

**University of Colorado
Hospitalist Training Program
Quality Improvement Handbook: Faculty Companion**

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References:

IHI Open School Basic Certificate of Completion

(<http://www.ihl.org/offerings/IHIOpenSchool/Courses/Pages/OpenSchoolCertificates.aspx>. Accessed June 3, 2012)

Headrick LA. Learning to improve complex systems of care. In: Collaborative Education to Ensure Patient Safety. Washinton, DC: HRSA Bureau of Health Professions 2000:75-88

Neuhauser D, Myhre S, and Alemi F. Personal Continuous Quality Improvement Workbook. Seventh Edition, April 2004
(<http://www.a4hi.org/education/eduQIWB.cfm> Accessed June 3, 2012)

Dear QuIP Teams,

Welcome to the HTT QI Program! This handbook will guide you and your team through the steps of quality improvement to help you succeed in completing your QI project. The handbook is meant to be a team effort, which includes your QuIP Faculty mentor and your HTT mentor as needed. The timeline and checklist will help you stay on track in order to maximize the time you will have during your QI rotation during your R3 year to complete PDSA cycles.

Your QuIP Faculty mentors are committed to guiding you throughout this QI process, but also to teaching you about the content and clinical knowledge necessary to complete your project. They will serve as your liaisons to the hospital staff and management in support of your work.

The quality improvement project you have been assigned was selected from a number of high quality proposals submitted by faculty members. Your project was one of four projects that had great promise to improve systems at the University of Colorado Hospital and could also provide a rich learning experience for residents.

This year, we have also agreed to participate as a “test site” for the Institute for Healthcare Improvement’s (IHI) Advanced Certificate in Quality Improvement Program. In working through this QI project, you will also be able to earn the Advanced Certificate in QI from the IHI. The Advanced Certificate will help validate the skills that you will gain in QI as you begin your careers as hospitalists.

We are very excited to work with all of you on these quality improvement projects and help you develop the knowledge and skills to eventually be able to lead your own future endeavors. We have every confidence that you can carry out and complete these projects in the next few months and that they will yield meaningful outcomes that can truly change patient care practices

Sincerely,

Darlene Tad-y and Jeff Glasheen

Faculty Notes:

Dear Faculty,

We are looking forward to a successful QI endeavor!

Our educational goal for the residents is for them to experience the process of quality improvement first hand and to understand the pitfalls they will face. We hope that by having them work in groups, the success of their project will not be overcome by the time and geographic constraints inherent to our residency program.

You may notice that this handbook can be prescriptive. While the handbook is presented in sequential steps, we understand that QI does not always follow precisely. This is also an important lesson for the residents to learn. However, each Step presented in this handbook provides important and relevant material for the residents that will allow them to lead QI projects on their own after they have completed our HTT track.

As a “test site” for the IHI QI Practicum, we have the rare opportunity to work with an important and innovative organization in QI. They are hoping to receive feedback from us on the successes and challenges we faced throughout our QI projects, both from the educational and QI perspective. Please send any comments, suggestions, or ideas to Darlene at your convenience.

Thank you again for your QI proposal and your efforts in helping educate our HTT residents!

Darlene and Jeff

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*Note: all sections that will need to be “filled in” are available in electronic form on Blackboard.

Timeline and Checklist

Year		To Do:
Month 1	<ul style="list-style-type: none"> – Didactic session: Session 1, Intro to QI – Project assignments – QI Coaching Session: Project Charter 	<ul style="list-style-type: none"> <input type="checkbox"/> Meet with entire QuIP team: <ul style="list-style-type: none"> <input type="checkbox"/> review proposal <input type="checkbox"/> set up team timelines and expectations
Month 2	<ul style="list-style-type: none"> – Didactic session: Session 2 – Patient Safety, Root Cause Analysis and Disclosure – QI Coaching Session: Project Charter 	<ul style="list-style-type: none"> <input type="checkbox"/> Complete Charter for your project and submit to faculty
Month 3	<ul style="list-style-type: none"> – Didactic session: Session 3: - Understanding the Problem, Identifying Areas for Improvement (Steps 1 and 2) – QI Coaching Session: Steps 1 and 2 – Work in Progress: Project Introductions 	<ul style="list-style-type: none"> <input type="checkbox"/> Submit Step 1 and 2 in handbook to Faculty mentor for preliminary review
Month 4	<ul style="list-style-type: none"> – Meet with your QuIP mentor and team; review progress – Assess agreement with process map, background research, areas identified for change/improvement, and specific aims/goals 	<ul style="list-style-type: none"> <input type="checkbox"/> Submit Steps 1 and 2 to Faculty mentor
Month 5	<ul style="list-style-type: none"> – Didactic session: Session 4: The Business of QI and Step 3: Identifying Interventions – QI Coaching Session: Step 3 	<ul style="list-style-type: none"> <input type="checkbox"/> Work on Steps 3 and 4
Month 6	<ul style="list-style-type: none"> – Didactic session: Session 5: Teamwork and Leading Change – Didactic session: Session 6: QI Metrics, Objectives and Choosing Interventions (Step 4) – QI Coaching Session: Step 4 – Work in Progress: Add Steps 1-4 into presentation 	<ul style="list-style-type: none"> <input type="checkbox"/> Submit Steps 3 and 4 in handbook to faculty mentor
Month 7	<ul style="list-style-type: none"> – Didactic Session: Session 7 – Planning Small Tests of Change – QI Coaching Session: Planning PDSA 	<ul style="list-style-type: none"> <input type="checkbox"/> Revise Steps 3 and 4 in handbook <input type="checkbox"/> Submit PDSA cycle sheets to faculty mentor
Month 8	<ul style="list-style-type: none"> – Didactic Session: Session 8 – Compiling, Analyzing and Interpreting Data – QI Coaching Session: PDSA 	<ul style="list-style-type: none"> <input type="checkbox"/> Carry out PDSAs <input type="checkbox"/> Collect data
Month 9	<ul style="list-style-type: none"> – QI Coaching Session: Review PDSA cycles and results – Work in Progress: Next Steps Conference 	<ul style="list-style-type: none"> – Submit completed PDSA sheets to faculty mentor
Month 10	<ul style="list-style-type: none"> – Didactic session: Session 9 – Sustaining and Disseminating Change – QI Coaching Session: Project Wrap –up and Sustaining Change 	<ul style="list-style-type: none"> – Choose venues for publication
Month 11	<ul style="list-style-type: none"> – Work in Progress: Final Presentations of Projects 	

Project Charter

The project charter gives a general overview of your project and provides an outline for how your QI project will unfold. Throughout your work on your QI project, your charter will need to be revised and in order to earn your Advanced certificate, it will need to be submitted to IHI.

STANDARD FORMAT AND DEFINITIONS FOR A CHARTER

What are we trying to accomplish?

General Description (briefly defines WHAT broadly)

✓ Provides an initial orientation toward the activities of the improvement initiatives, i.e., design of a new process, improve an existing product or service, etc. Describes the subsystem(s) in the organization where the improvement will take place.

Reason for the Effort (defines WHY)

- ✓ Why is the effort important?
- ✓ How will this improvement benefit the organization?
- ✓ What is the potential downside of this effort for the organization?
- ✓ What data/analysis supports the choice?
- ✓ How does it impact patients?

Expected Outcomes (defines WHAT specifically, still not HOW)

- ✓ Anticipated outcomes (products, tools, and deliverables) or success criteria.
- ✓ Specific objectives to be accomplished.
- ✓ Specific, numerical goals to be attained.
- ✓ Business impact (financial, throughput, cost, and productivity).
- ✓ Time frame: expected dates for key milestones and completion date.

How do we know that a change is an improvement?

Feedback, Measures or Indicators: define the measures that will be used to monitor the impact of this improvement effort:

- ✓ Connect measures to the goals and outcomes of the charter
- ✓ Measures monitor and guide progress of work on charter.
- ✓ Consider qualitative feedback as well as quantitative measures.
- ✓ Consider both outcome and process measures.
- ✓ Are balancing measures needed to guard against sub-optimization (unintended consequences)?

What changes can we make that will lead to improvement?

- ✓ Initial Activities: provide initial focus for the project work, e.g., specific issues to investigate and/or alternatives to consider, concept design for the team to work with, guidance on adapting and testing some specific change ideas, summarize recent patient feedback, do a process map of current reality, etc.
- ✓ Boundaries: list any project constraints, financial limitations, existing guidelines or procedures to be adhered to, software considerations, what is not to be addressed, etc.
- ✓ Resources: Team membership (Includes all members and the rationale for their inclusion on the team) and their expected time commitments for the work.
- ✓ Sponsorship: States the person or guidance team that is providing resources to work on the charter.

Project Charter

What are we trying to accomplish?

General Description (briefly defines WHAT broadly)

[Click here to enter text.](#)

Reason for the Effort (defines WHY)

[Click here to enter text.](#)

Expected Outcomes (defines WHAT specifically, still not HOW)

[Click here to enter text.](#)

How do we know that a change is an improvement?

Feedback, Measures or Indicators: define the measures that will be used to monitor the impact of this improvement effort:

[Click here to enter text.](#)

What changes can we make that will lead to improvement? (Complete for FINAL draft only)

[Click here to enter text.](#)

Faculty Notes:

The Project Charter is meant to help the learners think about their QI project from a bird's eye view. It is also a requirement for them to earn the Practicum Certificate in QI from the IHI.

It will be their first opportunity to think broadly about their project. The first draft should not be perfect – they will revise throughout the process and submit a final draft at the end of the project.

Step 1: Understanding the Problem – The What, Why, Who, When and Where

Writing the Problem Statement. The problem statement should have the form:

“WHAT is wrong - WHERE it happened - WHEN it occurred – TO WHAT EXTENT it occurs – I KNOW THIS BECAUSE...”

Answer the following questions to help you write your problem statement:

1. What is the problem your team is addressing? Be specific, describe the scope/severity of the problem.
 - a. Why is it a problem? List at least 3 reasons for why the problem needs consideration
 - b. Describe the problem as it pertains to your hospital.
2. Who are the stakeholders involved?
 - a. List at least 5 stakeholders. For each stakeholder, answer the next 2 questions:
 - b. How are these stakeholders involved?
 - c. What do they stand to gain or lose by fixing the problem?
3. When has this been a problem? And when do you plan to address the problem?
 - a. Consider time periods prior to when data was being collected.
 - b. Generate a rough timeline for key milestones. Try to be realistic and take your schedules into consideration.
4. How bad is the problem (ie what is the extent)?
5. What is the data that supports your statement?
 - a. Where does this data come from? Locally? In the literature?
 - b. Use objective data to quantify the reasons for why your problem is significant.

Faculty Notes:

This first step will be the foundation for the learners' understanding of the scope of the problem for their QI project.

They will likely need assistance in understanding all of the stakeholders and locating sources of data that helps them establish the baseline for their project.

The learners will also have an opportunity to work together during the didactic session on their fishbone diagram or their process map. This will also help them to identify gaps that can be addressed by this QI project.

Part B. Visualizing your problem.

Use either the Fishbone diagram or the process map to better understand the problem your project addresses.

Step 1: Understanding the Problem – The What, Why, Who, When and Where

What Click here to enter text.
Why Click here to enter text.
Who Click here to enter text.
When Click here to enter text.
Where Click here to enter text.

Please insert your Fishbone diagram or your process map here.

Step 2: Areas for Improvement

Review your process map or fishbone diagram.

1. Which areas of the system or process can you target to improve (ie, identify key gaps)?

2. For each area of improvement, consider these two questions:
 - a. To what degree can you impact the area/system in question?
 - b. How much effort will be required to impact the area/system in question?

Faculty Notes:

Residents and students may find it challenging to understand which gaps/systems can really be impacted by their QI project. Furthermore, they may have an unrealistic perspective on the amount of effort it would take to yield impact.

However, at this stage, creativity and open brainstorming can be very useful in introducing creative ideas. Please encourage your residents to support each other's creativity during this step.

3. Please rank the areas in order of impact vs effort required (which box does each area of improvement belong to)?

Degree of Impact			
High	Low		
2 nd Most desirable	Less desirable	High	Effort Required to Impact system
Most Desirable	Not desirable	Low	

4. Choose the 4 best areas of improvement and list them here:

Step 3: The Ideal Process – Proposing Interventions for Change

Now that you understand the current process and the areas of waste or inefficiency, consider what the ideal process would look like. What would be different in the ideal setting?

Reimagine the Ideal Process and describe it here (insert Ideal Process Map here). Please highlight the changes in the new process compared to the current process.

Faculty Notes:

Learners will consider interventions that lead to change in this step. Emphasize to the learners that they must rely on the information they have gathered about the current process, stakeholders, and resources available as the brainstorm interventions.

Allow them to be creative in this step, as proposed interventions will be evaluated for achievability later on.

With this new process in mind, what changes need to happen for the old process to become the new? How can those changes be turned into interventions?

Please propose 6 interventions that can be implemented to address the gap between the Old Process and the Ideal Process. Rank them according to desirability (most to least).

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Step 4a: Measures of Improvement

Generally, there are 3 types of measures that are important to consider when doing quality improvement work. Recall from discussions the three types:

- Outcomes: results-oriented (example: the number of smoking patients who have successfully quit in the last year)
- Process: action-oriented, related to how the system works (example: how many diabetic patients have received their annual foot exams in 2010)
- Balancing measures: measures of potential adverse consequences of change

Outcome Measures	Process Measures	Balancing measures

Faculty Notes:

The difference between Process and Outcome measures can be particularly difficult to comprehend. Consider including a discussion around this topic to help them decipher these differences.

Because they have little experience in QI, identifying and anticipating balancing measures can also be challenging for the residents. (They are also unlikely to be able to consider other positive consequences of their proposed changes, but this could also be a helpful exercise for them).

Step 4b: Statement of Goals and Objectives

Using the 4 areas of improvement identified in Step 2 and metrics identified in Step 3, please write SMART goals and objectives for each one:

SMART: Specific, Measurable, Aggressive yet Achievable, Relevant, Time Bound

Area for improvement: Overall goal: Objectives:
Area for improvement: Overall goal: Objectives:
Area for improvement: Overall goal: Objectives:
Area for improvement: Overall goal: Objectives:

Faculty Notes:

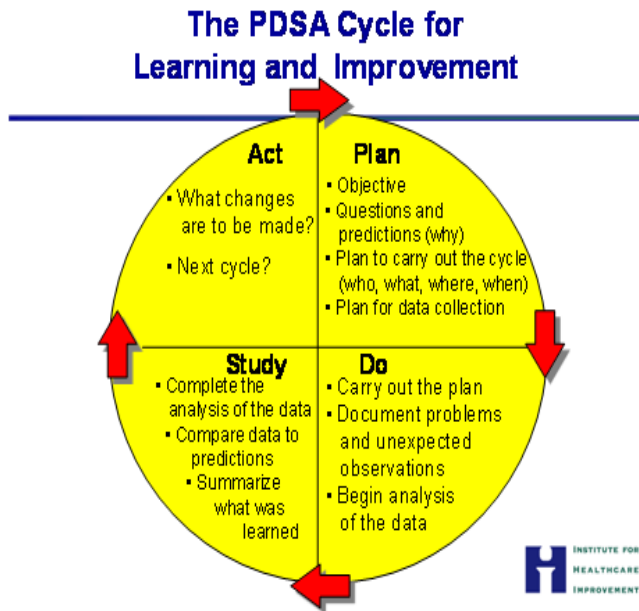
Learners can have difficulty writing SMART goals and objectives. They may not have a strong concept of “achievable” goals (similarly to Step 2 in understanding the extent to which they can impact a system) and may overestimate what can be achieved.

Help remind them that by including every aspect of the SMART format in their objectives, they will find it easier to identify useful metrics in the next step.

Step 5: Implementing Tests of Change: PDSA Cycle

After gaining a good understanding of the problem, identifying relevant metrics and devising interventions, testing a change can now be attempted.

Figure.



Faculty Notes:

PDSA cycles will be most useful and informative for the learners if the PLAN phase is done well. Walk the team through designing interventions that line up with the metrics and goal/objectives.

Use the forms to help think about the challenges or barriers that the team may face in implementing their small tests of change.

Most importantly, don't forget to debrief with the team about what went well and not so well. Utilize the Work-in-Progress sessions to also help generate new or improved ideas.

The original Model for Improvement included the PDSA cycle (Figure). It is a stepwise process in which tests of change can be carried out. The PDSA cycle allows the small tests of change to be incorporated into a larger project by acting as an agent for producing relevant data.

The steps themselves are simple and will help your team move towards change. It cannot be emphasized enough that the first step, Plan, will set the stage for a useful PDSA cycle.

The following pages will help you work through the entire PDSA cycle.

Please note that the PDSA forms are available on Blackboard as a stand alone document.

PDSA Form – QuIP

Team: [Click here to enter text.](#)

PDSA#: [Click here to enter text.](#)

Plan

What is the objective of this test? [Click here to enter text.](#)

What predictions does your team have for this cycle? [Click here to enter text.](#)

Describe the change that your team will be testing? [Click here to enter text.](#)

The plan considered the following methods:

- ✓ Did you assign responsibilities for collection and analysis of the data? [Choose an item.](#)
- ✓ Is training needed? [Choose an item.](#)
- ✓ Is the plan consistent with the charter? [Choose an item.](#)
- ✓ Can the plan be carried out on a small scale? [Choose an item.](#)
- ✓ Have you considered people outside the team who will be affected by this plan? [Choose an item.](#)

Do

Observations in carrying out the plan:

[Click here to enter text.](#)

Things observed that were not part of the plan:

[Click here to enter text.](#)

Things that went wrong during the data collection:

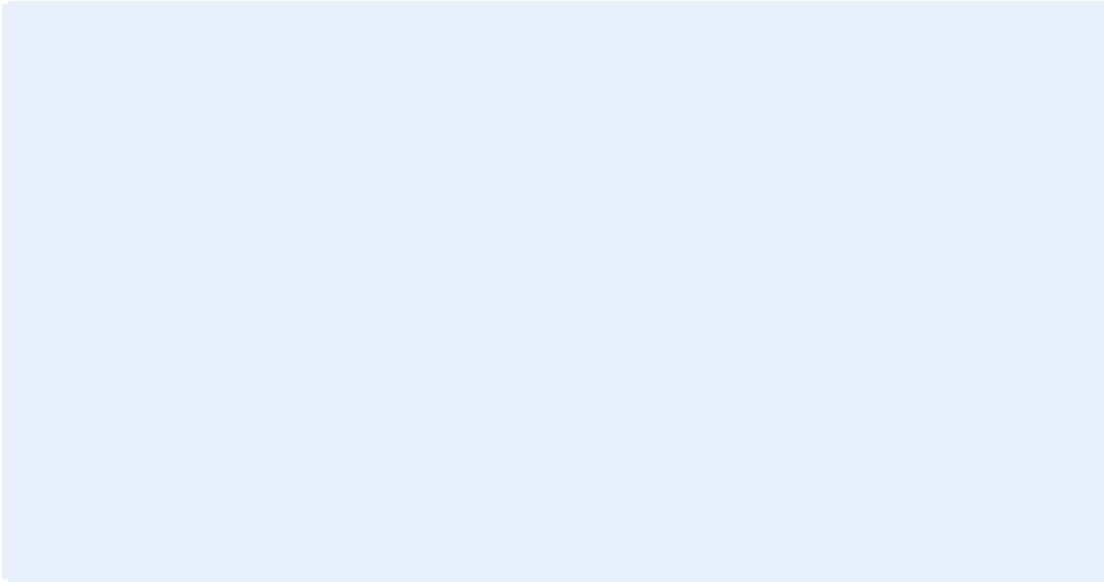
[Click here to enter text.](#)

Study

Compare the analysis of data to the current knowledge:

- ✓ Do the results of the cycle agree with predictions made in the planning phase? [Choose an item.](#)
- ✓ Under what conditions could the conclusions from this cycle be different? [Click here to enter text.](#)
- ✓ What are the implications of the unplanned observations and problems encountered during data collection?
[Click here to enter text.](#)
- ✓ Do the data help answer the questions posed in the plan? [Choose an item.](#)

Summarize the new knowledge gained from this cycle: (insert flowcharts, cause/effect diagrams, etc)



What did you learn that can be applied to another area?

[Click here to enter text.](#)

Act

What changes are to be made to the process?

- List other organizations/people that will be affected by the changes:
- What was accomplished in this cycle? (see checklist below)
- The cause of the system is sufficiently understood.
- An appropriate action or change has been developed or selected.
- The changes have been tested on a small scale.
- Change responsibilities for implementation and evaluation have been completed.
- Actions or changes will improve performance in the future.
- Completed an analysis of forces in the organization that will help/hinder the changes.

Objective of next cycle:

- Collect data Develop a change (or modify from previous) Test a change Implement a change

Description:

[Click here to enter text.](#)

Comments from faculty sponsor:

[Click here to enter text.](#)

Step 6: Tools for Quality Improvement

The QI process is driven by data – whether it's determining the most useful metrics to measure or ultimately trying to show that an intervention has facilitated change, the data will tell the story.

Several tools are at your disposal to help you gather, organize, interpret and present data in a meaningful way:

- ✓ Tools for understanding a process or a problem (Recall from Step 1)
 - Process Flow diagram (Process Map)
 - Cause-and-Effect diagram (Ishikawa or Fishbone diagram)

- ✓ Tools for gathering Information (Recall from Step 1)
 - Surveys
 - Data Collections forms
 - Opinion based tools
 - Nominal group method
 - Affinity diagram
 - Interrelationship diagram
 - Delphi technique

- ✓ Tools for displaying information
 - Pareto diagram (also useful for understanding a process/problem)
 - Pie charts
 - Bar graphs
 - Histograms
 - Stem Leaf plots
 - Scatter Plots
 - Control Charts

- ✓ Data monitoring (for ongoing understanding of changes)
 - Run charts

Faculty Notes:

Allow learners to visualize their data using QI tools. Help them to understand which tools interpret their data most accurately and tell a "story" about their project.

Each of these has a different focus and utility.

Executive Summary

In business, the executive summary captures and presents the essence of your business plan. It is meant to be short and sweet, but captures the reader's attention. The executive summary gets to the point quickly and emphasized conclusions and recommendations. It should generally be no longer than 1-2 pages, and is similar to the research abstracts that are written in the medical field.

Enter key points of your project into the template below:

Background	
<ul style="list-style-type: none">– Include information about the general problem in the literature– Describe baseline data/measures at the institution of interest	
Methods	
<ul style="list-style-type: none">– Describe time frame, team members involved, institution– Include all interventions implemented or attempted	
Findings	
<ul style="list-style-type: none">– Provide a brief text summary of your results– Graphic representations of your findings are always a better option	
Conclusions and Recommendations	
<ul style="list-style-type: none">– State the outcome of your project– Describe the significance of the project to the local system– Highlight aspects that are generalizable– Discuss sustainability of changes– Make recommendations	

Faculty Notes:

This section will be important for the residents in developing QI abstracts for and also thinking about how to eventually write their projects up as a scholarly publication.

Practicum Summary Report

(for submission to IHI for Advanced Certification)

Title of project: [Click here to enter text.](#)

Team members: [Click here to enter text.](#)

Faculty sponsor: [Click here to enter text.](#)

Healthcare Institution sponsor: [Click here to enter text.](#)

Project Learning

1. How did the results/outcomes of your project compare to your predictions?

[Click here to enter text.](#)

2. How can your project be sustainable?

[Click here to enter text.](#)

3. Describe factors that promoted project success.

[Click here to enter text.](#)

4. Describe factors that were barriers to project success.

[Click here to enter text.](#)

5. What did you learn from doing this project?

[Click here to enter text.](#)

6. Please reflect on the role of teamwork within this project.

[Click here to enter text.](#)

Team Member Signature _____

Date _____

Team Member Printed Name [Click here to enter text.](#)

Faculty Mentor Signature _____

Date _____

Faculty Mentor Printed Name [Click here to enter text.](#)