

# An Experiential Quality Improvement Curriculum for the Inpatient Setting – Part 1: Design Phase of a QI Project

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## Resource Files

- Individual Sessions Guide
- Quality Improvement Handbook (for learners)
- Quality Improvement Handbook – Faculty companion
- Session 1: Introduction to Quality Improvement – Facilitator’s Guide
- Session 1: Introduction to Quality Improvement – Presentation slides
- Session 1: Introduction to Quality Improvement – Small Group Exercise Handout
- Session 1: Introduction to Quality Improvement – Small Group Exercise Template
- Session 2: Disclosure of Medical Error and Root Cause Analysis – Facilitator’s Guide
- Session 2: Disclosure of Medical Error and Root Cause Analysis – Presentation slides
- Session 2: RCA Tool Handout Exercise
- Session 3: Understanding the Problem – Facilitator’s Guide
- Session 3: Understanding the Problem – Presentation Slides
- References List
- Request for Project Proposals
- Glossary of Abbreviations

## Description

Formal training in quality improvement (QI) has become increasingly important. Both the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Internal Medicine (ABIM) have created competencies in the areas of practice-based learning improvement (PBLI), systems-based practice (SBP) and communication that must be met. Most QI curricula for internal medicine residents are implemented in the outpatient setting and are often limited to resident learners. As part of an inpatient training program for internal medicine (IM) residents, we developed the Quality Improvement Project (QuIP) curriculum to improve residents’ knowledge, attitudes, and skills in QI, and to meet competency requirements set by the ACGME in the realms of PBLI, SBP, and communication.

The QuIP curriculum is a 2-year program that incorporates didactic teaching, targeted coaching sessions, and mentored implementation of a QI project embedded in hospital-led initiatives. Didactic components were delivered in 2 settings: monthly educational sessions and a 1-month dedicated QI rotation. Learners, which included IM residents, medical students, and pharmacy residents, worked in faculty-mentored teams (QuIP Teams) to design, implement, and measure a QI project in conjunction with the relevant hospital committees as part of the curriculum. Learners also completed online QI educational content provided by the Institute for Healthcare Improvement. Faculty mentors and QuIP Team members attended educational and coaching sessions together to facilitate team learning.

The curriculum is presented as a three-part series divided into phases of a QI project: the design phase, implementation phase, and evaluation phase. This module provides the materials and instructions for the Design Phase of a QI curriculum, in addition to materials that pertain to the entire process.

Curricular Elements	Learning Objectives (K= knowledge, S= skills, A= attitudes, P= process)
Institute for Healthcare Improvement Open School Online Modules	<ul style="list-style-type: none"> <li>✓ Define quality improvement (QI) (K)</li> <li>✓ Rate the importance of QI in the hospital setting as important (A)</li> <li>✓ Define common QI tools (K)</li> <li>✓ List the major steps of Model for Improvement (K)</li> <li>✓ Define medical error (K)</li> </ul>
Lecture-style presentations with supplemental readings	<ul style="list-style-type: none"> <li>✓ Describe an approach for medical error disclosure (K)</li> <li>✓ Create an aim statement for a QI project (S)</li> <li>✓ Complete a Supplier, Input, Process, Output, and Customer analysis for a QI project (S)</li> </ul>
QI Handbook	<ul style="list-style-type: none"> <li>✓ Plan appropriate interventions for a quality improvement initiative (S)</li> <li>✓ List metrics that can be applied to a QI project (S)</li> </ul>
Team-Based Learning	Learning Objectives (K= knowledge, S= skills, A= attitudes, P= process)

Table 1. Overview of curricular structure and objectives.

Work-in-Progress Conference	✓ Utilize a fishbone or process map to deepen understanding of a problem (S)
QI Coaching Sessions	✓ Create a fishbone diagrams to analyze a health care problem (S) ✓ Present results of their QI project to a large audience (S) ✓ Elicit feedback regarding progress of QI project (S)
Hospital Committee Meetings	✓ Work within an interprofessional setting to accomplish a QI goal (S) ✓ Design a QI project within an inpatient setting (P) ✓ Implement a QI project within an inpatient setting (P) ✓ Evaluate the success of a QI project (P)

\*Type of learning objective designated in parentheses ( ): K=knowledge, A=attitudes, S=skills, P=process

### Practical Implementation

The entire curriculum has been divided into three parts that relate to three parts of a QI project – the designing or planning stage, the implementation stage, and evaluation stage. The curriculum utilizes a QI project as the context for teaching the QI content and relies on the use of a variety of complementary methods to teach the content. While more labor intensive, we found that the combination of didactics sessions and team-based coaching through an authentic experience using the handbooks as a guide was ideal. While didactic sessions can certainly be presented in any order, we determined that dividing the content into the three stages of a project was an intuitive way to present the material to learners. We suggest that the entire curriculum be taught to learners in the order that they have been presented here.

We would like to offer these suggestions for using these materials:

- This first part of the series creates the foundation for the learner. The didactics sessions introduce them to QI and also ties in principles of patient safety and medical error.
- The “Individual Sessions Guide” provides a brief description of all of the didactics sessions in order so that instructors can understand the overall curriculum. This module includes Sessions 1-3.
- The handbooks are a “roadmap” for an entire project. They will be available in all parts of the series, though each part in the series will focus on certain sections of the handbook. This module will lead the learner through Steps 1-2 in the QI handbooks.
- As a whole, we presented the program over 2 years. The sessions in Part 1 of this series can total up to 12 curricular hours. This does not necessarily include any project time or faculty preparation time. However, the materials can be modified and presented in a shorter time frame and projects can be chosen with a shorter timeline, or conversely be spread out over a longer time frame depending on the need of the program. For example, judicious use of the IHI Open School Online modules in lieu of classroom teaching time may decrease overall curricular time needed to implement this curriculum. Faculty time will depend on expertise and familiarity of faculty with the content and with the process of mentoring.

Useful materials include laptop and projector for the didactic sessions, as well as whiteboards or flip charts (paper easel pads) to allow for group work. Facilitators’ guides for each individual session are included in the session folders.

### Effectiveness and Significance of Publication

We evaluated the program using three different methods: pre-post surveys of learners’ perceptions, the Quality Improvement Knowledge Assessment Test (QIKAT), and the San Francisco Project Assessment Tool (SFPAT). We will plan to compare residents’ QIKAT and SFPAT scores over time. In the pilot year, 4 projects were undertaken by QuIP Teams.

Results from our first cohort are shown in Table 2

Table 2. Pilot Projects and outcomes.

QI Project	Process/Clinical Outcomes	Scholarly Outcomes	Educational Outcomes
Target Stroke: Improving the time to TPA for Stroke Alerts	<ul style="list-style-type: none"> <li>– New stroke protocol implemented for stroke alerts</li> <li>– Time to TPA improved by 41%</li> </ul>	<ul style="list-style-type: none"> <li>– Poster presentation at a regional conference</li> <li>– Poster presentation at an international subspecialty meeting</li> </ul>	<ul style="list-style-type: none"> <li>■ 100% of 13 learners agreed or strongly agreed that they are able to:               <ul style="list-style-type: none"> <li>– List the steps of a PDSA cycle (13/13 Strongly agreed)</li> <li>– Plan a PDSA cycle (11/13 Strongly agreed)</li> <li>– Describe QI tools for interpreting data (11/13 Strongly agreed)</li> <li>– Interpret QI data graphically (12/13 Strongly agreed)</li> <li>– Apply the most appropriate data tool (10/13 Strongly agreed)</li> </ul> </li> <li>■ QIKAT and SFPAT *to be administered at the end of year</li> </ul> <p>*QIKAT: QI Knowledge Assessment Test *SFPAT: San Francisco Project Assessment Tool</p>
Improvement of the Quality and Timeliness of Discharge Summaries	<ul style="list-style-type: none"> <li>– Partnered with hospital administration for institution-wide implementation of discharge summary template</li> <li>– Educational module integrated into residency curriculum</li> </ul>	<ul style="list-style-type: none"> <li>– Poster presentation at a regional conference</li> <li>– Abstract submission to national meeting</li> </ul>	
A Physician-Centered Initiative to Decrease Inpatient Falls	<ul style="list-style-type: none"> <li>– Integration of falls risk notification as an “banner” for each patient’s electronic medical record</li> </ul>	<ul style="list-style-type: none"> <li>– Poster presentation at a regional conference</li> <li>– Storyboard presentation at a national meeting</li> </ul>	
Reducing Informal Restraints for the Frail Elderly Patient.	<ul style="list-style-type: none"> <li>– Multidisciplinary teams involved in initiative</li> </ul>	<ul style="list-style-type: none"> <li>– Poster presentation at a regional conference</li> </ul>	

### Lessons Learned and Tips for Success

- A step-by-step mentored implementation process was crucial to developing skills for the learners. The coaching sessions allowed for team-based learning of applying the knowledge and skills to the experiential project.
- Faculty mentors for the projects play a critical role in guiding the residents in the content area, whereas the QI faculty provided the QI process mentorship. Availability of faculty with interest and more importantly, expertise in teaching QI, continues to be a challenge. Faculty development opportunities however for developing quality and safety educators in medicine are increasing and can be accessed at local and regional levels. The facilitator’s guide for each session also contains suggested reading for facilitators to aid in preparing to teach the session.
- While initially created for an inpatient experience for residents, the materials contained can be easily translated to other settings (operating room or ambulatory setting), specialties and learners. While the examples and scenarios contained here are more specific to inpatient internal medicine, the fundamental content is universally relevant and can be adapted with examples specific to a different setting or specialty.

- With regards to learners, our curriculum was also offered on an elective basis to medical students and pharmacy residents. The curriculum was presented in a sequential manner as it is laid out in this program and therefore initially started with our second-year residents and ended during their third year. The program in its entirety however can be applied to learners at any level or profession and can progress as they promote. The medical students who joined the QuIP teams shared the responsibilities and tasks for the project with the residents as partners. In turn, they were able to earn their IHI Open School Practicum certificates, be authors on scholarly products and were supported to present the projects at regional and national meetings. Overall, the learners found the content useful and applicable to their level of training and practice setting. The students also greatly valued the experiential project work. We recommend that if logistical considerations permit, that mingling multilevel and interprofessional learners can enrich the educational experience.

### **Publications, Presentations, and Citations for this Publication**

- Tad-y, DB, Price, L, Levin, D, Cumbler, E, and Glasheen, J. An Experiential, Longitudinal Quality Improvement Curriculum for Hospitalist Residents. Society of Hospital Medicine, Annual Meeting, (poster), 2012.
- Tad-y, DB, Price, L, Levin, D, Cumbler, E, and Glasheen, J. An Experiential, Longitudinal Quality Improvement Curriculum for Hospitalist Residents. Society of Hospital Medicine, Annual Meeting, (poster), 2012.

### **References**

Please see separate bibliography.