Capturing the Interchange Between Educational Activities and Continuous Quality Improvement

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Session Objectives:

BY THE END OF THIS SESSION, LEARNERS WILL BE ABLE TO:

1. Describe a Continuous Quality Improvement (CQI) framework in the context of health professions education
2. Identify specific steps in a data-driven educational QI cycle (goals, metrics, intervention, outcome)
3. Apply CQI principles to address a specific educational challenge you face in your own work as an educator
Who is in the room today?

Go around your table and introduce yourself:
- your name
- your field/specialty
- the nature of your educational role at BCH

3 mins total!

Session Overview

1) OVERVIEW OF EDUCATIONAL CQI
2) THREE CASE EXAMPLES
3) HANDS ON EXERCISE
4) WRAP-UP & KEY TAKE-AWAY’S
What is…

QUALITY IMPROVEMENT?

QUALITY IMPROVEMENT

• Agreed upon standard
• Observable
• Measurable
QUALITY IMPROVEMENT

- Progress over time
- To advance ever-higher goals

"Without data, you're just another person with an opinion."

"You can't manage what you don't measure."

"Information is not knowledge."

"A bad system will beat a good person every time."

"A leader is a coach not a judge."

SOURCE: https://www.slideshare.net/Dozuki/top-10-quotes-on-quality-w-edwards-deming
Quality Assurance  vs  Quality Improvement

?  

Quality Assurance  vs  Quality Improvement

- reactive
- corrects specific problems
- top-down
- compliance-focused

“What went wrong?”

Quality Improvement

- proactive
- focuses on systemic improvement
- participant-driven
- nurtures iterative improvement

“How can we get better?”

Adapted from:  https://www.slideshare.net/MnSavita/quality-assurance-76251124
The QI Process: 3 Key Questions

**GOAL**
What are we trying to accomplish?

**INTERVENTION**
What action will we take to foster change?

**METRIC**
How will we know a change is an improvement?
Deming’s PDSA Model of Continuous Quality Improvement

1. Identify & Select Problem
2. Analyze Problem
3. Generate Potential Solutions
4. Select & Plan Solution
5. Implement Solution on a Test Basis
6. Evaluate Test Implementation
7. Implement System Wide

Act
Plan
Study
Do

SOURCE: https://link.springer.com/chapter/10.1007/978-3-319-54760-2_3

Clariying the PDSA Cycle

<table>
<thead>
<tr>
<th>Phase</th>
<th>Detailed Steps</th>
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<tbody>
<tr>
<td>Plan</td>
<td>1. Develop hypotheses</td>
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<td>2. Define &amp; breakdown the problem</td>
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<td>3. Set a target condition</td>
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<td>4. Conduct root cause &amp; gap analysis</td>
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<td>5. Identify potential countermeasures</td>
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<td>6. Develop &amp; test countermeasures (i)</td>
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<td>7. Refine and finalize countermeasures (ii)</td>
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<td>8. Implement countermeasures (iii)</td>
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<tr>
<td>Do</td>
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<td>9. Measure process performance</td>
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<td>10. Refine, standardize, &amp; stabilize the process</td>
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<td>11. Monitor process performance</td>
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<td>12. Reflect &amp; share learning</td>
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<tr>
<td>Study</td>
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<td>13. Evaluate need(s)</td>
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<td>14. Collect data</td>
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<td>15. Analyze results</td>
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<td>16. Adjust based on analysis results</td>
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<td>17. Adjust based on data results</td>
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Adopt
Adapt
Abandon

Often 50-80% of the total time
Problem: Students in a statistics class were not doing the reading.

Problem Analysis: Students prioritized problem sets because they were graded.

Potential Solution: Find a way to hold students accountable for readings as well as problem-sets.

Intervention: Require students to submit a short web-post reflecting on the readings before class. Completion of these web-posts were graded, like problem-sets.
### PDSA Example from a Statistics Class

**Problem:** Students in a statistics class were not doing the reading.

**Problem Analysis:** Students prioritized problem sets because they were graded.

**Potential Solution:** Find a way to hold students accountable for readings as well as problem-sets.

**DO**

**Intervention:** Require students to submit a short web-post reflecting on the readings before class. Completion of these web-posts were graded, like problem-sets.

**Assess:** Treatment/control groups. Students self-report time spent on readings.

**FINDINGS:** Treatment increased time spent on readings at the expense of problem-sets, yet student performance on exams was flat or declined.

**PLAN**

**STUDY**

**ACT**
Problem: Students in a statistics class were not doing the reading.

Problem Analysis: Students prioritized problem sets because they were graded.

Potential Solution: Find a way to hold students accountable for readings as well as problem-sets.

Intervention: Require students to submit a short web-post reflecting on the readings before class. Completion of these web-posts were graded, like problem-sets.

Assess: Treatment/control groups. Students self-report time spent on readings.

FINDINGS: Treatment increased time spent on readings at the expense of problem-sets, yet student performance on exams was flat or declined.

Action: Treatment was discontinued because readings did not perform better than problem-sets in helping students demonstrate knowledge on assessments.

Deming’s PDSA Feedback Loops Repeat to Foster Continuous QI
Using CQI in Education

HMS Office of Educational Quality Improvement (OEQI)

- Combined our former “Center for Evaluation” and “Academy” (Faculty Development) into a single unit
- Plan, implement, monitor the educational quality improvement process, linking information gleaned from student, course and program evaluations and assessment data with quality improvement and faculty development initiatives
MD Core Competencies Inform Curriculum ... and Outcomes

Key Areas of Inquiry:

How do students perform in this phase of the curriculum?

Are students adequately prepared to succeed in future phases of the curriculum? ...in match and their careers?

How do students experience courses, clerkships, and faculty?

Are we fostering a supportive learning environment / growth (versus performance) mindset?

Is the advising system positioning students to succeed?
Using Data to Inform Educational CQI

Student Performance
- Curricular change
- Course development
- Pedagogical refinement
- Faculty development
- Student advising

Performance in Next Phase of Curriculum

Student Experience

Learning Environment

Tactics:
- Identify and spread best-practices
- Address areas for development
- Fill gaps

CQI throughout the Student Lifecycle

**Pre-HMS**
- Pre-matriculation

**During HMS**
- Pre-Clerkship (Foundation)
- PCE (Core)
- Post-PCE (Advanced)

**After HMS**
- Internship, Residency, Fellowships
- Specialization, Practice, Career, Progression

Questions the CQI Process Should Inform
- Are we fielding a diverse class from a broad range of backgrounds?
- Can we identify sub-groups that may benefit from additional support?
- Are we providing actionable formative feedback to students?
- Are all students making progress towards mastery?
- Can we foster early detection and intervention for struggling students?
- How do our students perform in the match process?
- Have we prepared our graduates to succeed in their residency and fellowships?
- Do our graduates go on to become leaders in their field?
SCENARIO A: Getting to the Root Cause

Trainees in your program must take and pass standardized tests in order to advance to the next phase of the curriculum. These tests are multiple choice questions that test their fund of knowledge. You have seen a gradual but sustained uptick in the share of students who are not passing these tests. Before you can test interventions, you need to identify the root cause.
Possible Causes of Uptick in Low Test Results

- test-taking anxiety
- poor study habits
- over-confidence
- content never really clicked
- content not covered in class
- learning disability
- health problem

Student Attitudes

- students don’t think it counts
- students undervalue exams
- over-confidence

Program Issues

- we sent mixed messages re: exams
- students are time-starved
- taking exams too early
students don't think it counts
students undervalue exams
over-confidence
fear of asking for help
we sent mixed messages re: exams
toxic learning environment
students are time-starved
taking exams too early

Student Attitudes
Program Issues

PROBLEM: students are failing exams more frequently than in past years
root cause analysis: Fishbone Diagram

Student Issues
- test-taking anxiety
- learning disability
- health problem
- family problem
we sent mixed messages re: exams
toxic learning environment
students are time-starved
taking exams too early

Student Attitudes
- students don't think it counts
- students undervalue exams
- over-confidence
- fear of asking for help
- content not covered
- content never really clicked
- cramming & forgetting

Student Actions
- don't study enough
- poor study habits
- studying the wrong things
- content not covered
- weak didactics

Course A Teaching
Course B Teaching

Program Issues

PROBLEM: students are failing exams more frequently than in past years

- Student Issues
  - test-taking anxiety
  - learning disability
  - health problem
  - family problem
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  - we sent mixed messages re: exams
  - toxic learning environment
  - students are time-starved
  - taking exams too early
- Course A Teaching
- Course B Teaching

Root Cause Analysis: Fishbone Diagram

- What are the biggest challenges students encounter in preparing for exams?
- Does this diagram capture all possible causes? Is anything missing?
- What are the top 2-3 factors? Do they vary by student?

SCENARIO B: Spreading Best Practices

Your institution aims to foster a supportive learning environment for your trainees, yet student surveys reveal substantial room for improvement in the learning environment in many courses/clerkships. Luckily, one clerkship has shown a remarkable improvement in this metric. You reach out to the clerkship director to see if you find some best practices to scale out to other clerkships.
**Baseline Data**

**Initial Active Interventions**

**GOAL**

**Student Assessment of Faculty Feedback:**
%Always and Very Often Provide Constructive Feedback and Direction

<table>
<thead>
<tr>
<th>Q1 17-18</th>
<th>Q2 17-18</th>
<th>Q3 17-18</th>
<th>Q4 17-18</th>
<th>Q1 18-19</th>
<th>Q2 18-19</th>
<th>Q3 18-19</th>
<th>Q4 18-19</th>
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<tbody>
<tr>
<td><strong>This Clerkship</strong></td>
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<td><strong>AVG All Clerkships</strong></td>
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</table>

**Interventions**

**AY 2017-18**

<table>
<thead>
<tr>
<th>Interventions</th>
<th>METRIC: Faculty Provide Constructive Feedback &amp; Direction (% ALWAYS &amp; VERY OFTEN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q1</strong></td>
<td>Kick-Off meeting: Share Initial Benchmark Data Assess Current Practices &amp; Plan</td>
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<tr>
<td><strong>Q2</strong></td>
<td>Share Data with Faculty: Ask them to provide Face-to-Face feedback to all Students Create required form for student feedback</td>
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<tr>
<td><strong>Q3</strong></td>
<td>Start reading quotes from attendees to students Create QR codes so forms are easier to pull up Share Benchmark Data with Residents</td>
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<tr>
<td><strong>Q4</strong></td>
<td>Add module on feedback at student orientation Changed feedback from residents: Keep Doing, Change, Start Doing Add tips for effective feedback to feedback request emails to residents Train Residents on Writing Effective Narratives New role-derivation form with prompts to review students to seek feedback</td>
</tr>
</tbody>
</table>

**AY 2018-19**

| Q1 | Present LE Benchmark Data | 82 | 72 |
| Q2 | 87 | 73 |
| Q3 | Academy Session on Converting Effective Feedback Seeking Behaviors | 94 | 76 |
| Q4 | Training on Writing Effective Narratives | 94 | 81 |
### Reflection Exercise

(3 mins)

Working alone, please identify 1 or 2 educational challenges you are currently facing in your work where QI may help and note them on your worksheet.
Educational CQI in the HMS MD Program

Refining Curricular Content
- Is the volume / pace of material manageable?
- Are there redundancies / gaps?
- Are the course materials effective?
- Are the students able to build on prior material?
- Are they ready for the next phase?

Assessing and Improving Pedagogy
- Are faculty providing timely and actionable feedback to learners?
- How can instructors foster an inclusive learning environment?
- What common teaching challenges do instructors face?
- Which instructors might benefit from peer coaching?

Assessing Student Progress
- How can we consistently rate levels of student mastery in clinical skills?
- How can we assess student progress over time (trajectory)?
- How should we set thresholds for advancement?

Advising & Learning Support
- How can we identify learners who could benefit from additional support without "labelling" students?
- How can we foster student ownership of their areas for improvement?
- What is the best approach to providing learning support?

Group Exercise (10 mins)

- Please share ONE of the educational challenges you’ve identified with your table
- Each table should select among the 3-6 challenges shared and focus on ONE educational challenge to work on as a group
- As a group, please use the frameworks in your handout to flesh out key steps in the educational QI cycle for the ONE project you selected
Implementing Educational CQI: Common Challenges

• Finding time for CQI
• Resisting the Urge to Jump to Solutions... 
  * when you may have the wrong root cause
• Accessing data
• Poor quality data
• Analytical capacity
  > framing questions
  > using data
• Building buy-in/avoiding finger-pointing
• Implementing tested solutions consistently & universally

Next Steps:

• Chances are you are already pursuing QI. It only requires a small step to surface/formalize/measure it using the QI framework... and you can publish it!

• Mentally commit to one follow-up step – note it on your worksheet!

• Connect with the **BCH Academy** if you’d like guidance in framing a QI project **BCHacademy@childrens.harvard.edu**

• Please fill out your session evaluation (to be sent via email)
Thank You!

Questions?

Office of Educational Quality Improvement

- Competency-Based Assessment (EPA’s & narratives)
- Departmental Summative Assessment (DSA)
- Objective Structured Clinical Exam (OSCE)
- Core Faculty - Clinical Skills Assessment
- Teaching and Assessing Professionalism
- Learning Support System
- Standard setting
- E-Portfolio
- CBCL Training
- Resident as Teacher
- HMS Academy Events
- HMS Academy Fellowships
- Web-based & Online Resources
- Faculty Peer Observation
- Masters in Med Ed Project Support
- Student Ed Rep & Consultants
- Course/Clerkship Directors Seminars
- Evidence-based Teaching Workshops

- Assessment of Student Progress
- Supporting Medical Educators

- Course, Faculty, Program Evaluation

- MedEd Innovation & Scholarship

- Coding & Visualizing Faculty/Course Narratives
- Mapping Learning Objectives & Outcomes
- Monitoring Long-Term Student Outcomes
- Monitoring Cross-site Comparability
- LCMS-related Monitoring (SO, Y2Q)
- Course, Phase, Program Reviews
- Monitoring Teaching Metrics
- EDW & Dashboard Reports

- IRB exemptions for QI
- Supporting Course Directors
- Using Data to ID Strengths and Challenges
- Training Educators to Frame Research Questions
- Coaching and Support for Writing and Publications
- RCA, Framing Options, Designing & Assessing Pilots
- Analytical Support: Surveys, Focus Groups, Quantitative Analysis