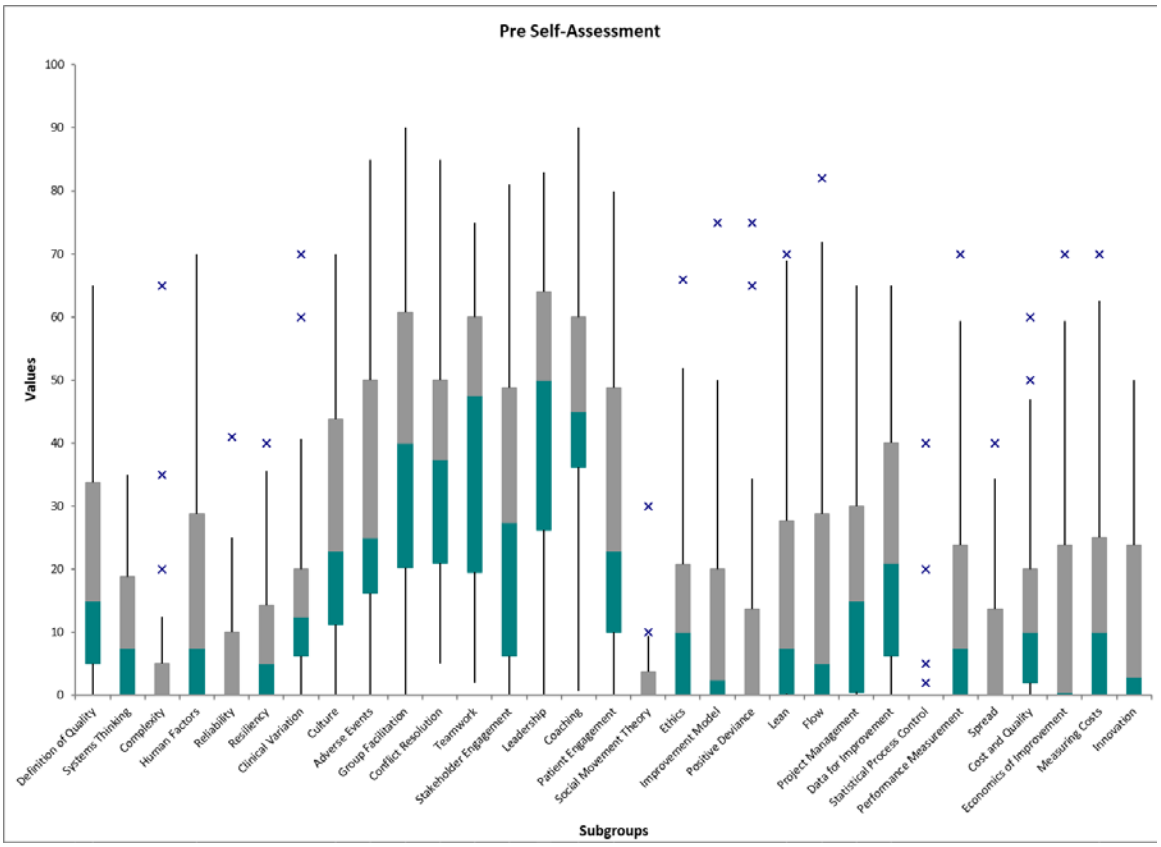
What could have helped accomplish the objective even more?

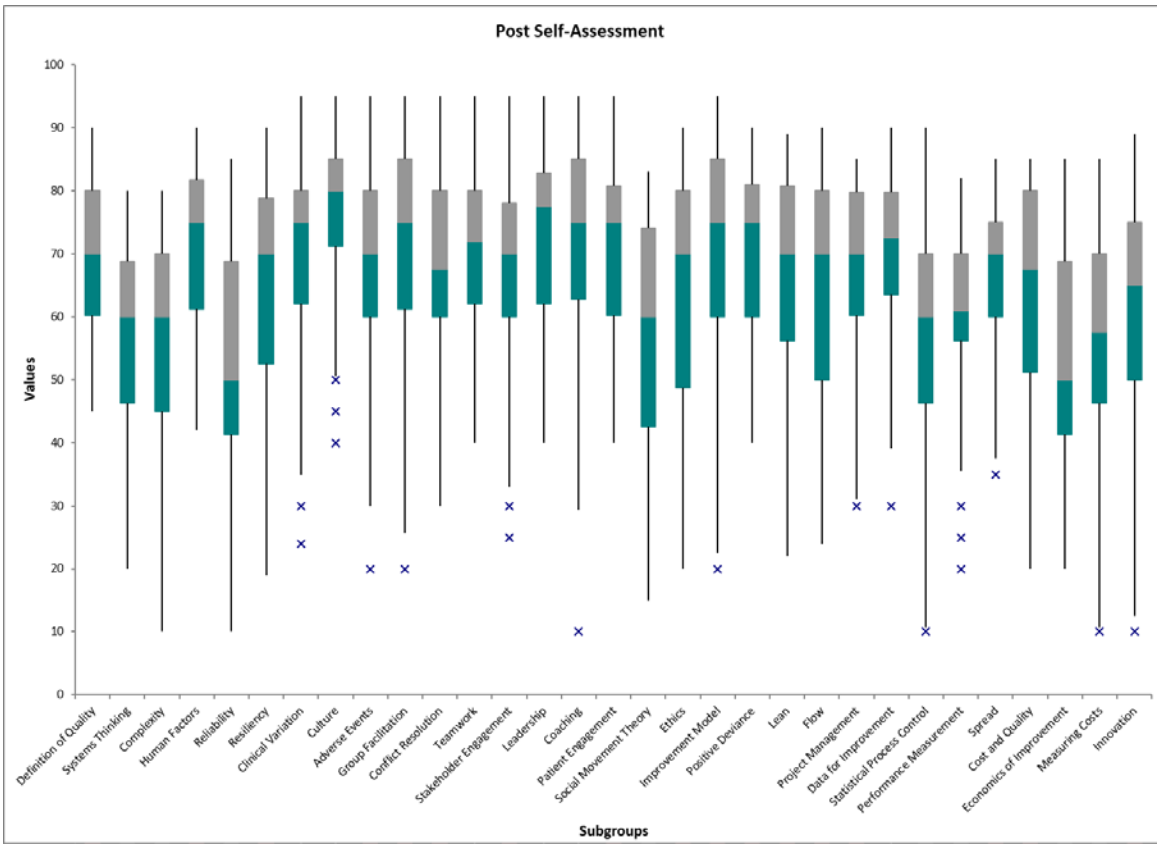
Appendix E – Skills & Knowledge Self-Assessment Data (Pre and Post)

The following graphics show the median and distribution of self assessment scores for each of the 31 skills and knowledge categories, both pre- and post-program. The scale was a 0 to 100 scale.



- **Minimum**: lowest value
- **First quartile:** 25% of all data points are below; 75% above (teal).
- **Median:** middle value; 50% of all data points are below and above this point (where grey and teal meet).
- **Third quartile:** 75% of all data points below; 25% above (grey).
- **Maximum:** highest value
- **IQR:** Interquartile Range, which is the range between Q1 and Q3. It is used to calculate the 'whisker', which is the thin line. Formula is: Q1 or Q3 +/- 1.5*IQR
- The X's are the outliers, i.e. any values that fall outside the whiskers.


Pre Self-Assessment
Values
Subgroups
Definition of Quality
Systems Thinking
Complexity
Human Factors
Reliability
Resiliency
Clinical Variation
Culture
Adverse Events
Group Facilitation
Conflict Resolution
Teamwork
Stakeholder Engagement
Leadership
Coaching
Patient Engagement
Social Movement Theory
Ethics
Improvement Model
Positive Deviance
Lean
Flow
Project Management
Data for Improvement
Statistical Process Control
Performance Measurement
Spread
Cost and Quality
Economics of Improvement
Measuring Costs
Innovation


Post Self-Assessment
Values
Subgroups
Definition of Quality
Systems Thinking
Complexity
Human Factors
Reliability
Resiliency
Clinical Variation
Culture
Adverse Events
Group Facilitation
Conflict Resolution
Teamwork
Stakeholder Engagement
Leadership
Coaching
Patient Engagement
Social Movement Theory
Ethics
Improvement Model
Positive Deviance
Lean
Flow
Project Management
Data for Improvement
Statistical Process Control
Performance Measurement
Spread
Cost and Quality
Economics of Improvement
Measuring Costs
Innovation