Research and Quality Improvement Skills for Residents – Implications for CLER

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Research and Quality Improvement Skills for Residents – Implications for CLER (Clinical Learning Environment Review)

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Disclosures

- Drs. Philibert and Weiss are employed by the ACGME
- Dr. Gonzalez del Rey is on the medical staff of Cincinnati Children’s Medical Center
- Dr. Weiss, Clinical Professor of Medicine at Northwestern University Feinberg School of Medicine.
- No other items require disclosure
Objectives

- Describe the foundations for quality improvement (QI) skills training in residency
- Show the links to the Next Accreditation System, and the requirements for ongoing program review and improvement
- Present a “real-life” example of resident involvement in QI efforts and the effect on outcomes
- Discuss the Clinical Learning Environment Review (CLER) and expectations for resident involvement in institutional QI
- Introduce the CLER “Pathways to Excellence”
Continuous Improvement

Assure Improvement has occurred and is sustained

Promote Innovation

Identify Areas for Improvement

Assess and address the reasons for the areas needing improvement
Quality Improvement and the Building Blocks of the NAS

- **Self Study**: Self-study builds on continuous improvement from Annual Program Evaluation (ultimately for preceding 10 years)

- **Institutional Review**: Site visit to diagnose potential quality problems, offer suggestions based on best practices

- **prn Site Visits (Program or Institution)**: Review of quality and safety in the institutional learning environment

- **Continuous Accreditation through annual data and, ultimately, Educational Milestones**: Institutional Requirements: Added focus on involving residents in quality and safety improvement (also part of CLER)

- **CLER Visits of Sponsoring Institutions**: Annual screening of accreditation data to identify outliers

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2014 Institutional Standards: Resident Involvement in Quality and Safety Improvement

- **Patient safety:** The Sponsoring Institution must provide opportunities for residents/fellows to:
  - report errors, adverse events, unsafe conditions, and near misses in a protected manner that is free from reprisal; and
  - contribute to inter-professional root cause analysis or other similar risk reduction teams.

- **Quality improvement:** The Sponsoring Institution must provide opportunities for residents/fellows to:
  - use data to improve systems of care, reduce health care disparities, and improve patient outcomes; and
  - participate in inter-professional quality improvement initiatives.
Models for Resident Involvement in QI

• **Bottom-Up (Resident Initiated)**
  • Focus on an area identified by the resident
  • Often done as an “elective”
  • Limitations include scope, scale and time limitations

• **Top-Down (Resident engagement in institutional QI)**
  • Introduces residents to working institutional QI systems
  • Limitations include rotating assignments or time limits that may not allow meaningful involvement and learning

• **Emerging Hybrid Models**
  • Longitudinal resident involvement in institutional QI
  • Resident “Sequential Group” projects with hand-offs among individuals to allow more meaningful, longitudinal projects and for implementation and tracking
QI: Starting from Scratch

- Identify a process or area in need of improvement
  - Identification based on data and facts
  - Watch the process as it happens
  - Current guidelines on what should happen

- Process Thinking
  - Processes: sets of related tasks used to accomplish something
  - Ask those involved in the process to define the steps
  - Processes are the focal areas for improvement

- Systems Thinking
  - Relevant program and institutional systems
Systems Thinking

A Contemporary Systems View

INPUTS

PROCESSSES

OUTPUTS

CUSTOMERS

MEASURES OF PERFORMANCE
TIME, QUANTITY, QUALITY (Absence of errors and problems), COST; PERFORMANCE

A Contemorary Systems View
QI: Identifying and Testing the Solution

- Identify what needs to be improved with the current process
- Search the literature and other data (web) for quality initiatives and relevant articles (EBM)
  - Existing protocols (If yes, don’t reinvent the wheel)
  - Institutions with benchmark performance (If yes, contact them to learn about their processes)
- Identify the variables for assessing the outcome (success) of the intervention
- Implement change and assess the effect
  - Revise and refine as needed
QI: Implementing and Tracking the Improvement

- Implement the change
  - Identify individual or group that will be responsible
  - Identify and secure resources

- Implementation
  - Is likely the most complex area of improvement work
  - Implementation fidelity and other related matters are an emerging “hot” area for quality research

- Follow-up: ensure all issues addressed

- Documentation to facilitate ongoing tracking
  - Example: A simple spreadsheet recording improvements achieved and ongoing priorities
  - Record over multiple years of improvement
**Sample Improvement Plan**

<table>
<thead>
<tr>
<th>Area for Improvement</th>
<th>Issue(s)</th>
<th>Improvement Plan</th>
<th>Group Responsible</th>
<th>Target Completion Date</th>
<th>Follow-up</th>
</tr>
</thead>
</table>
| Dissemination of Protocol for Rapid Response Team Activation | • Posted on Intranet (5 clicks to reach)  
  • Data shows protocol not accessed  
  • Not known whether residents are aware of protocol or whether/how protocol is used by residents (and faculty) | • Educate residents and faculty  
  • More prominent placement on Intranet (1-click)  
  • Make accessible/viewable in every setting  
  • Integrate understanding of relevant care protocols in residents’ formative evaluations | • 2 residents, 2 nursing representatives, 1 faculty member (names) | • June 2014 for implementation at start of 2014-15 academic year | • Quarterly survey on effectiveness of new approach  
  • Spot check for resident awareness of how to activate  
  • Assess effect on actual activations of rapid response teams |
Summary: Resident Participation in QI Efforts

- Resident participation critical:
  - They have first-hand knowledge of areas that need improvement
  - They need to learn quality and safety improvement for carrying out a lifetime of improvement work in practice

- Resident participation in QI efforts related to their education program may offer a double benefit:
  - Residents help improve their own program, work on issues and problems that matter to them
  - Participation in “educational QI effort” can be used to teach them basic improvement and implementation skills
• Batalden PB, Davidoff F. What is "quality improvement" and how can it transform healthcare? Qual Saf Health Care. 2007 Feb;16(1):2-3.
Research and Quality Improvement Skills for Residents

Javier A. Gonzalez del Rey, MD, Med
Director, Pediatric Residency Programs
Research and Quality Improvement Skills for Residents

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Director, Pediatric Residency Programs
“Success is the ability to go from one failure to another with no loss of enthusiasm”

Sir Winston Churchill
Some Evidence…

- America's Children: Health Insurance and Access to Care (1998)
- Crossing the Quality Chasm: A New Health System for the 21st Century (2001)
- To Err is Human: Building A Safer Health System (1999)
“Change the Outcome”

- Evidence Based Medicine
- Family Centered Care
- Quality Improvement
“Some is Not a Number, Soon is Not a Time”

Donald M. Berwick, M.D., M.P.P.
President and CEO, IHI 16th National Forum
EBM        Are we making a difference …?

EBM Training Received at CCHMC

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EBM Are we making a difference …?

Using EBM in Daily Practice

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FCC Are we making a difference …?

Family Centered Care Training Received at CCHMC

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<th>Year</th>
<th>Outstanding</th>
<th>Excellent</th>
<th>Good</th>
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</tbody>
</table>
FCC  Are we making a difference …?

Using Family Centered Care in Daily Practice

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QI / Safety  Are we making a difference …?

QI / Safety Training Received at CCHMC

“Toronto Plan”
QI / Safety  Are we making a difference …?

QI / Safety use in Daily Practice

“Toronto Plan”

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New “Bump” on the Road:

- Quality Improvement
  - EBM = they can use – they can see
  - FCR = they can use – they can see
  - Q.I. = they could use it – show it to me
Improvement Science Methodology Applied to Medical Education!!
Global Aim
By June, 2009, all graduating residents have the knowledge and skills to use Quality Improvement methods to improve care and outcomes. (Annual follow-up surveys will demonstrate use of QI in practice).

Outcome
Graduating residents have skills to identify gaps and address changes to improve care and outcomes using improvement science.

Key Drivers
- Quality Improvement methodology is used to improve specific educational goals for the Residency program.
- Residency Program builds focus on Quality/Safety into rhythm of educational curriculum.
- Key leaders in the Residency Program serve in leadership roles relating to Quality and Safety. (e.g. on strategic Improvement/Safety Teams)
- Gain Key QI knowledge during residency

Design Changes
- Residency program director participates in Improvement Training (e.g. pilot projects: obtain parent feedback as part of resident evaluation, “Night Talks” communication project)
- Chief resident (focus on QI). Use various modalities to highlight resident safety project, measures, and tests of change: Thursday morning systems conference, M&M conference, chart on wall (where?) website postings.
- Resident co-lead high profile safety project with Patient Safety Officer. Focus on specific topic; develop key driver diagram, measures, changes and test. Hospital highlights residents’ key role (as part of team). Residency program director completes Improvement Training; mentors residents; bring on new faculty member to mentor.
- QI Fundamentals workshop
- QI Fundamentals online module
- M & M conferences
- Change the outcome noon conferences
- Sufficient faculty with QI experience available to mentor residents.

Learning Structure: “QI at CCHMC Residency” “The Toronto Plan 2007”

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QI Fundamentals workshop
QI Fundamentals online module
M & M conferences
Change the outcome noon conferences
Sufficient faculty with QI experience available to mentor residents.
2005 …

Toronto Plan

Online Modules

Workshops

Leadership / Chiefs QI Training

2014…

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2005 … 2014…

Toronto Plan

Online Modules → Workshops → CCHMC QI Projects

Leadership / Chiefs QI Training
“I didn't fail the test, I just found 100 ways to do it wrong”
Key Driver Diagram: Purple Team

Smart Aim

100% of residents rotating through the Purple team will be trained in QI methodology and will complete a project as a team by the end of each month rotation by December 31, 2012.

Global Aim

100% of Pediatric Categorical Residents Graduating from CCHMC Residency Program will have basic training in QI and would have applied this knowledge to a project.

Figure: Key Driver Diagram for Resident Involvement in QI

Key Drivers

- Knowledge of key concepts of improvement science
- Resident Initiated quality improvement projects and facilitation of "buy in"
- Protected time for learning and development of quality improvement projects
- Sustainable system to keep track of resident initiated projects

Interventions

- Provision of mentors dedicated to helping residents develop and implement their projects
- Development of curriculum to educate residents on quality improvement
- Feedback from residents and mentors on process
- Allotted time for mentorship and project development during traditional noon conference
- Electronic portfolio/repository of resident initiated projects

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Why and What…..

- SMART (specific, measurable, actionable, relevant, and time bound) aims
- Work as a system and the power of collaboration toward systems improvement
- Plan, Do, Study, Act (PDSA) cycles
- A variety of process control tools, including control charts
Toronto Plan

Online Modules

Workshops

CHM Projects

QI Purple Team

Leadership / Chiefs QI Training

2005 ...

2014...
2005 … 2014…

Online Modules  Workshops  QI Projects  QI Purple Team

Leadership / Chiefs QI Training  Residents’ “Important” Projects

Toronto Plan
Some examples…

- Night Talks
- Split Rounds
- Pagers control
- Schedules
- Rounding Time
Concepts to Enhance Resident Learning and Application of QI Skills

• Enhancing QI education models and modules to ensure an appropriate grounding in QI principles
• Faculty Development for Teaching and Applying QI in the Clinical Setting
• Ensuring that all residents receive QI education
• Overcoming time and opportunity constraints to allow residents to apply newly developed QI skills by incorporating them in daily resident’s routines
• Assessing the effect of residents’ QI exposure on competence and project outcomes
New Barriers…?

• Many changes at once:
  • Shift Work
  • Milestones
  • 6 Individualized Rotations
  • CCC
  • Faculty Time – Training - Demands
“There is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, that to institute a new order of things”
Resources

Clinical Learning Environment Review (CLER) Program

- First Cycle
  - Alpha testing fall 2012, Beta testing winter 2012 to present
  - Approximately 300 Sponsoring Institutions with multiple programs
  - One participating site per sponsoring institution
  - Used solely for feedback, learning, and establishment of baseline information
    - Exception(s): potential egregious situations
CLER Focus Areas

- Professionalism
- Supervision
- Transitions of Care
- Patient Safety
- Duty Hours
- Fatigue Management
- Healthcare Quality
- Healthcare Disparities
- Transitions of Care
CLER Program
5 key questions for each site visit

- Who and what form the hospital/medical center’s infrastructure designed to address the six focus areas?
- How integrated is the GME leadership and faculty in hospital/medical center efforts across the six focus areas?
- How engaged are the residents and fellows?
- How does the hospital/medical center determine the success of its efforts to integrate GME into the six focus areas?
- What are the areas the hospital/medical center has identified for improvement?
CLER Program Development

• Experience:
  • > 2,900 residents
  • > 2,300 faculty
  • > 1,700 program directors
  • > 130 CEO/Exec Directors, their ‘C-suites,’ quality and safety leadership
  • Scores of nurses, other care providers and members of staff
  • Several Deans

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Early Impressions

Healthcare Quality

• Often variable alignment in what are perceived as institutional priorities among hospital leadership, GME leadership, faculty, and residents

• Often residents and fellows have only rudimentary knowledge of methods used
Early Impressions

Healthcare Quality

• Variation in resident and faculty participation in QI across programs and institutions

• Variable alignment (often little) between resident projects and the clinical site’s priorities
Early Impressions

• Healthcare Quality
  
  • Often bottom up does not meet top down
  
  • High degree of arrested development
  
  • Parallel play often the rule
Early Impressions

- Often bottom up does not meet top down

Paul Klee

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Early Impressions

- High degree of arrested development
Early Impressions

• Parallel play often the rule
Improving Clinical Learning Environments for Tomorrow’s Physicians

Thomas J. Nasca, M.D., Kevin B. Weiss, M.D., and James P. Bagian, M.D.

Approximately 2 months ago, I had a patient where I accidently administered a wrong dose of fentanyl during a procedure. The patient developed severe hypotension, and the procedure had to be temporarily halted until we could get her blood pressure back up. My attending was close by. He responded quickly. Ultimately, no harm was done.

“The reason I believe this happened is that during a procedure I’m sometimes required to administer fentanyl and must dilute it during the procedure. There are two dilutions, either to directly administer by syringe, or for use as an intravenous drip. We do this dilution while we are monitoring the patient. I was told to re-review the approach to dosing fentanyl during procedures and to be more careful.”

This experience was reported by a second-year anesthesiology resident, but dozens of similar patient-care experiences have been described to us by residents in various specialties during site visits that the Accreditation Council for Graduate Medical Education (GME) and the executive leadership and governance of U.S.
Clinical Learning Environment Review (CLER)

CLER Pathways to Excellence

Expectations for an optimal clinical learning environment to achieve safe and high quality patient care

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CLER Pathways to Excellence

• Developed by the CLER Evaluation Committee

• Guidance document

• Framework:
  • Six Focus Areas
    • Multiple pathways for each focus area
    • One or more properties for each pathway

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CLER Pathways to Excellence

Expert Input

Experience from CLER visits

Published Literature

Clinical Learning Environment Review (CLER)

Expectations for an optimal clinical learning environment to achieve safe and high quality patient care

Accreditation Council for Graduate Medical Education

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PS Pathway 1: Reporting of adverse events, close calls (near misses)

Reporting is an important mechanism to identify patient safety vulnerabilities. A robust reporting system is essential for the success of any patient safety program.

Properties include:

- Residents, fellows, faculty members, and other clinical staff members (nurses, pharmacists, etc.) know how to report patient safety events at the clinical site.  
  *The focus will be on the proportion of individuals who know how to report.*

- Residents, fellows, faculty members, and other clinical staff members know their roles and responsibilities in reporting patient safety events at the clinical site.  
  *The focus will be on the proportion of individuals who know their roles and responsibilities in reporting.*
• Will expect to evolve, initially based on expert input, evidence, and early experiences from CLER program; empirically driven over time

• Serves as a basis for comparative feedback and-- when used in aggregate-- provides national measures of progress
Thank You