Imprinting Safety and Quality Practices on Residents and Fellows

John Szymusiak, MD
Gregory M. Bump, MD
Introductions

• **Gregory M. Bump, MD**
  – Associate Professor of General Internal Medicine
  – UPMC Montefiore Hospital
  – Associate Medical Director for GME Patient Safety and Quality
  – bumpgm@upmc.edu

• **John Szymusiak, MD**
  – Medical Education Fellow
  – Faculty in Medicine/Pediatrics beginning in July
  – UPMC Montefiore Hospital and Children’s Hospital of Pittsburgh
  – szymusiakja@upmc.edu
Disclosures

• No financial disclosures or conflicts of interest.
Objectives/Outline

✓ Discuss imprinting as an educational intervention, and foster behaviors and interventions at your institution which link safety and quality education with improvement experience.

✓ Describe the benefits of ‘Team-Based’ safety and quality experience for residents and fellows.

✓ Develop ‘Team-Based’ experiences that are meaningful to trainees at your institution.
<table>
<thead>
<tr>
<th>Agenda for session</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discussion - Imprinting and QI</strong></td>
</tr>
<tr>
<td><strong>Brief exercise</strong></td>
</tr>
<tr>
<td><strong>Team-based QI – 2 examples</strong></td>
</tr>
<tr>
<td><strong>Discussion - System-level QI</strong></td>
</tr>
</tbody>
</table>
| **Conclusions and Questions** 

10 min

5 min

25 min

10 min

10 min
Imprinting
Imprinting

Konrad Lorenz, Austrian Zoologist
1973 Nobel Prize Recipient
Some birds bond instinctively to the 1st living thing they see within a few hours of hatching
Imprinting

• **Imprinting is phase specific**
  – You learn it the easiest at one time in your development
    If you don’t learn it then...
    – you either don’t learn it
    – or it is much harder to learn
  – The learning is independent of the consequences
  – The knowledge is hard to extinguish (or unlearn)
  – Learning is rapid
  – Learning seems effortless
Does Imprinting Happen in Medical Education?
Spending Patterns in Region of Residency Training and Subsequent Expenditures for Care Provided by Practicing Physicians for Medicare Beneficiaries

Chen C. et al, JAMA 2014; 312 (22); 2385-2393
Spending Patterns

• After controlling for patient, community, and physician characteristics, there was a 7% difference in patient expenditures between training in low- and high-spending areas.

• For physicians 1 to 7 years in practice, there was a 29% difference ($2434; 95% CI, $1004-$4111).

• After 16 to 19 years, this difference was no longer significant.
What else do we Imprint?
What are your experiences?

• Do you teach safety and quality or imprint it?
• Do you teach safety and quality mostly as didactics?
  – On-line (IHI modules, Webinars)
  – Lectures
  – Workshops
• Is safety and quality taught in case-based conferences?
• Do residents and fellows see actual change come from these conferences?
• Are residents and fellows suggesting improvements themselves?
Important Questions

• Is it easier to learn safety and quality during training than in practice?
  – Is this phase specific learning?
• If so, can we use imprinting as an educational technique as an effortless educational intervention to engage trainees into safety and quality education and experience?
• How do we move away from didactics to learning by doing?
  – Does this translate to actual improvement?
Linking the Education to the Experience

- QI in Clinic (Department Level)
- Reporting Hospital Errors (Hospital Level)
- QI in multiple hospitals (System Level)

- All experiences are Team Based
- In all experiences, faculty are integrated
- All examples focus on application
QI in Clinic

• Integrated QI project within clinic enhances evidence-based quality of care
• Prepares trainees for real world practice
• Minimal didactics, with attention to “Learning by Doing”
• Active participation by ALL residents
• Work within their system and inter-professional staff
• Resident driven interventions, with faculty champions at each site
Diabetes Management in Clinic

Everybody works on the same project!
Compliance with Diabetes Standards: (June 2014)

Faculty

Residents

GIM Oakland Faculty  DM Pts w/ Office Visits

GIM Oakland Resident  DM Pts w/ Office Visits

UPMC LlFE CHANGING MEDlCINE

Odd Block Team by clinic day

Clinic Day
(Mon, Tues, Wed, Thurs)

Even Block Team by clinic day

VA, Shadyside and MUH

For each assigned Clinic Day,
Team includes:
----All House Staff
Quarterback:
----Resident Leader PGY3
Coach:
----Faculty Facilitator

QI Counsel (Special Teams)
----Firm Nurse
----Firm Secretary
----Medical Assistant
----Clinic Nurse
----Clinic Manager
----Medical director

QI Team Coaches
MUH: Jaishree Hariharan
     Elena Lebduska
SHY:  Amar Kohli
VA:   Erica Hoffman

Team Consultants
----Deb Simak-Team Stats
----Gary Fischer
<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept/Oct</td>
<td>• Didactic session on principles of QI (cursory, case based)</td>
</tr>
<tr>
<td></td>
<td>• Review Individual Provider Diabetes Outcomes</td>
</tr>
<tr>
<td>Nov</td>
<td>• Working as a team, residents come up with three interventions to improve care (a provider, practice, and patient intervention)</td>
</tr>
<tr>
<td>Dec</td>
<td>• Residents meet with clinic staff, nurse clinic director, QI faculty and medical director.</td>
</tr>
<tr>
<td></td>
<td>• Interventions voted on and the top 3-4 were chosen as clinic wide initiatives</td>
</tr>
<tr>
<td>Jan/Feb</td>
<td>• Interventions initiated</td>
</tr>
<tr>
<td>Feb/May</td>
<td>• All residents participate in implementation</td>
</tr>
</tbody>
</table>
Inter-Professional Team Work
Summary of Resident Led QI Interventions: Diabetes

**Patient:**
Redesign patient-centered diabetes logbook

**Practice:**
Nurse visit for Fundus Photo
Utilize 5 min MD/MA huddle to plan tasks
Shoes taken off for all diabetics

**Provider:**
Order “Fundus Photo” at visit
Utilize the buddy system to provide better care to all patients
Diabetic Eye Exams

Resident Diabetes Eye Exam Rates: (Sept 2013 - June 2016)

- Control Chart
- CL: 0.5579
- UCL: 0.6452
- LCL: 0.4705

Percentage of Eye Exams

- Sep-13: 51%
- Dec-13: 46%
- Mar-14: 45%
- Jun-14: 42%
- Sep-14: 42%
- Dec-14: 52%
- Mar-15: 62%
- Jun-15: 69%
- Sep-15: 70%
- Dec-15: 68%
- Mar-16: 67%
- Jun-16: 63%

QI Curriculum Initiated

Post Completion of Curriculum

Retinal Camera
Diabetic Foot Exams

Resident Diabetes Foot Exam Rates:
(Sept 2013 - June 2016)

Control chart

- CL = 0.6912
- UCL = 0.7724
- LCL = 0.6099

Percentage of Foot exams

Time

QI Curriculum
Initiated

Post Completion of
Curriculum
Time out for discussion
Error Reporting
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

- Children’s Hospital of Pittsburgh of UPMC
- Increase Resident Reporting of Medical Errors, Near Misses and Close Calls
- Increase Resident Engagement in Discussing Solutions
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

- **Didactics provide the foundation**
  - Orientation
  - Morning Report
  - Noon Conference
  - Intern Boot Camp
  - Leadership Workshop
  - Training in error disclosure

- **Consistent Access to Hospital Leadership**
  - To Err is Human
  - Senior Safety Rounds

- **Integration of PSQI into daily activities**
  - Start morning sign-in and rounds with patient safety
  - Regular, real-time inquiry from faculty about safety concerns and opportunities for improvement

- **Designated Point-Person**
  - Chief Resident for Patient Safety and Quality

- **Involvement in institutional QI**
  - Hand hygiene, Pediatric Septic Shock Collaborative, Solutions for Patient Safety HAC work, Clinical Pathways, Medication Reconciliation, Handoffs

- **Knowledge & Prioritization**
- **Leadership Buy-In**
- **Faculty Support**
- **Protected Time & Bridge to Leadership**
- **Sustainability & Meaningful Contribution**
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

Access to Hospital Administration:

“Everyone comes, has bagels, you know two senior attendings who are safety attendings and have a meeting. It’s called to err is human and the seniors and interns can just talk about the mistakes that happened and it’s kind of an informal setting where they can bring up those concerns and they can address those and then the two attendings take that to their meeting.”

“We all know them like on a personal level. That’s why I think there’s more buy in and there’s more trust if we report it, there’s definitely not gonna be like.. you’re gonna get penalized and there’s not gonna be anything negative that’s gonna happen to you. So I think that’s why… there’s a culture, you know, just going ahead and going ahead and bring it.”
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

Feedback/Seeing a Benefit to Reporting:
“I really like at senior safety rounds when we hear about the changes that have come about from multiple risk master reports because that to me like reinforces the need to keep filing them, you know?”

“There was a couple of reports filed about TPN dependent kids and not being able to find their TPN recipe, whenever they get admitted to the hospital. We ended up having a senior safety rounds about it. And it was largely recognized by everyone there the system was not functioning. And people were using all kinds of crazy workarounds. And they just sent this e-mail, very recently the TPN recipes are now available in this file, part of clinical notes, here’s where you can find them”
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

Patient Safety Built into the Routine:

“And our attending started in the past year and a half asking us every morning whenever we’re signing out, as the night team, ‘Are there any patient safety events that occurred over night’ and sometimes that would be like, the moment when you realize that there actually was a patient safety event, and yeah, I should have reported that.”

“I also think that sometimes the attending are really happy about the risk master being filing and so maybe I’ve learned through positive feedback through the years to tell them about it. I never had a situation where the attending was angry with me for filing an event. They’re usually like ‘oh, good thing you did that’.”
Engaging Residents in Safety: Improving Error Reporting and Error Discussion

Building A Culture of Safety

“One of the things that we are taught is that anybody should be able to speak up. So if the attending sees an error or we see an error, or a med student sees an error, or a nurse, or anybody should feel equally empowered to, and I... we’ve have certainly been told by people that if there are duplicate reports, then that’s fine.”

“I think it’s very like environmental...like, we talk about filing reports. Everyone does it... if no one else talked about it I would probably more be like, “Oh, do you want me to file that? Is this something I should be doing?” but like, since we all do it and we talk about it, I think like that encourages me more to do it.”

“Having those role models that, you know, having your peers talk about it openly is what creates the culture that makes people do it frequently.”
CHP Serious Harm Events

Serious Harm Events Include: CLABSI, CAUTI, VAP, VTE Events, ADE(F-I on MERP scale), Falls of moderate or greater harm, SSI (Cardiothoracic, Neuro Shunts & Spinal Fusions), and PU (Stages 3,4, Unstageable).
QI in Multiple Hospitals (System Level)

“This is a teaching hospital.”
Improving Quality at the Hospital Level

- Adverse drug events (ADE)
- Catheter-associated urinary tract infections (CAUTI)
- Central line-associated blood stream infections (CLABSI)
- Venous thromboembolism (VTE)
- Pressure Ulcers (PU)
- Falls
- Surgical site infections (SSI)
- Ventilator-associated pneumonia (VAP)
- Obstetrical adverse events (OBAE)

HAC Improvement Goals

<table>
<thead>
<tr>
<th>Condition</th>
<th>2012-2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readmissions</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>VTE</td>
<td>5%</td>
<td>40%</td>
</tr>
<tr>
<td>OBAE</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>ADE</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>VAP</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td>CAUTI</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td>Falls</td>
<td>79%</td>
<td></td>
</tr>
</tbody>
</table>

CLABSI

- (2012-2014): 13%
- (2015): 0%
Improving Quality Across Disciplines

• DVT/PE Task Force
  – Meets monthly
  – Able to conference in remotely
  – Scheduled late afternoon (most accepted by surgeons)
  – Multi-disciplinary
  – Review case summaries of hospital acquired DVT/PE
  – Could this have been prevented?
  – Trainees ask great questions and have great insights!
What is a SMAT Time?

Post Op DVT Prophylaxis Administration
Low Compliance with Prophylaxis

Nursing Notes: “Patient Refused”
Doctors Unaware: Why?
Pulmonary Embolism Over-Diagnosed

Subsegmental PE on CTA

Symptoms: shortness of breath, chest pain, desaturation?

Yes

Other etiology for symptoms?

No

LE US (add UE US if risk factor)

DVT

No DVT

Consider no treatment with expert consultation

Treat

Treat
VTE Rates for Two Hospitals

- SMAT Pilot
- SCD Education
- Physician VTE Reviews

**VTE Education**

**Anticoagulation Meds Not Given Report**
Individual Exercise

• In these examples
  – All residents working on the same project, faculty are coaches
  – Projects institutionally supported, in-line with hospital/system goals
  – Trainees not responsible for data-gathering
  – Dedicated time and space for projects

• In your role, what would you design? How would you implement it?
  – Where would this fit in your curriculum?
  – Inpatient vs. outpatient?
  – How would you pick a project? Whom would you involve?
  – What data do you need? Who can help?
Common Themes Link Education to the Experience

• Team Based
• Residents NOT responsible for gathering data
• Residents shoulder-to-shoulder with faculty on the same project
• Shared belief the goal is meaningful
• Multidisciplinary (doctors + nurses, pharmacists, etc.)
• Longitudinal and on-going
• Idea generation in committee, work between meetings by non-physician
• Focus on practical implementation, not theory and knowledge
• Success is a powerful motivator
Conclusions

- Residents and Fellows value safety and quality education more when it is applied.
- Team based QI is more practical than multiple individual projects.
- Success is greatest when faculty members work on the same project as trainees.
- Using available data decreases the physician man-power needed to execute safety and quality work.
Conclusions

- We imprint (or role model) a tremendous amount of knowledge to trainees.
- Role modeling that QI is a normal part of the job makes it more approachable and easier to engage.
- Imprinting safety and quality makes it effortless.
- Downsides:
  - Residents and fellows often don’t internalize they are doing QI.
  - Trainees don’t learn as much vocabulary (PDSA cycle, Failure Modes Analysis, RCA)
- Finding the happy medium is challenging.
Questions and Discussion