Teaching the Science of Quality Improvement to Graduate Students: Practical Steps for Success

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Faculty of Nursing
Quality Improvement (QI)

• Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
<th>Attitudes</th>
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<tbody>
<tr>
<td>Describe strategies for improving outcomes of care in the setting in which one is engaged in clinical practice</td>
<td>Use a variety of sources of information to review outcomes of care and identify potential areas for improvement</td>
<td>Appreciate that continuous quality improvement is an essential part of the daily work of all health professionals</td>
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<tr>
<td>Analyze the impact of context (such as, access, cost or team functioning) on improvement efforts</td>
<td>Propose appropriate aims for quality improvement efforts</td>
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<td>Assert leadership in shaping the dialogue about and providing leadership for the introduction of best practices</td>
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<tr>
<td>Analyze ethical issues associated with quality improvement</td>
<td>Assure ethical oversight of quality improvement projects</td>
<td>Value the need for ethical conduct of quality improvement</td>
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<tr>
<td>Describe features of quality improvement projects that overlap sufficiently with research, thereby requiring IRB oversight</td>
<td>Maintain confidentiality of any patient information used to determine outcomes of quality improvement efforts</td>
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<tr>
<td>Describe the benefits and limitations of quality improvement data sources, and measurement and data analysis strategies</td>
<td>Design and use databases as sources of information for improving patient care</td>
<td>Appreciate the importance of data that allows one to estimate the quality of local care</td>
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<tr>
<td>Explain common causes of variation in outcomes of care in the practice specialty</td>
<td>Select and use tools (such as control charts and run charts) that are helpful for understanding variation</td>
<td>Appreciate how unwanted variation affects outcomes of care processes</td>
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<tr>
<td>Describe common quality measures in the practice specialty</td>
<td>Use findings from root cause analyses to design and implement system improvements</td>
<td>Value measurement and its role in good patient care</td>
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<tr>
<td>Analyze the differences between micro-system and macro-system change</td>
<td>Use principles of change management to implement and evaluate care processes at the micro-system level</td>
<td>Appreciate the value of what individuals and teams can do to improve care</td>
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<tr>
<td>Understand principles of change management</td>
<td>Design, implement and evaluate tests of change in daily work (using an experiential learning method such as Plan-Do-Study-Act)</td>
<td>Value local systems improvement (in individual practice, team practice on a unit, or in the macro-system) and its role in professional job satisfaction</td>
</tr>
<tr>
<td>Analyze the strengths and limitations of common quality improvement methods</td>
<td>Align the aims, measures and changes involved in improving care</td>
<td>Appreciate that all improvement is change but not all change is improvement</td>
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<td>Use measures to evaluate the effect of change</td>
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Objectives

- Describe challenges in teaching QI to graduate class
- Outline the course design that resulted in demonstrated competency in QI
- Explain facilitators and barriers
  - Resources
  - Strategies used to keep the students focused on their aim
  - Overcoming barriers
Science of Quality Improvement

- Systematic process
- Requires variety of competencies
  - Many overlap with leadership (change management)
- Different methods of QI but all methods have similar elements
  - Methods have limitations when applying in nursing education (and practice)

http://squire-statement.org/
**Assignments**

1. **IHI Open School Certificate of Completion and reflection on module (30%)**
   - Competencies: important in nursing leadership roles (leadership; quality improvement and patient safety; self reflection; critical review/analysis)

2. **Design QI Project to Address a Patient Safety Issue (30%)**
   - Competencies: Team work and team communication; evidence-based practice; Skill in designing QI project

3. **Implement Quality Improvement Project (40%)**
   - Competencies: Testing/implementing QI project; leadership skills in leading change and communication (clear, concise)
QI Steps

1. Describe the problem and urgency for change
2. State goal (aim)
3. Describe measures
4. Establish team
5. Map the process
6. Identify best practices
7. Identify gaps in current process
8. Generate solutions
9. Develop process improvement plan (PIP)
10. Test
11. Spread change
12. Sustain change. Prevent drift back to old practice.

QI: Steps for Success

(Freeman, 2012)
Assignment 1: Knowledge

http://www.ihi.org/offerings/IHIOpenSchool/Courses/Pages/default.aspx
Assignment 1: Reflection

Reflection
 assignment 1: IHI Open School Certificate of Completion and Personal notes/key learning/reflections from modules (30%)

Name: 
Student Number: 

Time to Complete Module (minutes): 

What did you learn? 

How will you apply this information? 

Are there any improvements you would recommend to the module? 

Overall rating of module (Circle):

1 Poor  2 Fair  3 Average  4 Good  5 Excellent
Assignment 2: Designing QI Project

1. Describe the problem and urgency for change
2. State goal (aim)
3. Describe measures
4. Establish team
5. Map the process
6. Identify best practices
7. Identify gaps in current process
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QI: Steps for Success

(Freeman, 2012)
## Tracking the Evidence

*Note: Supports QSEN Competency: Evidence-based Practice*

<table>
<thead>
<tr>
<th>Author, Title, Journal</th>
<th>Purpose/Question</th>
<th>Methodology/Design/ Sample Size/Subjects</th>
<th>Data Source or Instruments</th>
<th>Findings</th>
<th>Comments Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harding, L. &amp; Patrick, T. (2008). Nursing student medication errors: A retrospective review. Journal of Nursing Education 47(1), 43-47.</td>
<td>What practices do nurse educators need to incorporate into nursing programs to support student learning and increase patient safety? This information guides our practice as educators in the clinical and classroom settings and how we can work collaboratively with practice partners to influence change and increase patient safety.</td>
<td>Retrospective Design with 4 year nursing students in a baccalaureate program. Faculty conducted a 3-year retrospective review of 77 medication errors made by nursing students in a community college program.</td>
<td>Incident forms completed by nursing students in four cohorts were retrospectively examined for reported medication errors. Medication errors were documented and analyzed related to kind of error, contributing factors, classification of drug, time of occurrence, and semester of the program.</td>
<td>Three categories of contributing factors were identified: rights violations, system factors, and knowledge and understanding. It became apparent that system factors, or the context in which medication administration takes place, are not fully considered when students are taught about medication administration. Teaching strategies need to account for the dynamic complexity of this process and incorporate experiential knowledge. Knowledge gaps in theory and policy appeared to be at the root of some of the errors that were made. This information helped to inform educators about some specific areas of learning. For example, students did not have a clear understanding of the differences in morphine preparations (i.e., instant release versus sustained release) and did not consistently follow college policy regarding insulin administration (i.e., checking physician’s original order and ...</td>
<td>Did not include near misses. Did not specifically discuss IDC.</td>
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Identify best practices

- Think “hierarchy of evidence”
  - Use established guidelines rather than searching single studies
  - Use tool kit/best practices developed from reliable sources

Consider:
- Search for best practices from credible sources. Summarize.
- Is research current/relevant? How were best practices found? Are the sources credible? Were experts consulted?

(Haynes, 2007)

http://hsl.mcmaster.ca/education/nursing/ebn/index.html#journals
Process improvement plan (PIP).

Purpose:
• Plan not in one person’s head
  – Delegate/share work
• Multiple changes may be implemented at once

Include:
• Improvements
• Most responsible person
• Timelines
• Keep best practices, gaps, process map as part of PIP (e.g., folders or tabs in spreadsheet)
Assignment 3: Implementing QI Project

1. Describe the problem and urgency for change
2. State goal (aim)
3. Describe measures
4. Establish team
5. Map the process
6. Identify best practices
7. Identify gaps in current process
8. Generate solutions
9. Develop process improvement plan (PIP)
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QI: Steps for Success

(Freeman, 2012)
Projects

Crossing-Mapping QSEN Quality and Safety Competencies to the CNO Competencies for the Entry Level Nurse

Dana Boyd, Kelly Brown, Danielle Dupuis, Michelle Groundwater, Trisha Lawson, Renée Marshall, Ashley McLellan, Christina Raheb, Jessica Riedl, Heather Ryan, Carlee Pretli

UNIVERSITY OF WINDSOR
Innovations in Nursing Leadership
Facilitator: Professor Michelle Freeman

Interventions to Standardize Independent Double Checks (IDC) with Nursing Students

A Process Improvement Project
Course Requirement: 63-597 Innovations in Nursing Leadership

Diane Bradford, RN, B.N.Sc., MN
Debbie Ferrari, RN, B.Sc.N, M.Sc.N (c)
James Mears, RN, B.Sc.N, MN (c)
Barriers

• Lack of integration of information from IHI courses
• Competency in finding evidence (literature search)
• Project aims TOO BIG to accomplish in one term
• Project drift
• Communicating concisely to stakeholders
Facilitators: Steps for Success

1. Describe the problem
2. Create urgency for change
3. State goal (aim)
4. Describe measures
5. Establish team
6. Map the process
7. Identify best practices
8. Identify gaps in current process
9. Generate solutions
10. Develop PIP
11. Test
12. Spread change
13. Sustain change

• Class time
  – Assign/discuss modules each week
  – Weekly discussions on QI process and project
  – Team meetings
  – Review of work before sharing with stakeholders
• Choice of project
  – Addresses a need
• Presentation of projects to other groups
• Discipline the process
• Apply knowledge from IHI courses
Facilitator: QI Project Check List

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<tr>
<td>1. Describe the problem that you want to correct. How is the problem? Is the problem specific? Is there evidence to support that this is a problem? Is the problem a single problem? Is the problem a specific problem? Is the problem a specific issue? Is the problem a specific concern?</td>
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<tr>
<td>2. State your goal (aim statement). What are you trying to accomplish? Is the goal clear? Is it measurable? Is the population specific? Are timelines clear?</td>
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<td>3. Describe your measures. How will you know a change is an improvement? Are measures appropriate to allow you to know if you have met your goal? Are measures based on evidence/best practices?</td>
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<tr>
<td>4. Establish a team. Who are the members? AdHoc members?</td>
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<tr>
<td>5. Map the process. Who was involved in mapping process? Is process clear? Would process be clear to someone who does not understand process? Does it include all important elements of process? Are all groups/departments (customers) who participate in the process evident?</td>
</tr>
<tr>
<td>6. Identify best practices that could be applied to your problem. Consider hierarchy of evidence. Is research current/relevant? How were best practices found? Are best practices summarized? Are the sources credible? Were experts consulted?</td>
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<tr>
<td>7. Describe the gaps in the current process. Do the problem, purpose and/or measures need to be revised based on best practices? Are all gaps identified? Compare current process (#5) with best practices (#6) and identify the gaps. Are all gaps identified?</td>
</tr>
<tr>
<td>8. Generate solutions (changes) and choose solutions to test. Ask: “What changes can we make that will result in improvement?”</td>
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<tr>
<td>9. Develop process improvement plan (PIP). Purpose: Plan not in one person’s head; Delegate/share work; Allows multiple changes to be implemented at once. Include: Improvements; Most responsible person; Timelines; Keep best practices, gaps, process maps part of PIP (e.g., folders or tabs in spreadsheet).</td>
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<tr>
<td>10. Test the change(s). Use small tests of change (Rapid PDSA cycles). Evaluate the results. Implement change.</td>
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<td>11. Spread change. Consider how to spread for success (e.g., one unit or whole facility). Use effective change management strategies. Examine need for new policy to support process, use of unit champions. Remember education of all employer groups. Remove items (forms). How is this support “old” process?</td>
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<tr>
<td>12. Sustain change. Prevent drift back to old practice.</td>
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Resources:
Model for Improvement
Available at: http://www.ihi.org/knowledge/Pages/Howtoimprove/default.aspx
Hierarchy of Evidence
Available at: http://bmi.mcmaster.ca/resources/topic/eb/nurse.html
Toolkit for Redesign in Health Care from AHRQ
Available at: http://www.ahrq.gov/qual/toolkit/toolkit.pdf
Patient Safety and Quality An Evidence-Based Handbook for Nurses
Edited by Rossa G. Hughes, PhD, MHS, RN.
Rockville (MD): Agency for Healthcare Research and Quality (US); April 2008.
Publication No. 08-0048
Available at: http://www.ncbi.nlm.nih.gov/books/NBK2561/
Quality and Safety Education for Nurses
Available at: www.qsen.org

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Integration of Other QSEN Competencies

Project focus:
- Patient Safety
- Patient-centered care
- Informatics

Team Work & Collaboration

Evidence-based Practice

Quality Improvement
Contact Information

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