
Quality Improvement in Healthcare Certificate

Centre for Quality, Innovation, and Safety
Schulich School of Medicine & Dentistry, Western University

COURSE SYLLABUS

LEAD INSTRUCTOR

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LOCATION

Online

ADMISSION REQUIREMENTS

Healthcare Professional or Healthcare Administrative Staff with support from their department/unit leader

BACKGROUND

Even prior to the CoVID-19 pandemic, the Canadian health care system sat on the verge of buckling with hospital systems commonly reporting seven or even eight figure deficits. In the ensuing struggle to contain costs, concern arose that quality of care was being de-emphasized. With the coming of the pandemic, the health care system has entered a crisis, with record reports of front-line worker burnout, and even suicides.

Applying quality improvement methodology to the healthcare setting represents a way to both reduce costs AND improve quality, without tradeoff. As outlined in the Institute for Healthcare Improvement's quadruple aim, an organization's suite of quality goals should include all four of the following: better population health outcomes, reduced costs, better patient experience, and better provider experience.

Limiting the quadruple aim's successful implementation is the deficit among front-line healthcare professionals in the culture, the philosophies, and the methods of continuous quality improvement. This curriculum was created to directly address this deficit, thereby transforming front-line professionals into proactive architects of a sustainable, highly performing health system. The curriculum is led by a physician with Masters-level training in quality improvement who is uniquely positioned to coach and develop participants and their projects based on authentic front-line experience.

COURSE DESCRIPTION

This course teaches the fundamentals of quality improvement through experiential learning and just-in-time asynchronous content delivery. Students can work in teams or individually to identify a concrete care gap in their own healthcare settings and apply quality improvement methodology to sustainably mitigate or resolve it.

The course centers around a quality improvement project, which participants select & develop within their own healthcare environments. Once a project is selected, participants will progress through a series of eight learning modules, each corresponding to a major phase in the quality improvement process. The project serves as the application for the curriculum's content.

Each module has a similar format and is delivered in flipped classroom style. Students begin with online content consumption, followed by application in the form of project-related activities and tasks. These are subsequently shared with the rest of the cohort and feedback is received via a live webinar. Finally, the module concludes with a one-on-one (or one-on-group) coaching session for a more in-depth refinement and reinforcement of the module's concepts.

MOC ACCREDITATION

**This program has received no financial support.*

Section 1 (Live Webinars): This course is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada, and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University. You may claim a maximum of **XX.00 hours** (credits are automatically calculated).

Section 2: Time spent completing individual homework assignments/activities, reading resource articles, and working on your quality improvement project may be eligible for Section 2 (personal learning project and scanning).

Section 3 (Online Modules): This activity is an Accredited Self-Assessment Program (Section 3) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada, and approved by Continuing Professional Development, Schulich School of Medicine & Dentistry, Western University. You may claim a maximum of **XX.00 hours** (credits are automatically calculated).

Section 3: Feedback provided during the coaching sessions may be eligible for Section 3 Performance Assessment (self-claim).

LEARNING OUTCOMES

As a result of this course, you will be able to:

- Express a clinical care gap in the form of an AIM statement
- Design and execute a comprehensive root cause analysis
- Generate solutions and map them onto root causes
- Design a feasible implementation plan that accounts for local contextual factors
- Design and implement authentic Plan-Do-Study-Act cycles
- Design and execute a data collection strategy to rigorously demonstrate improvement over time
- Design and execute a sustainability plan including ongoing stakeholder engagement
- Avoid major pitfalls associated with QI projects

PROGRAM REQUIREMENTS

Successful completion of the Quality Improvement in Healthcare Certificate requires the following:

- Attendance at all live webinars
- Completion of all module activities
- Receipt of a passing grade in at least 80% of the assignments
- Application of QI tools and methods to a QI project
- Capstone presentation

REQUIRED READING

1. Value of small sample sizes in rapid-cycle quality improvement projects - Etchells, Ho & Shojania, 2015
2. Reducing waste: A guidelines-based approach to reducing inappropriate Vitamin D and TSH testing in the inpatient rehabilitation setting - Bateman et al., 2019
3. Joining a conversation: the problem/gap/ hook heuristic - Lingard, 2015
4. From local change to scholarly contribution: lessons from a scoping review of the gaps and pitfalls of QI reports – Spicer et al., 2026

RECOMMENDED READING

1. Patient safety 102: Human factors and safety, IHI
2. Using usability heuristics to evaluate patient safety of medical devices - Zhang et al., 2003
3. Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science - Damschroder et al., 2009
4. Implementing interventions in your hospital: What to try and what to avoid - Ranji et al., 2008

COURSE FORMAT

*At least 25% of this program is dedicated to participant interaction

Group Webinar (synchronous)

Three times throughout the course, participants and instructors will participate in a joint webinar.

- Tuesday, September 1, 2026, 4-5:00pm: Welcome & Introduction to the Course
- Thursday, January 7, 2027, 3-5:00pm: Halfway Point Mini-Presentation
- Tuesday, May 4, 2027, 1-4:00pm: Capstone Presentations

Attendance and participation at each webinar is a requirement of the course. Webinars will provide opportunities to share progress and lessons learned as well as receive feedback from peers and QI coaches. Webinars will be recorded for the purposes of review.

Independent Work (asynchronous)

In preparation for class webinars and coaching calls, participants will be required to complete a variety of independent learning activities including:

- Online learning modules
- Educational videos (approx. 30-40 minutes per module)
- Required readings

Coaches (synchronous)

Each participant will be assigned a faculty coach who will provide monthly (1 hour) support and guidance through each module and each step of the QI project. Each coach will have advanced academic training in QI as well as experience implementing QI initiatives in a healthcare setting.

DIGITAL LEARNING PLATFORM

The course will leverage a digital learning management system to aid distribution of course content. *Thinkific.com* is the online learning platform used to house all learning materials in one location including videos, assignments, and readings. It also offers a discussion board to post questions for the course instructor.

ASSESSMENT

The QIHC program operates on a binary grading system; therefore, all assessments will be graded on a pass/fail basis. At least 80% of all assignments must receive a pass in order to successfully meet the expectations of the course.

PARTICIPANT RESPONSIBILITIES

Participants are required to act with professional integrity through all aspects of the course. This includes listening to one another's viewpoints and being respectful in communication. Participants are required to be prepared for and attend all webinars, attend coaching calls, and complete all learning activities in each module. Provide adequate notice if extenuating circumstances prevent webinar attendance or activity completion. Contribution to considerate collegial relationships between participants positively influences excellence in education.

COURSE CALENDAR

Course Preparation: Curriculum Overview, Topic Selection, and Problem Definition

Objectives

1. Identify course components and curriculum overview
2. List digital resources used for course content and project management
3. Identify major factors that predict the success and failure of QI initiatives
4. Apply a project selection framework to the proposed topic
5. Define a primary outcome measure

Date	Mode	Activities	Resources
Before Sept 1st	Individual Work	<u>Thinkific</u> 1. Complete online primer module (120 min) 2. View introductory videos (60 min) 3. Complete module quiz 4. Complete module evaluation <u>Parts of charter to complete:</u> 1. Care gap description 2. Operational primary outcome definition <u>Assignments/Activity</u> (Due: September 1, 2026) 1. Project selection	<u>Online Primer Module</u> Introduction to Quality Improvement <u>Videos</u> • Why improve quality? • Curriculum overview • The course website: Thinkific • The project charter • Project documents • Sponsor's Concern, Overview, and Deliverables • Choosing QI a project topic • Defining a QI problem • The data dictionary • Conclusion <u>PDF</u> Curriculum Overview <u>Resources</u> Project Charter Project Selection Checklist Data dictionary

LIVE WEBINAR: Welcome and Introduction to the Course

Objectives

1. Welcome and introduction to the course
2. Project selection discussion

Date	Mode	Activities	Resources
Sept. 1, 2026	Virtually 4-5pm	Welcome & Introduction to the Course (60 min)	<u>Discussion:</u> Students should come prepared to discuss their project topic selection during the live webinar.
(Sept 8-11)	Coaching Call	Discussion & Feedback (60min) 1. Review project topic 2. Review care gap definition	Students will book coaching calls with their coaches

MODULE 1: Problem Quantification & Goal Setting

Objectives

1. Differentiate quality improvement from research
2. Construct an AIM statement
3. Identify the role of ethics oversight in QI projects
4. Craft a compelling narrative to influence stakeholders

Date	Mode	Activities	Resources
Due Date: Sept. 30, 2026	Individual Work	<u>Thinkific</u> 1. View QI videos (45min) 2. Read research papers 3. Consider whether REB exemption is required 4. Complete module quiz 5. Complete module evaluation <u>Parts of charter to complete:</u> 1. Baseline data collection 2. AIM statement 3. Problem/gap/hook <u>Assignments/Activity:</u> 1. Data dictionary Part 1 1. AIM statement 2. Problem/gap/hook 3. Projected SPC chart	<u>Videos</u> • Sponsor's concern, overview, and deliverables • QI vs. conventional research • Starting with the end in mind • Planning a baseline data collection • Constructing the AIM statement • The project narrative • Planning to demonstrate improvement: The 'power calculation' • Ethics and QI • Conclusion <u>Articles</u> 1. Reducing waste: A guidelines-based approach to reducing inappropriate Vitamin D and TSH testing in the inpatient rehabilitation setting - Bateman et al. 2019 2. <i>Value of small sample sizes in rapid-cycle quality improvement projects</i> - Etchells et al., 2015 3. <i>Joining a conversation: the problem/gap/ hook heuristic</i> - Lingard, 2015 4. Problem/gap/hook examples <u>Template</u> REB Letter of Exemption Process Hypothetical SPC Excel template <u>Resource</u> Bi-weekly P-chart Monthly P-chart
(Sept. 28-Oct. 2)	Coaching Call	Discussion & Feedback (60min) 1. Review AIM statement 2. Review project narrative 3. Discuss hypothetical SPC and implication on project scope 4. Discuss whether REB exemption required	

MODULE 2: Root Cause Analysis: Hypothesis Generation & Stakeholder Engagement

Objectives

1. Design and execute an effective stakeholder engagement strategy
2. Generate hypotheses explaining the care gap by using a variety of QI tools

Date	Mode	Activities	Resources
Due Date: Oct. 31, 2026	Individual Work	<u>Thinkific</u> 1. View QI videos (45min) 2. Complete module quiz 3. Complete module evaluation <u>Parts of charter to complete:</u> 1. Stakeholder analysis chart 2. Lessons from stakeholder interviews 3. Cause & effect diagram <u>Assignments/Activity:</u> 1. Stakeholder analysis 2. Cause & effect diagram 3. Process map	<u>Video</u> • Sponsor's concern, overview, and deliverables • Stakeholder engagement & communication strategy • Tool: Stakeholder interviews • Tool: Cause and effect diagram • Tool: Five Whys • Tool: Process map • Tool: Data drill down • Tool: Looking for deviation • Conclusion <u>PDF</u> HQO 5 Whys Worksheet <u>Template</u> Time Study Observation Template Stakeholder Analysis Lucidchart Template Root cause analysis checklist Process map Lucidchart Template/PDF <u>Software</u> Lucidchart: www.lucidchart.com (free)
(Oct. 19-23)	Coaching Call	Discussion & Feedback (60min) 1. Review stakeholder strategy 2. Discuss diagnostic tools used	

MODULE 3: Root Cause Analysis: Hypothesis Validation

Objectives

1. Utilize the literature review as a hypothesis generation tool
2. Validate hypotheses using the following tools: direct observation, Pareto analysis

Date	Mode	Activities	Resources
Due Date: Nov. 30, 2026	Individual Work	<u>Thinkific</u> 1. View QI videos (20min) 2. Complete module quiz 3. Complete module evaluation <u>Parts of charter to complete:</u> 1. QI literature review 2. Pareto chart 3. Top three root causes <u>Assignments/Activity:</u> 1. QI literature review 2. Pareto chart	<u>Video</u> • Sponsor's concern, overview, and deliverables • Tool: Direct observation/check sheet • Tool: Pareto chart • Conclusion <u>PDF</u> Check sheet <u>Template</u> Pareto spreadsheet Reflection guide: root cause analysis
(Nov. 9-13)	Coaching Call	Discussion & Feedback (60min) 1. Review Pareto chart 2. Revise stakeholder & communication strategy as needed	

MODULE 4: Solution Generation, Prioritization, and Selection

Objectives

1. Differentiate between a change concept and a change idea
2. List tools/methods that are used in each of the two distinct phases of the solution selection process (generation and prioritization)
3. Generate potential solutions that directly link to root causes
4. List the hierarchy of effectiveness of interventions
5. List general factors that contribute to the success or failure of solutions
6. Evaluate viability of potential solutions

Date	Mode	Activities	Resources
Due Date: Jan. 1, 2027	Individual Work	<u>Thinkific</u> 1. View QI Videos (65min) 2. Complete module quiz 3. Complete module evaluation <u>Parts of charter to complete:</u> 1. PICK chart 2. Mapping candidate solutions to root causes 3. Description of chosen solutions <u>Assignment:</u> 1. PICK chart 2. Solution mapping	<u>Videos</u> • Sponsor's concern, overview, and deliverables • The solutions process, mapping onto root causes • Change concepts vs change ideas • Generation tool: Reverse brainstorming • Generation tool: Creative combinations • Generation tool: Human factors • Generation tool: Influencer • Generation tool: Direct observation • Prioritization tool: PICK chart • Prioritization tool: Hierarchy of effectiveness • Prioritization tool: Golden rules • Describing your chosen solutions • Conclusion <u>Template:</u> PICK chart Lucidchart
(Nov. 30-Dec. 4)	Coaching Call	Discussion & Feedback (60min) 1. Review chosen solutions & PICK chart 2. Revise stakeholder & communication strategy	

MIDTERM PRESENTATIONS

Objectives

1. Knowledge translation and midterm presentations

Date	Mode	Activities	Resources
Jan 07, 2027	Live Webinar: 3-5:00pm	Halfway Point Midterm Presentations (120min)	

MODULE 5: Improvement Science

Objectives

1. Perform a context analysis and identify potential opportunities & threats to implementation
2. List & describe each category comprising the family of measures
3. List the elements of the Model for Improvement

4. Use the Plan-Do-Study-Act framework to plan for iterative tests of change			
Date	Mode	Activities	Resources
Due Date: Jan. 31, 2027	Individual Work	<u>Thinkific</u> 1. View QI Videos (55min) 2. Read article 3. Review reflection guide 4. Complete module quiz 5. Complete module evaluation <u>Parts of charter to complete:</u> 1. Context analysis 2. Family of measures 3. PDSA Cycles 1 & 2 <u>Assignment:</u> 1. Context Analysis 2. Data dictionary Part II 3. PDSA worksheet	<u>Videos</u> • Sponsor's concern, overview, and deliverables • Context • Family of measures • Model for Improvement overview • Plan • Do • Study • Act • Overview of Lean/TPS • Overview of Six Sigma • Conclusion <u>Articles</u> 1. A primer on PDSA: Executing plan-do-study-act cycles in practice, not just in name - Leis & Shojania, 2016 <u>Templates</u> PDSA Worksheet Reflection guide: implementation
(Jan. 11-15)	Coaching Call	Discussion & Feedback (60min) 1. Finalize solution selection 2. Finalize family of measures 3. Finalize implementation plan and data collection strategy in light of context analysis	

MODULE 6: Measurement for Improvement

Objectives

1. Describe the rationale for displaying data over time
2. Construct a run chart
3. Construct a statistical process control chart

Date	Mode	Activities	Resources
Due Date: Feb. 28, 2027	Individual Work	<u>Thinkific</u> 1. View QI Videos (40min) 2. Read articles 3. Continue to progress PDSA cycles 4. Complete module quiz 5. Complete module evaluation <u>Parts of charter to complete:</u> 1. PDSA cycle #n 2. Run chart 3. SPC chart <u>Assignments/Activity:</u> 1. PDSA worksheet update 2. Run chart 3. Statistical process control chart 4. Optional SPC Assignment	<u>Videos</u> • Sponsor's concern, overview, and deliverables • Pitfalls of applying conventional statistics to QI • Run charts • Tale of three clinics • Statistical process control charts • Change occurred: differential diagnosis • Change did not occur: differential diagnosis • Conclusion <u>Article</u> 1. Statistical process control as a tool for research and healthcare improvement - Benneyan et al., 2003

			2. The run chart: A simple analytical tool for learning from variation in healthcare processes - Perla et al., 2010 <u>Templates:</u> PDSA Worksheet SPC Chart Template Differential diagnoses for improvement
(Feb. 1-5)	Coaching Call	Discussion & Feedback (60min) - Discuss needed revision of PDSA cycles as necessary - Review run and SPC charts	

MODULE 7: Sustainability & Spread

Objectives

- Identify reasons why performance can regress to baseline
- Design a sustainability plan (documentation, education/training, monitoring, response)
- Extract and share project lessons beyond the project team

Date	Mode	Activities	Resources
Due Date: Mar. 31, 2027	Individual Work	<u>Thinkific</u> - View QI Videos (50min) - Read articles - Complete module quiz - Complete module evaluation <u>Parts of charter to complete:</u> - Documentation of new standards - Monitoring and response plan <u>Assignment:</u> - Sustainability plan - Capstone: One or more of: - Closeout report - Poster - Manuscript draft	<u>Videos</u> - Sponsor's concern, overview, and deliverables - Causes of regression - Documentation plan - Education & training plan - Monitoring plan - Response plan - Closeout report - Poster presentation - Publishing - Conclusion <u>Article</u> How to write up your QI initiatives for publication - Wong & Sullivan, 2016 From local change to scholarly contribution: lessons from a scoping review of the gaps and pitfalls of QI reports – Spicer et al., 2026 <u>Templates</u> Project closeout report Resident research day poster
(Mar. 1-5)	Coaching Call	Discussion & Feedback (60min) - Review sustainability plan - Review closeout report/poster/manuscript	
(Apr. 5-9)	(Optional, Additional) Coaching Call	Discussion & Feedback (60min) Opportunity for additional coaching support prior to Capstone Presentation	

Capstone Presentations

Objectives

1. Knowledge translation and capstone presentation

Date	Mode	Activities	Resources
May 04, 2027,	Live Webinar: 1-4:00pm	Capstone Presentations (180min)	