Creating a Quality and Safety Curriculum for Residency Training

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BIDMC setting

Tertiary Care Academic Medical Center
- 600+ licensed beds
- 12 Residency programs
- Institutional focus on quality and safety

Internal Medicine Residency
- 158 house officers (PGY-1 through PGY-3)
- EIP participation: Residents as QI leaders
Why Involve Residents in Quality and Safety?

• They have frontline insights into the organizational problems of hospital care
• They often have good quality improvement ideas that we might never think of
• Their “buy-in” is crucial to system changes
• They are a receptive (and captive) audience
What do we need?

• Content
  – Principles
  – Access to real cases and data

• People
  – Students
  – Faculty

• Educational structure
Strategy for Establishing QI/PS Training Program for Residents

• Foundation
• Focused experiential learning
• Incorporation into daily clinical practice
• Leadership opportunities
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Foundation

• QI/PS curricular content
  – Medical error
  – Systems theory
  – Root cause analysis
  – Performance improvement principles
  – QI methods
  – Hospital-based QI structure
Foundation

- Volunteer faculty
- QI/PS Core Faculty
  - Recruiting faculty
  - Salary support
  - Faculty development series
  - Regular group meetings
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The Stoneman Elective

- Didactic sessions
  - Root-cause analysis and performance improvement
  - Meet with Healthcare Quality Leadership

- Experiential learning activities
  - Complete a mentored root cause analysis of an adverse event
  - Complete a mentored QI project (or portion of a PDSA cycle)
  - Participate in hospital QI committees
## Stoneman Elective Schedule

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Stoneman Elective Outcomes: Resident adverse event reviews

- Residents now responsible for performing majority of all adverse event reviews at monthly medical peer review committee
Stoneman Elective
Resident-led performance improvement project streams

• **Preventing Iatrogenic Harm:**
  – Foley catheter utilization
  – Hand hygiene compliance

• **Optimizing Resource Utilization:**
  – 24-hour admissions for chest pain diagnosis
  – 3-day re-admission after discharge from medical service

• **Improving Patient Satisfaction:**
  – Focused surveys regarding communication re: tests, plan of care
  – Structured tools to improve MD-patient communication
  – Intern Time Motion Study

• **Improving Handoffs**
  – ED-Medicine transitions – efficiency, safety, satisfaction
  – ICU-floor transitions – accuracy and efficiency
  – Outpatient handoffs of resident practices – safety, satisfaction

• **Improving Workflow**
  – Multidisciplinary work rounds format and schedule
  – Revising placement of medication administration record
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Incorporation into Daily Clinical Practice

• Apply performance metrics to resident-based practice
  – Utilize existing institutional metrics
  – Coordinate with residency structure to isolate outcomes unique to resident practice
  – Teaching conferences to share and reflect on processes and outcomes
Performance Metric: Resident-based Practice

Resident Floor

• Discharges/month: 210
• Case mix index: 1.31
• Length of stay: 4.40
• 30-day readmits: 16.6%
• 3-day readmits: 2.7%
• Nightfloat admits (approx): 46%
Performance Metric: Resident-based Practice

Discharge Hour- 6 mos rolling avg

0% 5% 10% 15% 20% 25% 30%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Performance Metric: Resident-based Practice

Resident Floor X

FY09  FY10  FY11  FY12
Resident-based
Quality Improvement Initiatives:
Progress Reports
Telemetry POE Order Revision

• Design nearing completion (last Stoneman group)
  – Ordering by indication
  – Daily order renewal

• Next steps:
  – Programming
  – Anticipate go-live 4-6 weeks

PLAN – DO – STUDY - ACT
MD-RN Alignment

• Ongoing on Farr 7
• CC7 initiation last 6 weeks
• Preliminary results reviewed
• Next steps:
  – Reduce challenges to nurse scheduling process
  – Introducing visual control system whiteboard

PLAN – DO – STUDY - ACT
Inpatient Requests for Discharge Appointments

Requests per Week

- Medicine Housestaff
- Hospitalists
- Trend
- Linear (Trend)
Incorporation into Daily Clinical Practice

• Engage front-line staff in continuous quality improvement
  – Developing “culture of safety” on local units
  – Empowering staff to raise safety/quality concerns in real time
  – Toyota Production System principles
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Applying Toyota Production System Methodology to Medicine

- Quality Improvement/LEAN retreat
  - Residents, RNs, Unit directors
  - Facilitated by Toyota/Lean expert
  - Unit based workgroup for implementation
  - Immersion experience in continuous quality improvement
  - Return to unit as leaders to foster ongoing change
Applying Toyota Production System Methodology to Medicine

• LEAN retreat
  – Waste Walk
  – Value Stream Mapping
  – Understanding clinical practice with “new eyes”
Applying Toyota Production System Methodology to Medicine

- At work I have the opportunity to do my best everyday: 56% (71% pre)
- I understand how my patient care affects other healthcare professionals and the healthcare organization: 100% (70% pre)
- I am willing to change my workflow if it will improve other disciplines’ efficiency: 100% (53% pre)
- Compared to before this week I have more ideas as to how to improve care on our general medicine units: 100%
Individual Projects with Resident Leaders

- Heart failure worksheet
- Care of patients with liver disease
- Resource utilization in outpatient practice
- Timely follow up of laboratory results in outpatient practice

- Stoneman Resident Award for QI
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Outcomes: Resident Survey

• **Culture of Safety:**
  - I feel that Patient Safety is an important educational topic **98.4%**
  - I play a role in designing quality improvement changes in the hospital and/or clinic: **90.3%** (from 37% in 2006)
  - I play a role in implementing quality improvement changes in the hospital and/or clinic: **92.7%** (from 68.2% in 2006)
  - I feel comfortable reporting a medical error to the department of healthcare quality **87.9%** (from 62.9% in 2006)
  - My ideas to improve patient care are sought and used constructively by hospital and/or clinic leaders **92.7%** (from 56.5% in 2006)

• **Resident Perception of Educational Goals:**
  - I feel I understand my role within the multidisciplinary team caring for patients on the medical floors **96.8%** (from 92.7% in 2006)
Outcomes

Graduates of QI Program

- Year: 2002 to 2013
- Number of graduates: Increasing from 0 to 400
Outcomes: Graduate Survey (2006-2011)

Impact of QI/PS Training on Current Practice

- None: 0%
- Low: 20%
- Moderate: 50%
- High: 20%
- N/A: 0%
Outcomes:
Graduate Survey (2006-2011)

Preparation compared to peers

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<thead>
<tr>
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<td>equally prepared</td>
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<td>better prepared</td>
<td>70</td>
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<td>unable to assess</td>
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Outcomes:
Graduate Survey (2006-2011)

- Formal role in QI/PS: 19%
- Informal role in QI/PS: 57%
- Role in teaching patient safety: 16%
The “System”
- Quality Improvement
- Patient Safety
- Patient Care Services

Global Measures
- Throughput
- Patient Satisfaction
- Core Measures
- Resource Utilization
- Clinical Outcomes

Analysis

Design

Interventions
- Policies
- Protocols
- Schedules
- CPOE changes

Practice

Passive Learning Model: Show me the problems, and then show me the solutions
The “System”

- Quality Improvement
- Patient Safety
- Patient Care Services

Active Learning Model: I’ll show you the problems, and then I’ll show you the solutions