Quality Improvement Essentials (QIE) Course

Karen E. Heiser, PhD
Richard J. Brilli, MD, FAAP, MCCM
Co-Directors

Thomas Bartman, MD, PhD, Andrew Bethune,
Wallace Crandall, MD, Richard McClead, MD, MHA,
Terrance Davis, MD

AHME Institute  May 2017
Nationwide Children’s
Columbus, OH

- > 1.2M annual patient visits
  - 50 states & 41 countries
- 12,000 hospital staff & >500 OSU faculty
- Main campus & 68 sites
- Top 10 NIH freestanding CHs
- > 4000 learners/yr
- ACO with 350K patients

Founded in 1892
5 Pillars of QI Strategic Plan

• Do Not Harm Me (patient safety)
• Cure Me (patient outcomes & effectiveness)
• Treat Me with Respect (patient satisfaction)
• Navigate My Care (efficiency & care coord.)
• Keep Us Well (population health & prevention)
QIE Course Projects*

*Projects may address more than one pillar

- Keep Us Well: 41 Projects
- Navigate My Care: 32 Projects
- Do Not Harm Me: 46 Projects
- Heal Me Cure Me: 53 Projects
- Treat Me with Respect: 30 Projects

Plus 10 projects about waste reduction or revenue
Building Culture of Quality & Safety

• 2007 major QI investment
  – Zero Hero Safety – High Reliability Program
  – Preventable Harm Index
  – Engineers in QI
  – Service line report outs
  – Zero Hero Employee Safety
  – ABMS Multi-Portfolio Sponsor

• Scholarly work & awards
Pediatric Quality and Safety

Richard J. Brilli, MD, FAAP, MCCM
Richard E. McClead, Jr., MD, MHA
Co-Editors-in-Chief

10 Associate Editors
2 Special Editorial Contributors
25 International Editorial Board Members

First & only online journal focused entirely on pediatric quality & safety

www.pediatricqualityandsafety.com
QIE: Developing Microsystem Leaders

- What does success look like?
- Capacity building
  - Impact (create mission)
  - Awareness of social issue
- Skill-building that empowers
  - Self-sufficiency
  - Confidence, fluency in tech
- Needs assessment
Interprofessional QIE Leadership

Administration
Co-Directors:
  Richard Brilli (CMO)
  Karen Heiser (VP & DIO)

Course Coordinator:
  Andrew Bethune

Core Content Experts
  • Tom Bartman-Neonatology
  • Wallace Crandall-GI
  • Terry Davis-CMO office
  • Mike Fetzer-QIS
  • Rick McClead-CMO office
  • Linda Stoverock-CNO
  • Jahnavi Valleru-QIS
QIE Journey

- 1st QIE Fall 2011 with 10 sessions
- Winter 2014 shortened to 9 sessions
- Fall 2015 1st Children’s National cohort
- Spring 2016 cohort from Oschner
- Winter 2016 1st GME track
- 2016 QI writing group formed
- Winter 2017 is 12th cohort
241 graduates as of 5/2017

QIE Cohorts

- Administration
- Pharmacy
- Research
- QIS
- RT, OT, etc.

Nurses: 24%
Others: 17%
Doctors: 59%
Capacity Building/Sustainability

- 50 Chiefs/Vice Presidents
- 45 Program Managers/Medical Directors
- 28 GME Program Directors
QIE Core Content

- IHI Model of Improvement©
- Leadership & team building
- Data analysis & statistical process control
- Spread/sustain/change mgt.
- Final presentation to Sr. Executives

***Taught by our leaders for our leaders***

*QI is fundamental to our culture*
Data are the breadcrumbs that lead us out of the forest.

Jake Kushner, Baylor
Outcomes Study*

n = 91

- Milestone-based competency change
- MOC projects
- QI teaching
- QI involvement/leadership
- Publications/presentations

*Inter-professional Quality Improvement Training Enhances Competency and QI Productivity Among Graduates. Bartman, T; Heiser, K; Bethune, A; Crandall, W; McClead, R; Davis, J.T.; Brilli, R. Academic Medicine in press
QIE Assessment Milestones*

*From novice to expert*

Evaluated QI *competence* in 4 areas

– QI knowledge

– Test & implement change using teams

– Data management & analysis

– Sustaining & spreading

*Modeled on ACGME milestones with permission*
# Data Mgt. & Analysis Milestone

<table>
<thead>
<tr>
<th>Level 1 – Novice</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5 – Expert</th>
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<tbody>
<tr>
<td>Does not recognize different data types (continuous/categorical), &amp; measure types(^1); limited knowledge of QI tools(^2)</td>
<td>Demonstrates basic understanding of differences between data &amp; measure types</td>
<td>Demonstrates in depth knowledge of data &amp; measure types. Has basic knowledge of sampling techniques &amp; sample sizes</td>
<td>Has in depth knowledge of sampling techniques &amp; sample sizes</td>
<td>Understands statistics behind calculations in p-, c-, and X-bar charts</td>
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<tr>
<td>Collects limited or un-useable data; does not use QI tools to design project; unable to analyze results without close supervision</td>
<td>Collects/analyzes data &amp; uses tools with regular coaching; fails to consider advantages &amp; disadvantages of data type to measure Aim</td>
<td>Works with data with minimal coaching; generates basic run &amp; control charts for projects; uses multiple measures per project</td>
<td>Identifies novel sources of data; applies differences in data types appropriately; generates annotated control charts of multiple measures</td>
<td>Generates control charts of multiple measures for projects with identification of special cause; identifies correlations between control charts of various measures; uses advanced charts when needed (g-, CUSUM, etc.)</td>
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QIE Course: Competence

Rating (0-9)

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<th>Competency type</th>
<th>Self assessed competency level</th>
<th>Before Course</th>
<th>After Course</th>
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Continued improvement 6 mos. after course

From QIE to MOC Part IV

QIE projects approved for ABMS MOC Part IV
- 47 of 124 QIE physicians
- 3 clinical leaders

8 more in application or approval stages
Scholarly Contributions by QIE Grads

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<tr>
<th>Year</th>
<th>QIE Grads</th>
<th>Non QIE Grads</th>
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<td>2016</td>
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# publications in peer reviewed journals
QIE Course Outcomes

Academic Medicine

Inter-professional Quality Improvement Training Enhances Competency and QI Productivity Among Graduates

Purpose: Significant resources are expended on Quality Improvement (QI) training courses. The authors sought to determine whether education provided in QI course training improves self-assessed QI content competence and QI related productivity among course graduates.

Thomas Bartman, MD, PhD, Karen Heiser, PhD, Andrew Bethune, Wallace Crandall, MD, Richard McClead, MD, MHA, J. Terrance Davis, MD, Richard Brilli, MD, MCCM

Accepted for final publication April 7, 2017

Demonstrates a QI course can improve both QI competency and scholarly productivity
Evidence of Sustain & Spread

• Widespread use of IHI methodology & tools
• Greater baseline knowledge of QI science
• Final presentations (more data, more changes)
• Graduates teach & coach others
• QI writing group increasing publications
• Growing waiting list
• Continued senior leader involvement at all levels
Post Zero Hero Mortality Rate: 2000-2015

- 23% lower than pre-Zero Hero
- 41% lower than expected

J Pediatr 2013; 163:1638-1645
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Every Zero Matters
Zero Hero Preventable Harm Index v1.0 – 2016 (Based on 2015 CLA-BSI Definition)

A First for NCH
Keys to Success

- Senior executives teachers & panelists
- Project-based with outstanding coaches
- Multidisciplinary cohorts
- Small group work – all teach, all learn
- Faculty as role models
- CNHS participation
- 6 month presentation to QI Committee
Next Steps

• Expand faculty/facilitator pool
  – 2+ faculty for each talk
  – Graduates facilitate (see, do, teach)

• Explore alternative formats to expand national QI leader pool

• Address coaching bandwidth challenges
QUESTIONS, COMMENTS, DISAGREEMENTS