Shifting Patient Safety into High Gear

Boston, MA, November 16, 2012
Today’s Goals

• Participants will understand the value of:
  • the AMC|PSO
  • CRICO’s Comparative Benchmarking System, and
  • CRICO’s Root Cause Analysis Information Exchange tool
Agenda

MORNING
• Welcome
• PSO: History and Potential
• Our PSO Story: Theory into Practice

BREAK (9:30-9:45)
• Lessons from Ambulatory Care
• Lessons from Surgery
• RCAIE

AFTERNOON
LUNCH (NOON-1:00)
• Lessons from Emergency Medicine
• Lessons from Obstetrics

BREAK (2:40-2:55)
• Lessons in Medication Safety
• Next Steps
CRICO and CBS

Ann Louise Puopolo, BSN, RN | CRICO
CRICO/Risk Management Foundation

Controlled Risk Insurance Company (CRICO)
• Provides professional medical liability coverage to the Harvard institutions
  • 22 hospitals | 100,000 employees (19,000 nurses)
  • 12,000+ physicians (3,700 residents/fellows)
  • $5M coverage with a maximum of $10M per year

Risk Management Foundation
Administrative arm: claims management, loss prevention, patient safety services

CRICO Strategies
• Provides similar services to organizations outside of Harvard
• Acts as a bridge for share learning in broader pt safety arena
Member Organizations

- Atrius Health
- Boston Children’s Hospital
- Cambridge Health Alliance
- CareGroup
  - Beth Israel Deaconess Hospital—Needham Campus
  - Beth Israel Deaconess Hospital—Milton
  - Beth Israel Deaconess Medical Center
  - Mount Auburn Hospital
  - New England Baptist Hospital
- Dana-Farber Cancer Institute
- Presidents & Fellows of Harvard College
  - Harvard Medical School
  - Harvard School of Dental Medicine
  - Harvard School of Public Health
  - Harvard University Health Services
- Joslin Diabetes Center, Inc.
- Judge Baker Children’s Center
- Massachusetts Eye & Ear Infirmary
- Massachusetts Institute of Technology
- Partners HealthCare System
  - Brigham and Women’s Hospital
  - Brigham and Women’s Faulkner Hospital
  - Massachusetts General Hospital
  - McLean Hospital
  - North Shore Medical Center
  - Newton-Wellesley Hospital
  - Spaulding Rehabilitation Hospital
## Medical Malpractice Terminology

| Malpractice cases | Claim: a written or oral demand for compensation for damages  
<table>
<thead>
<tr>
<th></th>
<th>Suit: a formal malpractice action filed in court</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claimant</td>
<td>patient or representative filing the claim or suit</td>
</tr>
<tr>
<td>Allegation</td>
<td>what the claimant states caused the harm</td>
</tr>
<tr>
<td>Assert date</td>
<td>date that a claim or suit is filed</td>
</tr>
<tr>
<td>Loss date</td>
<td>date the event (injury/loss) occurred</td>
</tr>
<tr>
<td>Total incurred dollars</td>
<td>money in reserve for open cases, paid on closed cases</td>
</tr>
<tr>
<td>Frequency</td>
<td>number of cases</td>
</tr>
</tbody>
</table>
Coding Methodology

How We Build Our Data

• Clinical coders review medical record & claims files
• Capture 17 clinical dimensions
  • Allegations
  • Location
  • Injury Severity (NAIC)
  • Responsible Service
  • Contributing Factors
    • 3-5 factors causing care to unfold as it did…
    • Individual & systems issues at root of error
    • Capture physician and patient perspective
Malpractice Claims are the Tip of the Iceberg

- Lack of updated family history
- Lack of adequate assessment
- Narrow diagnostic focus
- Failure/delay ordering diagnostic test
- Lack of accurate documentation
- Inadequate communication
- Failure to reconcile test results
- Failure to follow up with patient
- Failure to follow protocol
- Failure to close the loop on referrals
Caveats...

- Malpractice claims...
  - are a small “n”
  - have age to them
  - represent a unique convergence
  - no statistical significance
Strengths of the Malpractice Claims

• Yield relatively large numbers of rare events (e.g., retained foreign bodies, wrong site surgery)
• Emphasis on errors that cause the most severe injuries
• Rich information set on events that led to harm
• Alignment of risk management and quality improvement perspectives
53% of malpractice cases stem from ambulatory/ED care

National Landscape: Claimant Type Trends

CBS N=17,124 professional liability cases asserted 1/1/07–12/31/11.

*Other includes class action, employee, visitor, and unclassified cases due to limited availability of information.
Surgical services top the list in malpractice cases.

National Landscape: Primary Responsible Services

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.

Total incurred includes reserves on open cases and payments on closed cases.


Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).

Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.
Surgery #1 allegation; Diagnosis #1 cost
Top Major Allegations

<table>
<thead>
<tr>
<th>ALLEGATION</th>
<th>NUMBER CASES</th>
<th>TOTAL INCURRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery-related</td>
<td>4,690</td>
<td>$772,157,000</td>
</tr>
<tr>
<td>Medical Treatment</td>
<td>3,861</td>
<td>$550,030,000</td>
</tr>
<tr>
<td>Diagnosis-related</td>
<td>3,572</td>
<td>$1,010,475,000</td>
</tr>
<tr>
<td>Medication-related</td>
<td>1,131</td>
<td>$240,733,000</td>
</tr>
<tr>
<td>Obstetrics-related</td>
<td>852</td>
<td>$506,418,000</td>
</tr>
</tbody>
</table>

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total incurred includes reserves on open and payments on closed cases.
PSO: History and Potential

Gregg Meyer, MD, MSc
Dartmouth-Hitchcock Medical Center
The Context: *To Err is Human*

Preventable medical errors
- 44,000 to 98,000 Americans die each year
- Eighth leading cause of death in the United States
- Annual cost as much as $29 billion annually
The Science of Safety

- 776 aircraft destroyed in 1954
- 39 aircraft destroyed in 1996

**FY 50-96**

- Angled Carrier Decks
- Naval Aviation Safety Center
- NAMP est. 1959
- RAG concept initiated
- NATOPS initiated 1961
- Squadron Safety program
- System Safety
- Designated Aircraft
- ACT
- HFC's

**Class A Mishaps/100,000 Flight Hours**

- Fiscal Year

**2.39**
The Response: *Doing What Counts*

- Federal Response -> QuIC
- “The QuIC supports the extension of peer review protections to facilitate reporting of errors in a blame-free environment…”
- The same document also led to the creation of the Serious Reportable Events list, Safe Practices and a $165 Million research program
Making It Real: The Patient Safety Act of 2001

• Aims to improve safety by addressing:
  – Healthcare workers’ fear of disclosure
  – Fear of malpractice litigation
  – Inadequate protection by state laws
  – Inability to aggregate data on a large scale

That sounded pretty easy…
The Patient Safety and Quality Improvement Act of 2005

- Creates “Patient Safety Organizations” (PSOs)
- Establishes “Network of Patient Safety Databases”
- Authorizes establishment of “Common Formats” for reporting patient safety events
- Requires reporting of findings annually in AHRQ’s National Health Quality/Disparities Reports
Addressing the Tower of Babel: 
*Common Formats*

- Patient Safety and Quality Improvement Act of 2005 contains a provision authorizing the Secretary of HHS to promulgate common definitions and reporting formats (Common Formats) to support uniform reporting of quality and safety performance.
- Such Common Formats allow PSOs (and other interested parties) to collect information on quality and safety that is “interoperable” and can be aggregated locally, regionally, and nationally for accelerated learning.
- There is no “final” version of the Formats, which are clinical instruments; AHRQ publishes iterative versions which are updated periodically.
Patient Safety Organizations – *The Real Value*

• Enables healthcare providers to voluntarily share information related to safety and quality under a **federal grant of confidentiality and privilege** (i.e. creates federal peer review protection)
  
  • Unprecedented federal protection  
    … for sharing across organizations  
    … for collective analysis = “data hubs”
  
  • Rather than a patchwork of state-by-state protections, there will now be national uniform protections

• Allows greater understanding as to how quality and safety are being improved nationally
What does a PSO really do?

• **Keeps data safe and secure**
  - Provides a fully protected legal framework: federal protection for data entered into the PSO that is a part of your patient safety evaluation system (PSES)

• **Reviews data and analyzes data in order to identify risks and ways to improve patient care**

• **Provides opportunities for shared learning and collaboration**

• **Complies with the AHRQ common formats or provides alternative that is reasonable**

• **Submits de-identified data to National Patient Safety Data Base**
Why bother?

• Thalidomide – banned 1961

• Fen-Phen – banned 1997

• Vioxx – banned 2005
Getting Below The Tip of the Iceberg…

- Public awareness
- Hospital operations
- Claims
- Adverse events
- Near misses
- Signals
- Organizational intelligence
- Visible vulnerabilities
- Public allegations
PSO Vision: Linking the Data Sets (aka “the mining”)

- **Med Mal**: Claimant, Defendant(s), Responsible Service, Contributing Factors, Major Allegation, Final Diagnosis, Injury Severity
- **Pt Complaints**: Patient Name, Service, Event Type, Event Subtype, Method of Comm., Gravity of Complaint, Patient Type
- **Adverse Events**: Patient Name, Contributing Factor, Category, Subcategory, Equipment, Clinical Service, Injury Severity

Note: The same event can be mapped to several categories or to multiple values of the same category.
Real Value Add: Expert Exchange Under Peer-Review Protection

CRICO PSO Blog

From the Staff

Comparing Treatments, Judging Health Reform Top KA Blog Most-Read List

November 6th, 2010
by Chris Fleming

A look at Health Affairs’ October issue on comparative effectiveness research tops the list of most-read Health Affairs Blog posts for last month. Next on the list is Tim Jost’s look at the debate over the Affordable Care Act’s constitutionality, followed by John Goodman’s analysis of whether the new legislation will “end the cost cure.”

Read the rest of this entry>

Contributing Voices

What is an ‘Essential Benefit’?

October 26th, 2010
by Linda Berghold

A central feature of health reform is the state exchanges, through which a variety of plans will be offered. Each of those plans will be required to offer a package of “essential benefits” as defined in the Affordable Care Act. When most people think of benefits, they think of monthly premiums, annual deductibles and co-pays for physician or hospital services. However, essential benefits also include the definition of what services will be covered in the insurance plan and how much the plan will apply those benefits to individual cases.

The Affordable Care Act itself provides relatively little guidance about what “essential” really means, other
Convening Value:
It’s the meeting not the mining

• Do people show up?
• Is something done differently as a result?
• Is there an actuarial base?

It is like democracy…
Lessons Learned

• Even with a common language combining data sources is difficult
• Discovering rare events ("big data") is an unproven value (just potential)
• Protecting conversations that should have happened years ago is the real promise
• “What happened at your neighboring healthcare facility yesterday that is going to hurt someone in yours tomorrow?”
Shifting Patient Safety into High Gear

PSO: Theory to Practice

Carol Keohane, BSN, RN | CRICO
Assistant Vice President
Academic Medical Center | Patient Safety Organization
Agenda

- Goals and Objectives
- Current Activities
  - Pilot to Present
- Future Vision
AMC|PSO Objectives:

• Create a bridge between malpractice and real-time data

• Create a secure, protected space to convene member organizations in response to real-time events
Bridging Malpractice Data with “Real-time” Data
New Data Sources

- Adverse Event Data
- Root Cause Analysis Data
- Patient Complaint Data
9-month pilot
Linking the Data Sets (aka “Mapping”)

MED MAL
- Claimant
- Defendant(s)
- Responsible Service
- Contributing Factors
  - Major Allegation
  - Final Diagnosis
  - Injury Severity

PT COMPLAINTS
- Patient Name
- Service
- Event Type
- Event Subtype
- Method of Comm.
- Gravity of Complaint
- Patient Type

SAFETY REPORTS
- Patient Name
- Contributing Factor
  - Category
  - Subcategory
- Equipment
- Clinical Service
- Injury Severity

Note: The same event can be mapped to several categories or to multiple values of the same category.
Data Limitations

• Different Data Structure
• Different Definitions
• Different Interpretation of the Event
# Examples of Event Severity

<table>
<thead>
<tr>
<th>AHRQ Severity Desc</th>
<th>A: Severity_desc</th>
<th>B: Severity_desc</th>
<th>D: Severity Desc</th>
<th>E: Severity Desc</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Unsafe Condition: (Non Event)</td>
<td>1: No Injury</td>
<td>1. No Injury</td>
<td>0. Near Miss</td>
<td>0- Near Miss / Potential Harm / Damage</td>
</tr>
<tr>
<td>B1: Near Miss: No harm; didn't reach patient/caught by chance</td>
<td>2: Minor Injury</td>
<td>2: Minor Injury</td>
<td>1. No injury / monitoring only</td>
<td>1- No Harm / Damage</td>
</tr>
<tr>
<td>B2: Near Miss: No harm, didn't reach patient b/c active recovery by caregiver</td>
<td>3: Moderate Injury</td>
<td>3: Moderate Injury</td>
<td>2. Minor</td>
<td>2- Temporary or Minor Harm / Damage</td>
</tr>
<tr>
<td>C: No harm: Reached patient; no monitoring required</td>
<td>4: Major Injury</td>
<td>4: Major Injury</td>
<td>3. Moderate</td>
<td>4- Death</td>
</tr>
<tr>
<td>D: No harm, Reached patient; monitoring required</td>
<td>5: Death</td>
<td>5: Catastrophic</td>
<td>4. Majority</td>
<td></td>
</tr>
<tr>
<td>E: Harm, Temporary, Intervention needed</td>
<td></td>
<td></td>
<td></td>
<td>5. Death</td>
</tr>
<tr>
<td>F: Harm, Temporary, hospitalization needed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G: Harm, Permanent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H: Permanent, Intervention required to sustain life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I: Death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Issues Identified in Existing Reporting Systems

- **MALPRACTICE CLAIMS**
  - Clinical Judgment: 24.3%
  - Communication: 17.1%
  - Technical Skills: 11.2%

- **PATIENT COMPLAINTS**
  - Communication: 21.8%
  - Provider Behavior: 18.6%
  - Administration: 13.0%

- **INCIDENT REPORTING**
  - Identification: 24.4%
  - Falls: 16.8%
  - Med Error/ADE: 14.7%

Lessons learned

- Multiple data resides in multiple areas
  - Overlapping, complementary information
  - Difficult to merge

- Data sources vary by:
  - Timing
  - Severity
  - Reporter
  - Taken individually, highlight specific areas in need of attention

- Lack of common definitions and data structure creates disparate analytic results
The Journey to Root Cause Analysis: *A Roadmap to Action*
Challenges with current RCA process

- Lack of standardized definitions
- Lack of uniformity in how data is captured
- Thus...in existing state, unable to compare across different organizations
RCA Workgroup
Mapping to MedMal Data

• Developed consensus on standard definitions
• Standard classification of events
• Standard categories
Root Cause Analysis
Information Exchange

**DATA CAPTURED**
- What happened?
- Who was involved?
- When did it happen?
- Why did it happen?
- How is it remedied?

**FEATURES**
- Web-based
- Ease of Use
- Near Miss and Adverse Events
- Follows RCA workflow
- Structured data collection
- Codified using CRICO taxonomy
- Action Plans and Tracking
- Reporting Function
Convene members in a secure, safe environment...
“We live in a society bloated with data but starved for wisdom”

—Elizabeth Lindsey
Ethnographer
Patient Safety Continuum

**Patient Safety**

**Model Interventions**
Proven interventions & best practices to create a safe environment

**Risk Assessment & Appraisal**
Real-time peer-to-peer review of patient safety environment

**Focused**

**Real-time**

**Customized**

**Comparative Benchmarking System**
Validation of findings against largest claims data base in the world

**AMC|PSO: Real-time Data**
Link to real-time environment through review and analysis of patient safety data in a protected environment - > creates a broad opportunity for learning
Convening Criteria

- Cluster of organizational events (e.g., retained sponges)
- High profile national event
- Individual concern related to a specific specialty
- NQF serious reportable events (SREs)
- Adverse event, near miss, or identified emerging risk that is a concern to the public and/or healthcare providers
- Any other significant adverse event that requires immediate review and response
Power of Convening

- Everyone comes to the table
- Discussions are relevant, focused and transparent
- Subject matter experts talk about strategies available to correct the problem…mitigate the risk of reoccurrence
- Together we can develop best practice recommendations to mitigate risk and improve patient safety
Wisdom from Convenings
Patient Safety Alerts

• Developed best practice guidelines to prevent harm
• Identified universal factors affecting front-line caregivers
• Promoted novel interventions to mitigate risk
• Identified emerging threats and near misses
• Identified common device failures
AMC|PSO: Present State to Future Vision
AMC|PSO Present to Future

- Medmal: lagging indicator although captures most egregious events
- Capture RCA information-more real-time
- Capture Transactional Data in EMR
  - Surveillance/Monitoring for early warnings
- Apply predictive analytics across data sets
- Broaden learning opportunities with PSO to PSO collaborations
Closing Story: Remember the Lessons....
2007: Dennis Quaid’s Campaign
In September 2006, three preterm infants in Indiana died as a result of lethal overdoses of intravenous heparin.
• In **July 2008**, 17 infants received an overdose of heparin while being cared for in a Texas hospital.
• A preliminary investigation by the hospital indicated the error occurred during the mixing process within the hospital pharmacy.

Ref: Drug Daily Topic News
### From Safety Event to Actionable Response

**Heparin Infant Overdoses & Mortality**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY EVENT</td>
<td>SAFETY EVENT</td>
<td>SAFETY EVENT</td>
<td>60 MINUTES</td>
</tr>
<tr>
<td>3 Premature Infant Deaths</td>
<td>3 Infants receive overdose of Heparin including Quaid twins, relabeling had not been implemented</td>
<td>Airs segment featuring Dennis Quaid and Kimberly Buffington</td>
<td>July 2008, Texas 17 infants in a neonatal intensive care unit received heparin overdoses</td>
</tr>
<tr>
<td>Automated Dispensing Cabinet Error - alerts, warnings, and advisories issued</td>
<td>Pharmaceutical company Medication labels approved for change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AMC PSO & CRICO Patient Safety Response Timeline**

<table>
<thead>
<tr>
<th>October 4, 2012</th>
<th>October 18, 2012</th>
<th>November 1, 2012</th>
<th>December 1, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY EVENT OCCURS</td>
<td>SAFETY EVENT OCCURS</td>
<td>SAFETY EVENT OCCURS</td>
<td>SAFETY EVENT OCCURS</td>
</tr>
<tr>
<td>Safety Event Information reported in RCAIE</td>
<td>AMC PSO Identifies trigger Convening session scheduled within 2 weeks of event notification</td>
<td>CONVENING SESSION Members and Subject-Matter Experts convene under federal confidentiality and peer-review protections</td>
<td>DISSEMINATE AMC PSO compiles, drafts, reviews and finalize actionable responses into patient safety alert</td>
</tr>
</tbody>
</table>
Together we **can** move patient safety forward; Together we **will** move patient safety forward
Shifting Patient Safety into High Gear

Lessons from Ambulatory Care

Blair Fosburgh, MD | Massachusetts General Hospital
Steve Atlas, MD | Massachusetts General Hospital
Andy Ellner, MD | Brigham and Women’s Hospital
Surgical services top the list in malpractice cases

National Landscape: Primary Responsible Services

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total incurred includes reserves on open cases and payments on closed cases.
Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).
Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.
Surgical Treatment cases are most prevalent; Diagnosis cases are most costly

National Landscape: Top Major Allegations

CBS N =17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total Incurred = reserves on open cases and payments on closed cases.
Percentages for top allegations remain fairly stable

National Landscape: Trends by Top Major Allegations

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.

CBS N=10,245 cases with a Diagnosis, Surgical treatment, Obstetrical treatment, or Medication related major allegation.
Ambulatory Care Diagnosis-related Malpractice Data

1,998 cases | $569M total incurred
2007-2011
Dx cases dominate malpractice claims in the ambulatory setting

National Landscape: Claimant Type Trends in Diagnostic Cases

CBS N=3,572 professional liability cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation.

*Other includes class action, employee, visitor, and unclassified cases due to limited availability of information.
60% of cases involved high severity injury

Injury Severity in Ambulatory Diagnostic Cases

PERCENT OF CASES
- High 59%
- Med 35%
- Low 6%

PERCENT OF TOTAL INCURRED
- High 83%
- Med 15%
- Low 2%

CBS N=1,998 coded professional cases asserted 1/1/07–12/31/11 involving outpatients (excl. ED) with a diagnosis-related major allegation.
Total incurred reserves on open cases and payments on closed cases.
Severity scale: High: death, permanent grave, permanent major, or permanent significant
Medium: permanent minor, temporary major, or temporary minor
Low: temporary insignificant, emotional only, or legal issue only
50% involve delay/failure to dx cancer

Top Final Diagnoses in Ambulatory Diagnostic Cases

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th># CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancers</td>
<td>953</td>
</tr>
<tr>
<td>Diseases of the heart</td>
<td>119</td>
</tr>
<tr>
<td>Fractures</td>
<td>88</td>
</tr>
<tr>
<td>Complications</td>
<td>81</td>
</tr>
<tr>
<td>Diseases of arteries, arterioles, and capillaries</td>
<td>41</td>
</tr>
<tr>
<td>Gastrointestinal disorders</td>
<td>33</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>31</td>
</tr>
<tr>
<td>Eye disorders</td>
<td>29</td>
</tr>
<tr>
<td>Other injuries/conditions due to external causes</td>
<td>26</td>
</tr>
<tr>
<td>Bacterial infection</td>
<td>25</td>
</tr>
<tr>
<td>Respiratory infection</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOP CANCERS</th>
<th># CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>174</td>
</tr>
<tr>
<td>Lung</td>
<td>113</td>
</tr>
<tr>
<td>Colorectal</td>
<td>112</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>71</td>
</tr>
<tr>
<td>Prostate</td>
<td>64</td>
</tr>
<tr>
<td>Benign neoplasms</td>
<td>59</td>
</tr>
<tr>
<td>Skin</td>
<td>59</td>
</tr>
<tr>
<td>Uterus and Cervix</td>
<td>41</td>
</tr>
<tr>
<td>Lymphatic and hematopoietic tissue</td>
<td>41</td>
</tr>
</tbody>
</table>

Professional liability cases asserted 1/1/07–12/31/11 involving outpatients (excl. ED) with a diagnosis-related major allegation.
50% of Outpatient diagnostic cases involve test ordering

Ambulatory Diagnostic Process of Care

<table>
<thead>
<tr>
<th>STEP</th>
<th># CASES*</th>
<th>% CASES*</th>
<th>TOTAL INCURRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient notes problem and seeks care</td>
<td>31</td>
<td>2%</td>
<td>$12,198,000</td>
</tr>
<tr>
<td>2. Hx/physical and evaluation of symptoms</td>
<td>532</td>
<td>27%</td>
<td>$223,309,000</td>
</tr>
<tr>
<td>3. Order of diagnostic/lab tests</td>
<td>999</td>
<td>50%</td>
<td>$383,004,000</td>
</tr>
<tr>
<td>4. Performance of tests</td>
<td>69</td>
<td>3%</td>
<td>$22,957,000</td>
</tr>
<tr>
<td>5. Interpretation of tests</td>
<td>622</td>
<td>31%</td>
<td>$243,689,000</td>
</tr>
<tr>
<td>6. Receipt/transmittal of test results</td>
<td>172</td>
<td>9%</td>
<td>$54,367,000</td>
</tr>
<tr>
<td>7. Physician follow up with patient</td>
<td>234</td>
<td>12%</td>
<td>$100,272,000</td>
</tr>
<tr>
<td>8. Referral management</td>
<td>404</td>
<td>20%</td>
<td>$142,942,000</td>
</tr>
<tr>
<td>9. Patient compliance with follow-up plan</td>
<td>271</td>
<td>14%</td>
<td>$61,870,000</td>
</tr>
</tbody>
</table>

*A case will often have multiple factors identified.
Professional liability cases asserted 1/1/07–12/31/11 involving outpatients (excl. ED) with a diagnosis-related major allegation. Total Incurred = reserves on open cases and payments on closed cases.
Physician office or clinic is the top location

Top Locations in Ambulatory Diagnostic Cases

- **Physician Office/Clinic**: 1,426 cases
- **Radiology/Imaging**: 274 cases
- **Ancillary Service Areas**: 122 cases
- **Ambulatory Surgery**: 72 cases
- **Non-Insured Site**: 58 cases
- **Special Procedure Areas**: 28 cases

NUMBER OF CASES

Professional liability cases asserted 1/1/07–12/31/11 involving outpatients (excl. ED) with a diagnosis-related major allegation.

1,998 cases | $569M total incurred
Case Discussion
Case Study

Anne White
Case Study
Case Study Analysis

- **Provider factors**
  - Did not obtain important family history
  - Narrow diagnostic focus
  - Interruption led to missed opportunity to obtain key history
Case Study Analysis

- Communication factors
  - Patient comprehension; overwhelmed by information
  - Missed opportunity for important provider to provider communication due to technical problem
Case Study Analysis

• **System factors**
  • Interruption of visit for non-emergent communication
  • No system for following up whether tests completed
  • No system for tracking referrals
  • No system for flagging change in patient status such as significant weight loss
  • No system for tracking whether patient returns in desired time frame
Case Study Analysis

• **Patient factors**
  • Not consistently compliant with recommendations and follow up
  • Multiple competing medical issues
  • Lack of clear understanding of medical issues
Lessons from Ambulatory Care

The Role of Patient Centered Population Management

Steve Atlas, MD | Massachusetts General Hospital Director, MGH Primary Care Practice-Based Research & Quality Improvement Network
Redesigning Primary Care Delivery

• How to “fix” the current state of mediocre, unsafe, inequitable, doctor-centric, and costly care
• Role of health IT to transform care delivery
• Designed around a team-based practice model
• Requires a population-based perspective
• Understands how patients connect with providers
• Takes a patient centered, whole person outlook
• Integrates knowledge about disparities in care into routine practice
MGH Adult Primary Care Network

- Patients: ~200,000 adults
- Providers: 200 primary care physicians
- Practices: 17
  - 4 community health centers
  - 8 community-based practices
  - 5 hospital-based practices
Cancer Screening Rates based on Patient-PCP Connectedness (Linkage)*

PCP-Linked

Practice-Linked

TopCare* Cancer Model

• Population management system for a primary care practice network
  • Non-visit based IT surveillance
  • Patient identification, provider action, systematic tracking
• Patient centered care comprehensive cancer screening
  • Patients eligible for breast, cervical and colorectal cancer screening
  • “Fail safe” system complements visit/specialty-based efforts

* TopCare = Technology for Optimizing Population Care in a Resource-limited Environment
TopCare = Integrated Network of Task-Specific Registries with management tools to coordinate population-based care
Proof-of-Concept: Mammography FastTrack

- Study goal: increase mammography rates in women overdue for screening
- Study period: 3/20/07 – 3/19/10
- Physician/practice case manager reviewed overdue list
  - Selected patients for reminder letter
- Study design: 6 of 12 practices randomly assigned to use tool (control practices = usual care)
  - 4487 patients in intervention practices
  - 59 of 64 (92%) intervention providers used tool
  - Actions taken: 64% letter, 12% deferred, 24% none
Overdue Patients Completing Screening by Year

Years of Follow-up

% Completed Screening

Control

Intervention

0% 10% 20% 30% 40% 50% 60%

1 2 3

% Completed Screening
TopCare has an Active Surveillance System

If no actions in 2 months

If patient is still due after 4 months

High Risk?

Send Letter
## Cancer Screening: PCP’s Registry

### Top Care PCP

<table>
<thead>
<tr>
<th>Select</th>
<th>Name</th>
<th>MRN</th>
<th>PCP</th>
<th>Next PCP Appt</th>
<th>Breast</th>
<th>Cervical</th>
<th>Colorectal</th>
<th>Risk</th>
<th>Days Left</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>---------------</td>
<td>--------</td>
<td>----------</td>
<td>------------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>scheduled</td>
<td>excluded</td>
<td>unscheduled</td>
<td>Moderate</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>uptodate</td>
<td>excluded</td>
<td>unscheduled</td>
<td>Low</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Moderate</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Adrien</td>
<td>----</td>
<td>-----</td>
<td>no appt</td>
<td>excluded</td>
<td>unscheduled</td>
<td>excluded</td>
<td>Low</td>
<td>56</td>
</tr>
</tbody>
</table>

**Select an Action:**
- Send TopCare Letter
- Have TopCare Delegate Call Patient
- Refer to TopCare Navigator
- Not patient(s) of this PCP
- Defer all screening
- Patient(s) deceased
To: Jane Doe
25 Home Street
Cambridge, Massachusetts 02142
United States

Sep 18, 2011

Dear Jane Doe,

I am writing to check on whether you are up-to-date on cancer screening test(s). The goal of screening is to prevent cancer from developing in the first place, or to find it early, before there are any signs a patient or doctor can see, when it is easier to treat and cure. I want to make sure we schedule a screening test if you are overdue, or update your records if our information is not correct.

Women should consider having a mammogram at least every two years to screen for breast cancer. If you are overdue, please contact our Radiology department at 617-724-XRAY (9729) or www.massgeneralimaging.org/mamm. Women should have a Pap test at least every three years to screen for cervical cancer. If you are overdue and would like to schedule a Pap test, please call the doctor's office where you routinely get your Pap test done.

All eligible patients should have colon cancer screening at least every ten years. If you are overdue and would like to schedule a colonoscopy, please call our gastroenterology specialist group at 617-726-2426.

Your medical records here show that you are eligible for cancer screening for the following tests, the date of your most recent test, and whether you are due for additional testing:

<table>
<thead>
<tr>
<th>Test</th>
<th>Most Recent Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast: Mammogram</td>
<td>No date recorded</td>
<td>Overdue</td>
</tr>
<tr>
<td>Cervical: Pap Smear</td>
<td>No date recorded</td>
<td>Overdue</td>
</tr>
<tr>
<td>Colon: NA</td>
<td>No date recorded</td>
<td>NA</td>
</tr>
</tbody>
</table>

If our records are incorrect and you are up to date on your cancer screening, please email us at careupdate@partners.org or call 617-643-0287 to let us know. You can leave a private message with our Care Update Service so that we can update your medical record. When you leave a message, please tell us your name, medical record number, the date of the screening test, what the test was, where you had it done, and what the results were (if it was not done here at MGH). If you are not sure of all the details, just leave as much information as you can. You may also send us any reports of your screening test by fax (617-228-4560) or mail:

Cervical: Papanicolaou
Colon: NA

If you have any questions or concerns, please don’t hesitate to call my office at 617-726-2426.

Sincerely,

[Signature]

[Name]
June 14, 2012: 97 out of 107 (91%) intervention providers reviewed 8447 patients.

TopCare Trial between 6/11 – 6/12

Total intervention letters: 12,111
Total control letters: 17,035 (↓ 29%)

Letters
Practice Delegate
Navigator

6191
418
50

Defer/Exclude from contact: 1468
Lessons from Ambulatory Care

A closed loop system for colorectal cancer screening in a residency training practice

Andy Ellner, MD, MSc | Brigham and Women’s Hospital Co-Director, HMS Center for Primary Care and Assistant Medical Director, Phyllis Jen Center for Primary Care
CRICO/RMF Colorectal Cancer Screening Algorithm
A Decision Support Tool
Colorectal Cancer Screening Recommendation for Individuals at Average Risk (asymptomatic patients age 50 years or older)

Assess the patient for symptoms such as rectal bleeding or weight loss; or for signs such as anemia

- No symptoms
- If yes, a complete diagnostic evaluation by a specialist is required

Stratify risk

Flag risk factors on a problem list
- family history of CRC or adenoma
- personal history of CRC, adenoma, or inflammatory bowel disease
- genetic syndromes (FAP, HNPCC)

Average Risk
Asymptomatic, ≥ age 50, no personal or family history of CRC or adenoma

- Colonoscopy every 10 years
  Many experts believe colonoscopy is the optimal screening modality because of its superior diagnostic and therapeutic capabilities

- Annual fecal occult blood test (home test with three separate stools) with flexible sigmoidoscopy every five years

Moderate Risk
See moderate risk screening algorithm

- Flexible sigmoidoscopy every five years

High Risk
See high risk screening algorithm

- Air contrast barium enema every five years

Possible future options
- Fecal DNA
- Virtual colonoscopy
- Immunochemical methods for fecal occult blood

Virtual colonoscopy is an option for a failed colonoscopy

An inadequate clean out of the colon reduces the ability to detect lesions during colonoscopy, sigmoidoscopy, or barium enema and mandates a repeat procedure at a shorter interval

1 Suggested intervals for screening procedures are based on a complete visualization during colonoscopy or sigmoidoscopy.
Redesigning Primary Care Delivery

• Ensure adherence to evidence-based screening algorithms
• Offload highly algorithmic tasks from physicians so they can focus on complex diagnosis and management
Phyllis Jen Center for Primary Care (PJC)

- Patients: ~18,000 adults
- Providers: 126 primary care physicians
  - 86 internal medicine residents
  - 95% of providers practice 2 sessions a week or less
  - High medical and psychosocial complexity among patients
CRC Screening in the PJC

Due for colonoscopy screening among patients between age 50 to 75.

- Residents: 1125 (30-40%) overdue for CRC Screening
- Faculty: 4511 (30-40%) overdue for CRC Screening

30-40% Jen Center patients overdue for CRC Screening
Network of 5 inter-related registries integrated into the BriCS surveillance system:
1. Point-of-Care (assign risk status)
2. Screening (enroll 35-49yo)
3. PCP (fine-tuning intervention)
4. Contact Management (pt outreach)
5. Navigator (intensive pt outreach)

PIMS
Population Information Management System

Point-of-Care Registry: Independent from BriCS workflow, visit-based registry

If today = due date

Overdue for colorectal cancer screening?

50-75yo

Automatic Review

35-49yo

Screening Registry Manual Review

PCP Registry: Defer / add evidence / not my patient / deceased
PCP to choose intervention: Letter, Delegate OR Navigator

PCP has 2 months to act

Otherwise will default to Letter intervention

Choose Intervention

Send letter Reminder

Immediate

Add patient to Contact Management Registry

Delegate has 4 months to act

Add patient to Navigator Registry

Navigator has 6 months to act

Give up

Start

Hibernate 2 year

Hibernate 6 months

Y

N

N

N

N

N
Project Roadmap and Timeline

Step 2: Project Implementation Phase

1. Project Development Phase
   8/11 - 1/12

2. Project Implementation Phase Team 1
   3/12 - 8/12

3. Continuous change

4.  

5.  

IT System/Development

Implementation Strategy

Collaboration/Stakeholder Meetings

Central Communication Resources

Operational Communication Resources
Results from pilot phase

Three months:

• Calls to **445 patients** identified as overdue

• **44 new orders** placed (19 colonoscopies completed)

• Obtaining outside reports for **88 patients** to be scanned and documented; and

• **Screening deferred for 164 patients** after speaking with our delegate about the risks and benefits of screening or having been excluded by their PCPs; we will ensure documentation

• Overall, adherence increased (**roughly**): 58% → 83%.
Project Roadmap and Timeline

Step 3: Expansion/Evaluation Phase

- Roll-out to additional suites
- Integrate staff MA/LPNs as delegates
- Pilot point of care and screening registries: obtain family history of 35-49 year olds
- Continuously improve system
Early Lessons

Challenges
• Culture, culture, culture
• Provider & staff silos
• Tyranny of the urgent
• Competing initiatives

Opportunities
• Crisis = opportunity
• Integration & collaboration
• Improved efficiency = time
• Strategic alignment
Lessons from Surgery

Bill Berry, MD | CRICO
Steve Schwartzberg, MD | Cambridge Health Alliance
Larry Harmon, PhD | PULSE

Shifting Patient Safety into High Gear
Surgical services top malp. cases, losses

National Landscape: Primary Responsible Services

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total incurred includes reserves on open cases and payments on closed cases.


Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).

Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.
Surgery Malpractice Profile

5,361 cases | $851M total incurred

2007–2011

(cases with surgery as primary responsible service)
28% involved a high-severity injury

Injury Severity in Surgery Cases

CBS N=5,361 coded professional liability cases asserted 1/1/07–12/31/11 with Surgery as the primary responsible service.


Total incurred: Reserves on open cases and payments on closed cases.

Severity scale:
- High= death, permanent grave, permanent major, or permanent significant
- Medium= permanent minor, temporary major, or temporary minor
- Low= temporary insignificant, emotional only, or legal issue only

5,361 cases | $851M total incurred
Common procedures involved

Top Procedures in Surgery Cases

<table>
<thead>
<tr>
<th>PROCEDURES</th>
<th># CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations on musculoskeletal system</td>
<td>1,230</td>
</tr>
<tr>
<td>Operations on digestive system</td>
<td>675</td>
</tr>
<tr>
<td>Operations on integumentary system</td>
<td>649</td>
</tr>
<tr>
<td>Operations on nervous system</td>
<td>416</td>
</tr>
<tr>
<td>Operations on cardiovascular system</td>
<td>272</td>
</tr>
<tr>
<td>Operations on eye</td>
<td>231</td>
</tr>
<tr>
<td>Misc. diagnostic &amp; therapeutic procedures</td>
<td>183</td>
</tr>
<tr>
<td>Operations on nose; mouth; and pharynx</td>
<td>160</td>
</tr>
<tr>
<td>Operations on urinary system</td>
<td>116</td>
</tr>
</tbody>
</table>

MUSCULOSKELETAL PROCEDURES  # CASES*
- Arthroplasty                     424
- Treatment of fracture or dislocation 216
- Spinal fusion                    175
- Therapeutic procedures on muscles and tendons 93

DIGESTIVE SYSTEM PROCEDURES  # CASES*
- Cholecystectomy and common duct exploration 119
- Upper GI therapeutic procedures           103
- Hernia repair                          98
- Colorectal resection                   85

INTEGUMENTARY PROCEDURES  # CASES*
- OR therapeutic procedures on skin and breast 501
- Procedures on breast                    49
- Excision of skin lesion                 30

CBS N=5,361 coded professional liability cases asserted 1/1/07 – 12/31/11 with Surgery as the primary responsible service.
### Technical Skill, Clinical Judgment, Communication

#### Top Contributing Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>% Cases*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical skill</td>
<td>51%</td>
</tr>
<tr>
<td>Clinical judgment</td>
<td>44%</td>
</tr>
<tr>
<td>Communication</td>
<td>25%</td>
</tr>
<tr>
<td>Behavior-related</td>
<td>25%</td>
</tr>
<tr>
<td>Documentation</td>
<td>14%</td>
</tr>
<tr>
<td>Administrative</td>
<td>12%</td>
</tr>
<tr>
<td>Clinical systems</td>
<td>11%</td>
</tr>
</tbody>
</table>

*A case will often have multiple factors.*

**CBS N=5,361 coded professional liability cases asserted 1/1/07 – 12/31/11 with Surgery as the primary responsible service.

#### Top Technical Skill Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th># Cases*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible technical problem</td>
<td>1,748</td>
</tr>
<tr>
<td>Poor technique, other</td>
<td>355</td>
</tr>
<tr>
<td>Retained foreign body</td>
<td>260</td>
</tr>
<tr>
<td>Misidentification of anatomical structure</td>
<td>208</td>
</tr>
</tbody>
</table>

#### Top Clinical Judgment Factors

| Factor                                                         | # Cases* |
|                                                              |          |
| Selection/management therapy: surgical/invasive procedures    | 687      |
| Pt assessment: failure/delay in ordering diagnostic test       | 473      |
| Pt assessment: narrow dx focus-failure to establish differential dx | 311      |
| Lack of/inadequate pt assessment: failure to note clinical info | 258      |

#### Top Communication Factors

| Factor                                                         | # Cases* |
|                                                              |          |
| Communication among providers regarding patient’s condition  | 310      |
| Inadequate informed consent for surgical/invasive procedures  | 290      |
| Communication between patient/family & provider: other         | 235      |
| Poor rapport (includes unsympathetic response to patient)     | 156      |

5,361 cases | $851M total incurred
Top Locations in Surgery Cases

- Operating Room: 2,159 cases
- Ambulatory Surgery: 1,466 cases
- Physician Office/Clinic: 842 cases
- Patient's Room: 316 cases
- Non-insured sites: 138 cases
- Intensive Care Unit: 109 cases

CBS N=5,361 coded professional liability cases asserted 1/1/07–12/31/11 with Surgery as the primary responsible service.
Case Discussion
Hypoxia/Arrest

- Saturday: 50-year-old male presented with small bowel obstruction secondary to adhesions
- Taken to OR; necrotic bowel was found and 50cms removed
- Saturday night: patient transferred from the PACU to the floor
- Uneventful evening
Hypoxia/Arrest

• Sunday morning (7 a.m.) patient began to have increasing problems with oxygenation and breathing
• Seen by surgical residents
• Oxygen increased and (finally) placed on CPAP
• Not moved to the ICU
• Attending not called
• Sunday afternoon (12:30 p.m.) patient arrests
• Brain injury
• Case settled in the high range
Lessons from Surgery

What can we learn from attending the PSO Experience?

Steve Schwartzberg, MD
Chief of Surgery, Cambridge Health Alliance
Associate Professor, Harvard Medical School
Hypothetical Problem: A Fire in the OR

700+/year
If this were to happen....

PSO format provide peer protected environment to:
- Present to multidisciplinary audience
- Learn from institutions who made have had a similar experience
If this were to happen....
PSO format provide peer protected environment to:

Share solutions locally applied from the event

Learn about solutions from institutions who have had a similar experience

Generate generic recommendations for PSO wide improvement
Shifting Patient Safety into High Gear

Lessons from Surgery
Surgery Code of Excellence and Quality PULSE 360 / Coaching Pilot

Larry Harmon, PhD | PULSE 360
Surgery Code of Excellence and Quality PULSE 360 / Coaching Pilot

FOR CONSIDERATION:

• As a Measurement
• As a Motivator
• The power of 360 Feedback + Coaching
Brief History of the 360° Feedback in Business

- 1970s: Began in leadership programs
- 1980s: Improved management skills in: Accounting, Banking, Manufacturing, Police, Navy, Utility, University, etc.
- 1990s: 360 Feedback + Coaching improved managers’ performance ratings, employee satisfaction, intentions to turnover, and commitment
Harvard Surgery Code of Excellence

ADOPTED BY THE MEMBERS OF THE CRICO/HARVARD SURGICAL CHIEFS SAFETY COLLABORATIVE

1. **SERVICE:** Our surgeons are expected always to place patients' needs first.

2. **RESPECT:** Our surgeons are expected to treat patients, their families, visitors, students, trainees, other caregivers, and one another with respect and professional dignity.

3. **TEAMWORK:** Our surgeons are expected to work collaboratively in service of patient care, both as effective leaders of teams and as members of teams led by others.

4. **EXCELLENCE:** Harvard aims to provide patient care and service equivalent to the best in the world. Our surgeons are therefore expected:
   - to become board certified and maintain certification,*
   - to monitor their outcomes and record them;
   - to make their results available for evaluation;
   - to follow prudent safety practices and guidelines for optimal patient care;
   - to achieve and maintain proficiency in the procedures they perform and in the basic set of procedures they may be called upon to perform in their specialty;
   - to limit their practice, except in an emergency, to those areas in which they have maintained proficiency; and
   - to adopt beneficial new technologies and techniques.

5. **ETHICAL DISCIPLINE:** Our surgeons will not adopt/attempt experimental techniques and technologies outside of research ethics review and assessment, unless in an emergency.

6. **PERSONAL RESPONSIBILITY TO PATIENTS:** Our surgeons are expected to take full responsibility for ensuring the safe care of their patients. When unable to do so themselves, they will arrange appropriate handover or consultation with another colleague or institution. Our surgeons will take responsibility for covered patients as if they were their own.

7. **OPENNESS:** Our surgeons are expected to communicate openly and honestly with patients and in the medical record about all aspects of their care—including the nature of any procedures to be performed, rates of complications, potential difficulties for recovery, involvement of other team members, and occurrence of mistakes and adverse events.

8. **EDUCATION:** Our surgeons are expected to devote time, effort, and skill to educating caregivers and our next generation of clinicians.

9. **HUMILITY:** All surgeons have finite abilities. Our surgeons are therefore expected to assess when a case is beyond their or their institution’s capabilities and to seek assistance and consultation accordingly.

10. **HEALTH:** Our surgeons are expected to value and maintain their health and wellness, as well as assist colleagues with their health.

11. **CONFLICT OF INTEREST:** Our surgeons are expected to maintain the knowledge, insight, and discipline required to keep the patient's interest above financial or any other conflict of interest.**

---

*Per institution protocol surrounding board certification requirements.
Quality PULSE 360: Questions and/or Scales

**COLLEAGUES & HEALTHCARE STAFF**
- Motivating behaviors
- Motivating impact
- Discouraging behaviors
- Discouraging impact
- Insight impact
- Burnout screening
- Cognitive screening

**PATIENTS & FAMILY MEMBERS**
- Patient care
- Medical knowledge
- Practice-based learning and improvement
- Professionalism
- Interpersonal and communication skills
- Patient satisfaction
- Systems-based practice
- Surgical competencies
Crosswalk between Code and PULSE Survey

• Tailored carefully to match the spirit of the Code
• Measures whether surgeon actions are perceived by those around them to be consistent with the Code
• Also has potential to drive improvements in surgeon performance as they receive meaningful feedback about the way they interact with others and with medical system
CRICO-Funded Pilot Program
Up to 3 hours of Debriefing/Coaching

• Debriefing: about 30-60 minutes (typically by phone)
  • Review Feedback: look for themes
  • Set at least 3 “Excellence Goals”
    • START Goals
    • STOP Goals
    • KEEP Goals
“Excellence Goals”

Chris Surgeon, MD
Surgery
Dept: Surgery Division: Ortho

Pat PULSE Coach, PhD

Instructions: Please complete the “6 Circles” learning activity by writing down on the form below your 6 major rater comment themes/goals.

1. Some respondents would like me to START (My goal is to start...):
   a. Treat OR nursing staff with respect.
   b. Bringing my complaints first to the Nurse-Manager.

2. Some respondents would like me to STOP (My goal is to stop...):
   a. Overreacting to small mistakes.
   b. Demeaning & intimidating nurses when frustrated.

3. Some respondents APPRECIATE and would like me to KEEP (My goal is to keep...):
   a. Practicing quality surgery.
   b. Being an inspirational teacher.
CRICO-funded Pilot Program
Up to 3 hours of Debriefing/Coaching

• Coaching Contacts: frequent 15-45 minutes
  • Identify strategies to reach goals
  • Learn/practice new skills
  • Reinforce improvement
• Follow-up PULSE Survey: 3-4 months later
What is an RCA?
RCA Overview

**Root Cause Analysis**—a structured approach to identify the underlying causes of adverse events and “near miss” events. The ultimate goal is to prevent future harm by eliminating these causative factors.

- Begin with event reconstruction through record review and interviews.
- Multidisciplinary teams analyze sequence of events to identify *how* and *why* the event occurred.
- Focus is primarily on systems and processes, not on individual performance.
- Action Plans with improvements are developed.
- Improvements must be implemented and their effectiveness monitored.
RCA Information Exchange

Benefits at the individual organizational level

• Aggregation and analysis at the local level
• Examine data before and after a specific initiative
• Manage Action Step completion
• Secure submission of RCA information, including attachments, to the AMC|PSO
• Compare organizational RCAIE to entire AMC|PSO database
• Produce compelling, actionable reports
RCA Information Exchange

Benefits across the AMC|PSO

- Comparative analysis—small “n” events, trend spotting
- Predictive modeling—identify emerging risks before they appear in malpractice data
- Measure Action Step impact
- Reporting capabilities
Gathered experienced PS and RM leaders and standardized:
- Event Types
- Contributing Factors
- Action Steps

Tool Design
- Structured data fields
- Selected free text fields
- Reporting capabilities
- Iterative approach – v1 . . .

Balancing Act
RCA Information Exchange Tool Demonstration
Lessons from Emergency Medicine

Carrie Tibbles, MD | CRICO
Assaad Sayah, MD | Cambridge Health Alliance
Larry Nathanson, MD | Beth Israel Deaconess Medical Center
CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total incurred includes reserves on open cases and payments on closed cases.
Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).
Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.
Diagnosis-related allegations account for 50% of ED claims

National Landscape: Top Major Allegations in ED Cases

CBS N = 976 coded professional liability cases asserted 1/1/07–12/31/11 with ED as the primary responsible service.
Total Incurred = reserves on open cases and payments on closed cases.
Emergency Medicine Diagnosis-related Malpractice Data
506 cases | $146M total incurred
2007-2011
58% of cases involved high severity injury

Injury Severity in Diagnostic ED Cases

PERCENT OF CASES

- Low: 2%
- Med: 40%
- High: 58%

PERCENT OF TOTAL INCURRED

- Med: 15%
- High: 85%

CBS N=506 PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.

Total Incurred=reserves on open and payments on closed cases.

Severity Scale: High= Death, Permanent Grave, Permanent Major or Permanent Significant
Medium= Permanent Minor, Temporary Major or Temporary Minor
Low= Temporary Insignificant, Emotional Only or Legal Issue Only
Case rate per 100,000 ED visits stable

Diagnostic ED Cases: Case rate per 100k ED Visits

CBS N=538 coded PL cases asserted 1/1/06–12/31/10 with a diagnosis-related major allegation and ED as primary responsible service.
Heart disease, fractures, and cerebrovascular disease account for 28% of claims.

Top Final Diagnoses in Diagnostic ED Cases

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th># CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diseases of the heart</td>
<td>66</td>
</tr>
<tr>
<td>Fractures</td>
<td>39</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>36</td>
</tr>
<tr>
<td>Gastrointestinal disorders</td>
<td>34</td>
</tr>
<tr>
<td>Diseases of arteries; arterioles; and capillaries</td>
<td>31</td>
</tr>
<tr>
<td>Central nervous system infection</td>
<td>25</td>
</tr>
<tr>
<td>Cancer</td>
<td>21</td>
</tr>
<tr>
<td>Complications</td>
<td>18</td>
</tr>
<tr>
<td>Bacterial infection</td>
<td>17</td>
</tr>
<tr>
<td>Spinal cord injury</td>
<td>16</td>
</tr>
</tbody>
</table>

CBS N=506 coded PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.
## Ordering, managing, and planning

### Diagnostic Process of Care in ED Cases

<table>
<thead>
<tr>
<th>STEP</th>
<th># CASES*</th>
<th>% CASES*</th>
<th>TOTAL INCURRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient notes problem and seeks care</td>
<td>24</td>
<td>5%</td>
<td>$9,566,598</td>
</tr>
<tr>
<td>2. Initial assessments: history &amp; physical exam</td>
<td>54</td>
<td>11%</td>
<td>$15,690,771</td>
</tr>
<tr>
<td>3. Ongoing assess: monitoring of clinical status</td>
<td>162</td>
<td>32%</td>
<td>$50,747,991</td>
</tr>
<tr>
<td>4. Ordering of diagnostic tests</td>
<td>347</td>
<td>69%</td>
<td>$119,225,319</td>
</tr>
<tr>
<td>5. Performance of diagnostic tests</td>
<td>27</td>
<td>5%</td>
<td>$15,174,297</td>
</tr>
<tr>
<td>6. Interpretation of diagnostic tests</td>
<td>72</td>
<td>14%</td>
<td>$18,077,523</td>
</tr>
<tr>
<td>7. Transmittal of test results to (ED) provider</td>
<td>34</td>
<td>7%</td>
<td>$15,887,980</td>
</tr>
<tr>
<td>8. Consultation management</td>
<td>147</td>
<td>29%</td>
<td>$49,445,334</td>
</tr>
<tr>
<td>9. Development of discharge plan</td>
<td>241</td>
<td>48%</td>
<td>$80,184,894</td>
</tr>
<tr>
<td>10. Post discharge f/u (inc pending test results)</td>
<td>42</td>
<td>8%</td>
<td>$18,693,190</td>
</tr>
<tr>
<td>11. Patient adherence with plan</td>
<td>27</td>
<td>5%</td>
<td>$3,595,579</td>
</tr>
</tbody>
</table>

*CBS N=506 coded PL cases asserted 1/1/07–12/31/11 with a diagnosis-related major allegation and ED as primary responsible service.
Total Incurred=reserves on open and payments on closed cases.
Case Study
Case Study

• 16-yo F saw her pediatrician in the clinic complaining of abdominal pain, nausea, and vomiting for the past 24 hours.
  • PE (pediatrician): VSS, afebrile, slightly obese, right mid-lower abdomen was tender to percussion.
  • Impression: “r/o appendicitis vs. renal colic.” She was sent to the ED for CBC, U/A, UC, & KUB.

• ED Physical Exam (ED resident): diffuse tenderness noted right lower quadrant, no guarding or rebound.
  • No change noted in bowel movements.
  • Pain varied between 5/10 → 10/10; did not respond to Tylenol.
  • U/A & KUB unremarkable; CBC & electrolytes normal – except for slightly ↑ neutrophils.
  • W/out a formal consult, the attending spoke to a pediatric surgeon → concluding pt did not have a surgical abdomen.
Case Study (cont’d)

• Patient was discharged w/diagnosis of abdominal pain.
  • Plan: instructed to have a light diet and call her pediatrician if the pain or vomiting resumed.

• One hour later: patient returned with increased pain, and nausea and vomiting
  • PE (same resident): abdomen diffusely tender, (+) BS, no guarding, and afebrile.
  • Impression: non-surgical abdomen
  • Plan: hydrate
Case Study (cont’d)

- While in ED, RN noted patient screaming in pain, in a knee/chest position; RN notified the attending:
  - Attending ped examined pt, reviewed resident’s note, and indicated that she “looked well. No acute distress.”
  - Patient’s mother asked whether an U/S or other imaging test was needed. Attending dismissed the mother’s suggestion, telling her the symptoms did not warrant it.

- Patient was discharged home.
Case Study (cont’d)

• Next day: patient returned to ED w/ episodic right lower quadrant abdominal pain with vomiting (5-6 x).
  • PE (different resident): afebrile w/ mild tenderness in both lower quadrants, no guarding, min rebound, & nl BS. No rectal exam documented. Pt had not had a stool that day.
  • Attending ED physician believed that the previous day’s attending had obtained a surgical consult, had diagnosed her with constipation, and had ordered an enema, after which the patient reported feeling better.
• Patient was discharged home.
• Plan: ↑ fluid intake, take mineral oil, ↑ fiber in diet, and inform her pediatrician how she was doing.
Case Study (cont’d)

• 3 days later: patient seen by her pediatrician for continued abdominal pain & vomiting.
  • PE: slight fever & orthostatic; abdomen quiet w/↑’d guarding.
  • Plan: patient sent to ED
  • ED PE: WBC & sed rate elevated; CT scan = nl appendix but presence of a complex pelvic mass; U/S = torsion R ovary
    • Pt taken to the OR → infarction R ovary confirmed → R ovary & fallopian tube removed.
    • Pt had an uneventful postoperative course.
  • Lawsuit Allegation
  • Parents alleged a delay in diagnosing and treating their daughter resulted in the permanent loss of one of her ovaries.
What are the key issues that led to this adverse outcome?
Contributing Factors / Pitfalls

- Narrow diagnostic focus (atypical presentation)
- Failure/delay responding to the patient’s concerns
- Failure/delay ordering diagnostic tests
- Failure/delay obtaining a consult or referral
- Communication among providers re: patient condition
- Illegible documentation
Lessons from Emergency Medicine
Team Communication Training

Assaad Sayah, MD | Cambridge Health Alliance
Chief, Emergency Department
Why this Project?

- Strategies are needed to improve communication, prevent errors, and mitigate consequences for patients treated in the emergency department
- EPIC may introduce more opportunities for misses. It does not replace verbal communication.
Grant Details

- Modeled on the success CRICO has had implementing team training programs in other disciplines
- $1.2 million for the ED Team Communication Project across six hospitals.
Steering Committee

• A steering committee consisting of the site leaders from each institution and representation from CRICO helped to coordinate and support the project.

• While the steering committee offers guidance to each of the institutions, it is recognized at the outset that while the essential elements of team training are constant, the implementation at each local site has been tailored to the local environment.

• The steering committee also developed outcomes to measure the success of the project.
Benefits of SIM Training

• High performance teams, function more efficiently and effectively when they have developed and practiced specific communication skills and team behaviors.

• Simulated critical incidents:
  • (followed by debriefing and reflection) are a well established method for this practice and an opportunity for team members to improve their skills
  • allow for practice of skills in a realistic, but low risk environment.
  • highlight and teach role clarity leadership skills, effective closed loop communication, and resource management as teams deliver coordinated care through the exercise.
GOAL: To improve communication among providers as a means of decreasing diagnostic failures.

Overall Objectives

1. Recognize the barriers to getting complete information (gathering and integrating information)
2. Use the designated method for transferring complete information
3. Lower the barriers for “speaking-up”
Sessions

Each class had a team of instructors which included:
- 1 Physician
- 1 Physician Assistant
- 1 Registered Nurse

Each Session was comprised of a specific complement of staff:
- 1 Physician
- 1 Physician Assistant
- 3-7 Registered Nurses
- 1-4 Support Staff (Nursing Assistants, Unit Secretaries, Greeters)
- 1-2 Security Officers

Average class size was about 8 attendees
Scenarios

- Scenario 1: Disaster
- Scenario 2: Slow Burn
Scenario 1: Disaster

Two patients are in ED beds when staff enter
  • Both arrived in the ED after a bus accident
  • Nursing Assistant (NA) updates team on patients’ status
  • NA becomes ill during course of scenario

*Twist:* *this is a HAZMAT incident*
Scenario 2: Slow Burn

Patient 1

66 yo F presenting with Initial BP 153/92 and fever of 101.2, shortness of breath and cough. Her chest X-ray showed LLL pneumonia and was treated with hydration and IVAvelox.

Nursing supervisor said she could go up to the floor after shift change. While waiting for report and to go up, her HR Subtly started going up and BP going down, to 100/47, not floridly hypotensive, but drifting down.

Patient 2

Found in the bathroom by safety officer.

Suspected intoxication: loud and disruptive behavior.

Reports that s/he is withdrawing from alcohol and brought to ED.

Patient 3

Arrives last: 46 yo M, remote history of alcohol use, vomiting blood began this AM. Has been taking large doses of Motrin for knee injury. EMS was only able to get peripheral 22 gauge IV.

Twist: Patient 2 begins to seize
Lessons: closing the loop in communication

To ensure that communication is open, accurate, timely, and precise:

- Call out vital information and assessment data;
- Provide situation updates;
- Use explicit double-check, reading back, or checking back, behaviors.

When to use it

- ED on the same page at the time of admission
- Sign out to the floor during admission
- Change of Shift
- Discharge
- During a “Code Consult”
Lessons: adopting an assertive stance

<table>
<thead>
<tr>
<th>Verbal</th>
<th>Non-verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Be specific and direct</td>
<td>• Eye contact</td>
</tr>
<tr>
<td>• Be honest</td>
<td>• Body posture</td>
</tr>
<tr>
<td>• Stick to the statement; repeat it if necessary</td>
<td>• Gestures</td>
</tr>
<tr>
<td>• Use “I” statements</td>
<td>• Facial expression</td>
</tr>
<tr>
<td>• Deflect responses from the other person that might undermine you</td>
<td>• Voice, tone, inflection, and volume</td>
</tr>
<tr>
<td>• Offer a solution</td>
<td>• Timing</td>
</tr>
<tr>
<td>• Ask for feedback</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Flin et al., Safety at the Sharp End, 2008.
Lessons: speaking up

• Speaking up is a two-way street. Effectiveness depends on both the giver and the receiver.

• Invite inquiry and information, and show appreciation when it comes.

• Think out loud and seek input.

• Encourage efficient, accurate, and precise communication without fear of reprisal.

• Build team trust, cohesiveness, and a culture of patient safety.

• Find the teaching moments and debrief (2-3 mins.)

• When to bring it to the next level.
Patient Status

Nursing concern of critical clinical status

Examples could include

- ESI Score of 1 and other potentially critical patients
- Active Seizure
- Fall in ED
- Active Chest Pain

### Triggers

<table>
<thead>
<tr>
<th>AGE</th>
<th>HR &gt;</th>
<th>RR &gt;</th>
<th>SBP &lt;</th>
<th>SPO2 &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>&gt;18 yrs</td>
<td>&lt;45 OR &gt;130</td>
<td>&lt;8 OR &gt;30</td>
<td>90</td>
</tr>
<tr>
<td>Pediatric</td>
<td>&lt;3 mo</td>
<td>180</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>3 mo–3 yrs</td>
<td>160</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>3 yrs–8 yrs</td>
<td>140</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>8 yrs–18 yrs</td>
<td>100</td>
<td>20</td>
<td>90</td>
</tr>
</tbody>
</table>

AGE:
- Adult: >18 yrs
- Pediatric:
  - <3 mo
  - 3 mo–3 yrs
  - 3 yrs–8 yrs
  - 8 yrs–18 yrs

HR:
- >45 OR >130

RR:
- <8 OR >30

SBP:
- 90

SPO2:
- 90%
Triggers

Trigger Response

• Immediately notify unit secretary.

• Unit Secretary makes overhead announcement – “CODE CONSULT to Room ___”

• Physician, Primary Nurse for that room, and ParII respond immediately to room
Plans for Sustainability

• The ED went live with the STOP tool and Triggers on Nov 1, 2012
• An OLC module is being developed
• Refresher courses will be offered periodically during special collaborative meetings
Lessons from Emergency Medicine

The ED Dashboard at BIDMC

Larry A. Nathanson, MD
Beth Israel Deaconess Medical Center
Disclosure

Founder of Forerun Systems, a health IT company
Overview

The ED Dashboard at BIDMC:

- Improves situational awareness
- Promotes closed loop communications
  - With primary care
  - With consultants
- Clinical Decision Support
  - Reminders for standardized care protocols
  - Alerts for dangerous conditions
Situational Awareness

<table>
<thead>
<tr>
<th>Time</th>
<th>Value</th>
<th>Comment</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>7h 66</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18h 64</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2h 63</td>
<td>47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Com: Common
- REF: Referral
- Neur: Neurological
- Urol: Urological
- Abd Pain: Abdominal Pain
- Swollen Legs / Pain
- Chills

**Table:**

<table>
<thead>
<tr>
<th>Side</th>
<th>eps</th>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
<td>Epstein TimPeck</td>
<td>MB</td>
</tr>
<tr>
<td>U</td>
<td></td>
<td>LarryN Buggia</td>
<td>mango</td>
</tr>
<tr>
<td>XC</td>
<td>L</td>
<td>Epstein TimPeck</td>
<td>MB</td>
</tr>
</tbody>
</table>

**Diagram:**

- Red dotted lines indicate connections or relationships.
- Icons and symbols may represent different medical conditions or identifiers.
Closed Loop Communication

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th>Smith, Jane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>16</td>
</tr>
<tr>
<td>Person Calling In:</td>
<td>Dr. Jones</td>
</tr>
<tr>
<td>Gender:</td>
<td>Female</td>
</tr>
<tr>
<td>Pt's Usual Provider:</td>
<td></td>
</tr>
</tbody>
</table>

**Clinical Summary:**
16F presents to our clinic with abdominal pain, nausea and vomiting for the last 24 hours. She has a history of eczema and ovarian cysts. We found her to afebrile with stable vital signs. Her exam was notable for right sided lower abdominal tenderness to percussion. She appears very uncomfortable and we are concerned she could have appendicitis or a kidney stone. Please consider CBC, urinalysis, culture and imaging.

**Referral from Dr. Jones**
<table>
<thead>
<tr>
<th>Preliminary Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ankle Sprain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest your ankle, elevate and ice as much as possible. Use crutches as needed. See attached instructions.</td>
</tr>
</tbody>
</table>
| Call your doctor or return to the ER for:  
  * Severe pain, swelling, numbness  
  * See attached  
| Use of Crutches, Ankle Sprain/Injury |  

<table>
<thead>
<tr>
<th>Prescriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYLENOL with Codeine #3 1-2 tabs PO q 4-6h prn #12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is NOT a Work-Related Visit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Followup</th>
</tr>
</thead>
</table>
| For BIDMC clinics or HCA click on the "Followup Options" button!  
Please call your doctor in 1-2 days to arrange a followup appointment. If your pain persists more than 1-2 weeks you might need to be seen in the orthopedics clinic. The number is below. |  
| Orthopedics Clinic |  

<table>
<thead>
<tr>
<th>Additional Notes to Provider</th>
</tr>
</thead>
</table>
| Summary of ED Visit and/or Additional notes for providers:  
ED evaluation on 01/23/2004 for: TWISTED ANKLE  
Inversion injury of the right ankle last night. Came in due to swelling and difficulty walking. Exam is normal except moderate swelling. Xrays do not show a fracture. Will discharge with Aircast and crutches.  
File in Electronic Medical Record (OMR)  
Rind, David M (Internal Medicine, Attending, BIDMC) |  

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excused Absence From Work/School</td>
</tr>
</tbody>
</table>


### Critical/Acute:
- Code Cord
- Post-Arrest Response Team
- Acute ST-Elevation MI
- Code STROKE

### Non-surgical:
- BMT Service
- Cardiology -- BIDMC
- Cardiology -- Atrius
- BIDMC Cardiology Attending
- EEG
- GI - General
- GI - ERCP/Biliary
- GI - Hepatology/Liver
- GI - Pancreatitis Consult
- Neurology
- Psychiatry
- Renal - Dialysis
- Renal - General
- Renal - Transplant
- Toxicology

### Surgical:
- Bariatric Surgery
- ENT
- Hand Surgery
- Neurosurgery
- OB/Gyn
- Oral-Maxillofacial Surgery
- Orthopedics
- Plastic Surgery
- Podiatry
- Spine
- Surgery
- Thoracic Surgery
- Transplant Surgery
- Urology
- Vascular Surgery

### Other:
- Physical Therapy
- Respiratory Therapy
- Case Management
- Social Work
### Bariatric Surgery Consult (Urgent) Requested by Jonathan Fisher

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Name</th>
<th>Status</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2/2012</td>
<td>4:31p</td>
<td>Ameeka Pannu</td>
<td>Status: Acknowledged</td>
<td>Ameeka p91224</td>
</tr>
<tr>
<td>11/2/2012</td>
<td>5:55p</td>
<td>Ameeka Pannu</td>
<td>Status: Preliminary Findings</td>
<td>Patient will be seen by fellow shortly. Please order upper GI study to eval conduit. Thank you, Ameeka p91224</td>
</tr>
<tr>
<td>11/2/2012</td>
<td>6:01p</td>
<td>Colin J Huguenel</td>
<td>Paged 38520: &quot;Re: ED Pt Peculiar. Called radiology, unable to get this study in ED at this hour, emergency only, likely have to admit patient for study in AM -Colin x42477 p92211&quot; [OK ADRA, SOUHEIL[93582]]</td>
<td></td>
</tr>
<tr>
<td>11/2/2012</td>
<td>11:18p</td>
<td>Mautin T Hundeyin</td>
<td>Status: Preliminary Findings</td>
<td>UGI negative for band prolapse, please obtain CT scan to r/o other pathology. If negative patient can d/c home on Bari Stage 3 diet. Thanks mautin p93570 x29016</td>
</tr>
<tr>
<td>11/2/2012</td>
<td>03:17a</td>
<td>Nicole M Dubosh</td>
<td>Paged 38520: &quot;Re: ED Pt Peculiar. CT results back. please call 4-2455 to discuss plan. Nicole p93665&quot; [OK ADRA, SOUHEIL[93582]]</td>
<td></td>
</tr>
</tbody>
</table>
Clinical Decision Support

- Current RCI PEP & treatment protocols: [Click here]
- RCI Physician Instructions: [Click here]

- Reminder: Patient is at increased fall risk
- Patient with many recent CT scans - check history before ordering
There were some critical lab value(s)-- have you rechecked or addressed them???

Some labs may still be pending -- please check carefully!

Patients should not be discharged with pending blood cultures, (except for rare situations.)

The ED attending physician can override this if clinically indicated.
Conclusion

- Situational awareness
- Closed loop communications
- Clinical Decision Support

- Email: LNathans@bidmc.harvard.edu
Lessons from Obstetrics

Roxane Gardner, MD, DSc | CRICO
Peter Bernstein, MD | Montefiore Medical Center
Eyal Ephrat, MD | MedCPU
Obstetrical services have a higher cost per claim.

National Landscape: Primary Responsible Services

CBS N=17,124 coded professional liability cases asserted 1/1/07–12/31/11.
Total incurred includes reserves on open cases and payments on closed cases.


Medicine includes: General Medicine and Medicine Subspecialties (Cardiology, Dermatology, Endocrinology, Gastroenterology, Genetics, Geriatrics, Hematology, Hospitalist, Immunology and Allergy, Infectious Disease, Oncology (Medical), Nephrology, Neurology, Physical Medicine/Rehabilitation, Pulmonary Disease, Rheumatology).

Other includes: Dentistry/Oral Surgery, Allied Health, Non-clinical, and Pharmacy.
Obstetrics-related Malpractice Data

937 cases | $522M total incurred
2007–2011
(cases with obstetrics or midwifery as primary responsible service)
Frequency of OB cases declining
Assert Years vs. Loss Years in OB Cases

CBS N=937 coded professional cases asserted 1/1/07–12/31/11 with Obstetrics or Midwifery as primary responsible service.

*14 OB cases occurred prior to 2000.

Severity Scale: High= Death, Permanent Grave, Permanent Major or Permanent Significant
Medium= Permanent Minor, Temporary Major or Temporary Minor
Low= Temporary Insignificant, Emotional Only or Legal Issue Only
55% involved a high-severity injury
Injury Severity in OB Cases

CBS N=937 coded professional liability cases asserted 1/1/07–12/31/11 with Obstetrics or Midwifery as primary responsible service.
Total Incurred=reserves on open cases and payments on closed cases.
Severity Scale: High= Death, Permanent Grave, Permanent Major or Permanent Significant
Medium= Permanent Minor, Temporary Major or Temporary Minor
Low= Temporary Insignificant, Emotional Only or Legal Issue Only
## Intrauterine hypoxia & birth asphyxia = 20%

### Top Final Diagnoses in OB Cases

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th># CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrauterine hypoxia and birth asphyxia</td>
<td>191</td>
</tr>
<tr>
<td>Complications of birth; puerperium affecting management of mother</td>
<td>109</td>
</tr>
<tr>
<td>Brachial plexus Injury</td>
<td>93</td>
</tr>
<tr>
<td>Other perinatal conditions</td>
<td>74</td>
</tr>
<tr>
<td>Anxiety state</td>
<td>66</td>
</tr>
<tr>
<td>Complications mainly related to pregnancy</td>
<td>39</td>
</tr>
<tr>
<td>Other complications</td>
<td>37</td>
</tr>
<tr>
<td>Foreign body accidentally left during procedure</td>
<td>32</td>
</tr>
<tr>
<td>Other birth trauma</td>
<td>30</td>
</tr>
<tr>
<td>Intrauterine death</td>
<td>25</td>
</tr>
<tr>
<td>Puncture/laceration during procedure</td>
<td>24</td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>21</td>
</tr>
</tbody>
</table>

CBS N=937 coded professional liability cases asserted 1/1/07–12/31/11 with Obstetrics or Midwifery as primary responsible service.
Top Contributing Factors in OB Cases

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>% CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Judgment</td>
<td>69%</td>
</tr>
<tr>
<td>Communication</td>
<td>30%</td>
</tr>
<tr>
<td>Technical Skill</td>
<td>29%</td>
</tr>
<tr>
<td>Administrative</td>
<td>21%</td>
</tr>
<tr>
<td>Documentation</td>
<td>20%</td>
</tr>
<tr>
<td>Supervision</td>
<td>13%</td>
</tr>
<tr>
<td>Clinical Systems</td>
<td>12%</td>
</tr>
</tbody>
</table>

A case will often have multiple factors identified.

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### TOP CLINICAL JUDGMENT FACTORS

<table>
<thead>
<tr>
<th>FACTOR</th>
<th># CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection/management therapy—labor and delivery</td>
<td>367</td>
</tr>
<tr>
<td>Selection/management therapy—pregnancy</td>
<td>113</td>
</tr>
<tr>
<td>Pt assessment—failure/delay in ordering diagnostic test</td>
<td>109</td>
</tr>
<tr>
<td>Pt assessment—misinterpretation of diagnostic studies</td>
<td>108</td>
</tr>
</tbody>
</table>

### TOP COMMUNICATION FACTORS

<table>
<thead>
<tr>
<th>FACTOR</th>
<th># CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication among providers regarding patient’s condition</td>
<td>129</td>
</tr>
<tr>
<td>Communication between patient/family &amp; provider—other</td>
<td>48</td>
</tr>
<tr>
<td>Communication between patient/family &amp; provider—language barrier</td>
<td>34</td>
</tr>
<tr>
<td>Inadequate informed consent for other treatment options</td>
<td>26</td>
</tr>
</tbody>
</table>

### TOP TECHNICAL SKILL FACTORS

<table>
<thead>
<tr>
<th>FACTOR</th>
<th># CASES*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible technical problem</td>
<td>135</td>
</tr>
<tr>
<td>Poor technique, other</td>
<td>53</td>
</tr>
<tr>
<td>Retained foreign body</td>
<td>33</td>
</tr>
<tr>
<td>Improperly utilized equipment</td>
<td>28</td>
</tr>
</tbody>
</table>
Labor & Delivery was the top location
Top Locations in OB Cases

- Labor and Delivery: 655 cases
- Physician Office/Clinic: 148 cases
- Other Inpatient Units: 35 cases
- Operating Room: 34 cases
- Non-insured Site: 27 cases

CBS N=937 coded professional liability cases asserted 1/1/07–12/31/11 with Obstetrics or Midwifery as primary responsible service.
Case Study
Case Study

• Mother, G2P1 at 37.5 weeks, admitted at 8:00p for induction of labor due to pre-eclampsia.
• Past medical history: congenital deafness, obesity, hypertension, and poorly controlled diabetes
• A Sign Language interpreter was present at her pre-natal visits, and during delivery.
• Evaluation on admission was notable for complaints of mild headaches; no visual changes or abdominal pain
  • BP=160/100
  • Cervix=4cm/80% effaced/-2 station
  • 2-3+ pedal edema
  • 3+ proteinuria
  • FHR=140 baseline with moderate variability (Category I tracing)
Case Study (cont’d)

8:45p: oxytocin induction began, BP=155/95

11:45p: cervix=7cm/100% effaced; epidural placed

12:00a: exam notable for:
  - BP=183/99
  - cervix=8cm dilated/100% effaced; rupt. membranes, clear fluid
  - FHR=140 baseline w/minimal variability
  - IV fluids of D10 w/Insulin initiated to stabilize glucose levels

1:10a: bolus of MgSO4 administered due to risk for seizures (platelet count=97K)

2:30a: cervix fully dilated and began to push
Case Study (cont’d)

3:15a: episiotomy performed; head delivered, ob applied traction and encountered shoulder dystocia

Ob rotated the anterior shoulder to the oblique position

3:20a: female infant delivered (8lbs 3oz) Apgars 8/9
Case Study (cont’d)

- Infant immediately noted to have decreased movement of left arm and bruising on left arm
- Diagnosed with left Erb’s Palsy
- Record review notable for:
  - RN documentation that McRobert’s maneuver was applied at 3:17a during delivery, but this note appeared to be inserted after the fact, between lines of entry
  - Ob documented the mother’s legs were “up,” but no specific reference to McRobert’s maneuver or application of suprapubic pressure was written in the delivery note; a dictated note was not performed
Case Study (cont’d)

- Infant received physical therapy but had continued problems with her left shoulder.
- 10 months later:
  - Reconstructive surgery was performed on her left shoulder
- One year later:
  - Patient continued to have weakness in her left shoulder and favors right-sided activities and motions
- Physical therapy is on-going, needed for strengthening and
  - maintaining flexibility of the left shoulder and arm
What are the key issues that led to this adverse outcome?
Case Study (cont’d)

Contributing Factors

• Management and treatment of the patient prior to and during labor

• Communication
  • between providers
  • between patient, family and providers
  • language barrier-related issues

• Technical performance of delivery complicated by shoulder dystocia

• Documentation
Lessons from Obstetrics

Shifting Patient Safety into High Gear

Peter Bernstein, MD, MPH
Professor of Clinical Obstetrics & Gynecology and Women’s Health, Albert Einstein College of Medicine/Montefiore Medical Center
Creating a Culture of Patient Safety: Shoulder Dystocia

Planning or Anticipation

Recognition

Team function

Patient follow up

Documentation

Shoulder Dystocia

Improved Patient Outcomes
OB QI Initiatives

- In house coverage requirements
- Team Training
- Multidisciplinary Obstetrical Emergency Simulation
- Patient Safety Officers/Nurses
- Documentation Guidelines
- Audit and Feedback
- Communication with Neonatology
Best Practices for Obstetrics

Admission Note
- **Latent phase** — within 12 hours
- **Active phase** — within 4 hours
- Include history, exam, fetal assessment, plan of care and EFW

Progress Notes
- **Latent phase** — every 8 hours
- **Active phase** — every 4 hours
- **Stage 2, nullipara** — within first 2 hours and then hourly
- **Multipara** — within first hour and then hourly
- Include labor progress, FH monitor findings, interventions, and plan of care

Attending Coverage
- Primary or covering attending must be in-house and readily available for patients:
  - in labor
  - receiving oxytocin
  - with epidural
- Covering attending will:
  - act on behalf of primary attending in an emergency
  - document at beginning and end of coverage period
- Primary attending must come in immediately when called by covering attending

Oxytocin Use
- When initiating — document need based on evaluation and assessment
- Document agreement between covering and primary attendings to start oxytocin
- Continuous fetal monitoring required
- **Latent phase** — reassess and document every 8 hours
- **Active phase** — reassess and document every 2 hours
- Discontinue for non-reassuring FHR

Suspected Macrosomia
- Recommend C/S for:
  - EFW > 4500 grams in diabetic mothers
  - EFW > 5000 grams in non-diabetic mothers

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Refusal of Treatment
- Document when patient refuses C/S or any recommended procedure

Operative Vaginal Delivery
- Do not attempt if:
  - EFW > 4000 grams in diabetic mothers
  - EFW > 4500 grams in non-diabetic mothers
- Pre-op requirements:
  - instrumentation privileges
  - OR availability, if C/S necessary
  - examined for position
  - station at least +2
  - cervix fully dilated
  - pelvis clinically adequate
  - analgesia adequate
  - bladder empty
- Use forceps or vacuum — NOT both
- Perform vacuum delivery only after 34 weeks
- Limit to 3 pop-offs or complete lack of descent
- Document:
  - pre-op requirements met
  - delivery procedure in detail
  - pop-offs, if applicable

VTOL / VBAC
- Document risk / benefit discussion and consent
- Use special caution for patients:
  - with unknown scar
  - unregistered to the institution
  - whose records are unavailable
- Contraindications:
  - prior upper segment incision
  - prior T-incision
  - prior uterine rupture or dehiscence
  - clinician assessment of inadequate pelvis

Management of Twins
- Inability to monitor second twin precludes trial of labor
- Must deliver in OR

Elective Deliveries
- Singleton — not before 39 weeks without FLM results
- Twins — not before 38 weeks without FLM results
Team Training

• Based on the Principles of Crew Resource Management (CRM)
• Adapted from the Military and the Aviation Industry
• Principles include:
  • Resource management
  • Communication
  • Briefing, debriefing, and leadership strategies
  • Error reduction techniques, including workload management, mutual support and cross-monitoring
Why Communication?

• The overwhelming majority of untoward events involve communication failure

• Somebody knows there’s a problem but can’t get everyone in the same movie

• The clinical environment has evolved beyond the limitations of individual human performance
Medical Simulation
Benefits of Medical Simulation

• Safe environment - mistakes don’t have a cost
• Trainee focus
• Allow for controlled exposure to rare scenarios
• Provides “hands-on” experiential learning
• Unique opportunity for team-training
• Reproducible, standardized, and objective
• Allows for debriefing of practice
• Increases public trust
Obstetric Simulation: What?

• Technical Maneuvers
  • Normal delivery, shoulder dystocia, breech vaginal delivery, operative vaginal delivery

• Knowledge and Application
  • Eclampsia, PPH, maternal code

• Communication
  • Shoulder dystocia, 2 challenge rule
  • All emergencies
Obstetric Simulation: What?

- Team Preparedness and Team Function
  - Shoulder dystocia, eclampsia, PPH, vaginal breech
  - All emergencies
- Documentation
  - Shoulder dystocia, eclampsia, operative vaginal delivery
Montefiore Sim Experience

• Over 800 simulations completed
  • Participants include: MDs (Attendings and Residents), CNMs, Physician Assistants, RNs
  • Multidisciplinary (OB, Anesthesia, Peds, Nursing)
  • Crew Resource Management and Team Training Principles Applied
  • Has been well received
Simulations Improve Physician Performance: Shoulder Dystocia

<table>
<thead>
<tr>
<th></th>
<th>PRE</th>
<th>POST</th>
<th>P VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6 items)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>3.5(1.2)</td>
<td>4.9(1.0)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Attending</td>
<td>3.6(1.6)</td>
<td>4.9(1.1)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td><strong>Maneuvers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4 items)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>3.3(0.9)</td>
<td>3.9(0.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>Attending</td>
<td>3.8(0.5)</td>
<td>3.9(0.3)</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Overall Performance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5 pt. scale)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>2.4(1.0)</td>
<td>3.8(0.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Attending</td>
<td>3.4(0.9)</td>
<td>4.1(0.7)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

n = 43 attendings, 28 residents
Goffman 2008
Simulations Improve MD Performance: Eclampsia

<table>
<thead>
<tr>
<th></th>
<th>LS (median, IQR)</th>
<th>SS (median, IQR)</th>
<th>SLS (median, IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline maternal score (max 21)</td>
<td>11.0 (7.5-13.00)</td>
<td>10 (8.3-13.5)</td>
<td></td>
</tr>
<tr>
<td>Post-education maternal score (max 21)</td>
<td>12.0 (9.0-15.0)</td>
<td>15.0 (12.0-18.5)*</td>
<td>15.5 (14.0-16.8)*</td>
</tr>
<tr>
<td>Baseline eclampsia score (max 30)</td>
<td>11.0 (8.5-11.0)</td>
<td>13 (9.5-16.5)</td>
<td></td>
</tr>
<tr>
<td>Post-education eclampsia score (max 30)</td>
<td>16.0 (13.0-19.0)</td>
<td>19.0 (16.0-22.0)</td>
<td>19.0 (17.3-20.8)*</td>
</tr>
</tbody>
</table>

p<0.05 Compared to LS
Fisher AJOG 2010
40% reduction in median decision-delivery interval for cord prolapse

Siassakos et al. BJOG 2009
Obstetric Simulation: *The Evidence*

Before and after a required, annual, one-day course for all staff of emergency drills and FHR tracing interpretation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min Apgar ≤ 6</td>
<td>73 (86.6)</td>
<td>49 (44.4)</td>
<td>0.51 (0.35-0.74)</td>
</tr>
<tr>
<td>n (rate per 10,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIE</td>
<td>23 (27.3)</td>
<td>15 (13.6)</td>
<td>0.50 (0.26-0.95)</td>
</tr>
<tr>
<td>n (rate per 10,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate/severe HIE</td>
<td>16 (19.0)</td>
<td>11 (10.0)</td>
<td>0.53 (0.24-1.13)</td>
</tr>
<tr>
<td>n (rate per 10,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Draycott et al, *BJOG*, 2006
Importance of Clear and Complete Documentation

• Improved communication between members of the team
• Standardized forms and Electronic Records can encourage better documentation
• Can encourage attending physician involvement
• Can mandate better documentation, e.g.
  • Nursing won’t start oxytocin unless appropriate note written in chart
• Medical Malpractice Cases often significantly compromised just because of poor documentation
  • Reduce conflicts in the medical record
  • Neonatology initiative to document findings only
### Non-Spontaneous Delivery Note

**Date of Delivery:**

**Type of Delivery:**

Amniotic Fluid:

Episiotomy:

Birth weight: ____________

Sex: [ ] Boy [ ] Girl [ ] Ambiguous

Newborn Transported to:

Angar scores: ____________ 1 min. ____________ 5 min. ____________ 10 min.

NICU [ ] Wall Baby Unit

Newborn Examination: [ ] No [ ] Yes Describe:

Placenta: [ ] Spontaneous [ ]Manual [ ] Eviscerated

Estimated Blood Loss: ____________ ml

Laceration/Extensive: [ ] No [ ] Yes Describe:

Laceration/episiotomy repair:

Indication (check and describe):

- [ ] Potential fetal compromise (bradycardia, decelerations, abruption)
  
  Describe:

- [ ] Arrest of Labor in the second stage
  
  Describe:

- [ ] Prolonged second stage
  
  Describe:

- [ ] Maternal (exhaustion, cardiac, neurologic disorder)
  
  Describe:

- [ ] Other
  
  Describe:

**OPERATIVE VAGINAL DELIVERY TYPE:** [ ] Does not apply

Verbal consent obtained from patient: [ ] Yes [ ] No

Instrument Used – Note only one instrument:

- [ ] Forceps type:
  
  - [ ] Outlet
  
  - [ ] Low
  
  - [ ] Mid

- [ ] Vacuum type:
  
  - [ ] Outlet
  
  - [ ] Low
  
  - [ ] Mid

Position of fetal head at application:

Time of application:

Station of fetal head at application:

Newborn delivery time:

Number of pulls (contractions):

Placental delivery time:

---

### Non-Spontaneous Delivery Attending Note

**Patient Name:**

**MR #:**

**Act #:**

**Shoulder Dystocia Note:** [ ] Does not apply

- Time of delivery of fetal head: ____________
  
  Anterior shoulder - [ ] Right or [ ] Left

- Time of delivery of infant: ____________

Maneuvers Used (Numbers in order performed) Note – Fundal pressure should not be used:

- [ ] McRoberts
- [ ] Suprapubic pressure
- [ ] Episiotomy: Type: ____________
- [ ] Rotation (Rubin or Woods screw)
- [ ] Delivery of the posterior arm
- [ ] Gaskin all-fours
- [ ] Fracture of clavicle
- [ ] Zavarelli (cephalic replacement) – Dictated operative report required

Newborn examination of extremities:

- [ ] Symmetric Moro

  Deficit describe: [ ] Right or [ ] Left

Events of delivery reviewed with patient: [ ] Yes [ ] No

Other Comments:

---

**Pediatrics Staff Present:** [ ] Yes [ ] No

**Obstetric Staff Present:**

- **Attending:**
- **CNA:**
- **Resident:**
- **Other:**

**CNM/Resident/PA Name (Print):**

**CNM/Resident/PA Signature / Credentials:**

**Date:** ____________ **Time:** ____________

**Attending Physician’s Name (Print):**

**Attending Signature / Credentials:**

**Date:** ____________ **Time:** ____________
Audit and Feedback of Guidelines

- Random sample of deliveries each quarter
- Charts reviewed by trained FOJP staff (4 FTE)
- Extensive and robust electronic database for reviews
- Analysis and feedback at the department and physician level
  - Persistent poor documentation jeopardizes provider privileges
- Analyze the data to determine future areas for quality improvement
Best Practices for Obstetrics

Admission Note
- **Latent phase** — within 12 hours
- **Active phase** — within 4 hours
- Include history, exam, fetal assessment, plan of care and EFW

Progress Notes
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Management of Twins
- Inability to monitor second twin precludes trial of labor
- Must deliver in OR

Elective Deliveries
- Singleton — not before 39 weeks without FLM results
- Twins — not before 38 weeks without FLM results
Composite Note (CN) Score

0–100 scale

• 10 indicators: 0–10 points for each indicator based on % adherence
• Admission note: 10 points each
  • History
  • Exam
  • Fetal Assessment
  • Plan of Care
  • Estimated Fetal Weight (EFW)
Composite Note (CN) Score
0–100 scale

- Admission Notes On Time: 10 points
- Progress Notes: 10 points each
  - Assessment of fetal well-being and fetal heart rate
  - Progress of labor
  - Plan of care
- Progress Notes On Time: 10 points
- Cutoff point for the CN Score was the bottom 10% of Physicians
Admission Note Requirements

• For patients in the latent phase of labor, an attending should enter an admission note within 8 hours of admission
• For patients in the active phase of labor, an attending should enter an admission note within 4 hours of admission
• Estimated fetal weight must be documented in the admission note
Montefiore’s Weiler Campus CN Score
### Best Practices: Neonatal Care

**Suspected Brachial Plexus Injury (BPI)**

Evaluation and Management Form

<table>
<thead>
<tr>
<th>Date</th>
<th>Date</th>
<th>BPI</th>
<th>Typical Clinical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Erb’s</td>
<td>Klumpke</td>
</tr>
<tr>
<td>Physical Exam:</td>
<td>Admission</td>
<td>Discharge</td>
<td>Left</td>
</tr>
<tr>
<td>Shoulder abduction</td>
<td>Absent</td>
<td>Decrease</td>
<td>Present</td>
</tr>
<tr>
<td>Shoulder external rotation</td>
<td>Absent</td>
<td>Decrease</td>
<td>Present</td>
</tr>
<tr>
<td>Elbow flexion</td>
<td>Absent</td>
<td>Decrease</td>
<td>Present</td>
</tr>
<tr>
<td>Supination</td>
<td>Absent</td>
<td>Decrease</td>
<td>Present</td>
</tr>
<tr>
<td>Wrist &amp; finger extension</td>
<td>Present</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Biceps reflex</td>
<td>Absent</td>
<td>Decrease</td>
<td>Present</td>
</tr>
<tr>
<td>Grasp reflex</td>
<td>Present</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Moro reflex</td>
<td>Abnormal</td>
<td>Abnormal</td>
<td></td>
</tr>
<tr>
<td>Hand movement</td>
<td>Present</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Sensory</td>
<td>Varies</td>
<td>Varies</td>
<td></td>
</tr>
</tbody>
</table>

*“Water’s tip position”*

**Pain Management:**

- Pain assessment
  - Pain: Present | Absent
  - Pain: Present | Absent

- Comfort care
  - Yes | No
  - Yes | No

- Pain medication
  - Yes | No
  - Yes | No

**Diagnosis:**

- Attending Name (Print)
- Attending Signature

**Imaging:**

- Clavicles & Chest X-Ray
- Upper Extremity X-Ray
- Other

**Recommendations/Consults/Referrals**

- Primary Care Follow Up Telephone: 
  - Appointments Date and Time
- Peds Neurology Consult
  - Name
  - Date/Time
- Orthopedic Consult
  - Name
  - Date/Time
- PT / OT Consult
  - Name
  - Date/Time
- Patient Safety Officer Notified
  - Yes | No
- Monte Home Care Referral
  - Yes | No
- Early Intervention Referral
  - EIP Child Find Referral (CHAP)

**Change Notes:**

- Increase: U: Unchanged: I: Inpatient: H: HMO (Referral by Primary Care Provider)
- Decrease: N: Normal: O: Outpatient: NN: Not needed
Patient Safety Nurse

- Organizes simulation program/patient safety course
- Conducts chart audits
- Participates in QI meetings
- Educates providers on Best Practices and Team Training principles
- Connects with families with poor outcomes (in particular those with families whose babies have neurologic deficits) to ensure appropriate follow up.
Lessons from Obstetrics

MedCPU

Eyal Ephrat, MD | MedCPU
Ms. Jones, G2P1 at 37.5 weeks, was admitted to the hospital at 8pm for induction of labor due to preeclampsia.
<table>
<thead>
<tr>
<th>Admission 8:00pm</th>
<th>· Pt. admitted to the hospital for induction of labor due to preeclampsia.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to document severity of Preeclampsia as indication for induction</td>
</tr>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to document birth weight of her earlier delivery, and whether there were any complications</td>
</tr>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to document severity of her obesity</td>
</tr>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to perform anesthesia consult on admission; no documentation that one done antenatally</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8:00pm</th>
<th>· BP: 160/100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to initiate treatment w/ antihypertensives at this point if sustained</td>
</tr>
<tr>
<td><strong>ERROR</strong></td>
<td>Failure to initiate treatment w/ magnesium sulfate at this point if sustained; pt qualified as severe preeclampsia</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>8:45pm</td>
<td>- Oxytocin induction began</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to evaluate and document fetal position</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to evaluate and document EFW. Given her obesity and uncontrolled diabetes, EFW is even more important</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to perform cervical examination to determine need for cervical ripening</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to document maternal consent</td>
</tr>
<tr>
<td>12:00am</td>
<td>- BP = 183/99</td>
</tr>
<tr>
<td></td>
<td>- Cervix = 8cm dilated/100% effaced; ruptured membranes, clear fluid</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to initiate treatment w/ antihypertensives</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to initiate treatment w/ magnesium sulfate</td>
</tr>
<tr>
<td>ERROR</td>
<td>Failure to document Station</td>
</tr>
<tr>
<td>1:10am</td>
<td>- a bolus of MgS04 was administered due to risk for seizures</td>
</tr>
<tr>
<td></td>
<td>(platelet count = 97K)</td>
</tr>
<tr>
<td></td>
<td>Pt has Severe Preeclampsia. Mag Sulfate could reasonably have been started a while ago</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>2:30am</td>
<td>• Cervix fully dilated and began to push</td>
</tr>
<tr>
<td>3:15am</td>
<td>• Episiotomy performed and the head delivered the head</td>
</tr>
<tr>
<td></td>
<td>• Obstetrician applied traction and encountered shoulder dystocia</td>
</tr>
<tr>
<td>3:20am</td>
<td>• Female infant delivered, Apgars 8/9, wt = 8 lbs 3 oz</td>
</tr>
<tr>
<td></td>
<td>• OB MD documented mother’s legs were “up” but no specific</td>
</tr>
<tr>
<td></td>
<td>reference to McRobert’s maneuver or application of Suprapubic</td>
</tr>
<tr>
<td></td>
<td>pressure was written in the delivery note; dictation not performed</td>
</tr>
</tbody>
</table>
Dictated Physician Encounter Note

DATE: 12/29/2010 13:45

REASON FOR CONSULTATION: Acute myocardial infarction.

HISTORY OF PRESENT ILLNESS: The patient is a 51-year-old without significant past medical history on no medication. He is a heavy smoker who comes to the Emergency Room with 2 days of chest pain. The patient started to have pain sometime on Saturday during the day. It was in her chest radiating up to her neck as it also hurt to breathe. This persisted for the next 2 days. She called her friend Monday morning, brought her to the Emergency Room. She is complaining of ongoing chest pain which she feels is similar to her presenting pain; however, it hurts to move or to take deep breaths as it goes up to her neck and jaw. It is a little better sitting forward. She has not had any of this discomfort prior to the onset on Saturday.

Her risk factors are smoking at least 1 pack a day. She was young and question whether she has hypertension, but she is not treated. She has no diabetes from looking in her record on SRS. She did have an elevated LDL of 150 back in 2007 and is not on treatment and drinks at least moderate alcohol. Her son and friend were with her when I examined the patient. She was clearly in some distress and complaining of his discomfort. Difficult to get a good complete history since the patient is in distress.

On exam, her blood pressure was 180/70, her pulse 104. Her cardiac biomarkers were 3173, 98.8 and 58.7, respectively, BUN 23, creatinine 1.3, AST 607, ALT 53, alkaline phosphatase 130. Her white count 18.5, hemoglobin 15.4, hematocrit 45.9. Her MCV 108.6, increased absolute neutrophil count of 16%, normal INR and electrocardiogram showed inferior myocardial infarction with ST depression of up to 2 mm, particularly in V3, 4 and 5. Chest x-ray showed what appeared to be cardiomegaly without congestive heart failure.

A stat echocardiogram done showed a very extensive inferior, posterior and lateral areas of akinesis; her anterior wall contracting normally. She had moderate mitral regurgitation, mild-to-moderate tricuspid regurgitation with an elevated pulmonary artery pressure estimate probably around 50 and there was no significant pericardial effusion.

ASSESSMENT AND PLAN: This is a 51-year-old who has had an extensive inferior posterior lateral myocardial infarction and moderate mitral regurgitation as a consequence. She is not in heart failure and apparently her myocardial infarction began on Saturday and is ongoing. Whether her pain is now all infarct pericardotomy syndrome or ongoing ischemia is unclear. She says pain is the same although there is a pleuritic component. She does have ongoing ischemic ST depression of up to 2 mm, which could represent posterior infarct. At this point, I would proceed to cardiac catheterization and recommendations will be pending the results.

Discharge Plan:
1) beta blocker clopessor 50mg PO BID
2) Start Cardiac diet
3) Follow up 3 months
4) Lipid profile

Dictated by: Dr Cardiology, MD
The Data Challenge: Unstructured Clinical Data

Percent of Clinical Data (by Category)
Entered Only in Free Text

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>85%</td>
</tr>
<tr>
<td>Counseling/Impression</td>
<td>79%</td>
</tr>
<tr>
<td>Problems</td>
<td>78%</td>
</tr>
<tr>
<td>Allergy</td>
<td>74%</td>
</tr>
<tr>
<td>Vaccine</td>
<td>36%</td>
</tr>
<tr>
<td>Medications</td>
<td>20%</td>
</tr>
<tr>
<td>Lab</td>
<td>20%</td>
</tr>
<tr>
<td>Vital signs</td>
<td>15%</td>
</tr>
</tbody>
</table>
Incomplete Data = Incomplete Analytics

Incomplete Data for:

- Accurately **Prompting** for Care Quality Control and Standardization
- Standardizing Patient Information Across Network
- Meaningful Analytics
- Care Coordination
The MedCPU Advisor™

+ Floats on top ANY EMR system (EMR Agnostic)
+ Reads in real-time all patient information
  + Reading from the organization’s EMR screen (using MSAA Reading technology)
  + Consuming from organization’s Interface Engine (HL7)
The MedCPU Advisor™

+ Converts narrative/free text notes to highly accurate discrete data, in real-time
+ Revolutionary Medical Text Processor
+ Also collects all structured fields entries
+ Functions as accurate Data Agent for the organization
The MedCPU Advisor™

- Robust Clinical Decision Support Engine
- Best Practice Plug-Ins Library

Decision Support Engine

- ACO
- PCMH
- Home Health
- Diabetes
- Spine
- Stroke
- OB
- MU CQM
- ER
- Asthma
- Readmissions Reduction

Proprietary & Confidential
The patient smokes; not drinking or using alcohol. No use of drugs.

Medical History:

The patient has Myasthenia Gravis

Family History:

Mother: Diabetes Mellitus

Main Complaint:
The patient arrived for induction of labor and trail of vaginal birth after Cesarean (VBAC)

12:45 On physical exam:
T: 98; HR: 98; BP: 120/80; R: 12
PV: 1cm; 10%; -2; hard consistency; posterior position; cephalic; Intact membranes; no vaginal bleeding.
Contractions: 0/10min;
FHR: 140, reactive; accelerations; no decelerations.
Weight: 150 lbs; Height: 5' 5” (165 cm)

13:05 Plan:
We’ll admit for a planned VBAC and follow-up closely
Admit to L&D for induction
The patient smokes; not drinking or using alcohol. No use of drugs.

Medical History:

The patient has Myasthenia Gravis

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Weight: 150 lbs; Height: 5' 5" (165 cm)

13:05 Plan:
We'll admit for a planned VBAC and follow-up closely
Admit to L&D for induction

13:05 EFW: 3,400gr; GBS: not known; FHR: reassuring; adequate pelvis

The physician complies with missing items
The patient smokes; not drinking or using alcohol. No use of drugs.

Medical History:

The patient has Myasthenia Gravis

Family History:

Mother: Diabetes Mellitus

Main Complaint:
The patient arrived for induction of labor and trial of vaginal birth after Cesarean (VBAC)

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13:05 Plan:
We’ll admit for a planned VBAC and follow-up closely
Admit to L&D for induction

13:05 EFW: 3,400gr; GBS: not known; FHR: reassuring; adequate pelvis

14:05 Cervidil placed
Mother: Diabetes Mellitus

Main Complaint:
The patient arrived for induction of labor and trial of vaginal birth after Cesarean (VBAC) at 12:45.

On physical exam:
- T: 98; HR: 98; BP: 120/80; R: 12
- PV: 1cm; 10%; -2; hard consistency; posterior position; cephalic; Intact membranes; no vaginal bleeding.
- Contractions: 0/10min;
- FHR: 140, reactive; accelerations; no decelerations.
- Weight: 150 lbs; Height: 5’ 5” (165 cm)

Plan:
- We’ll admit for a planned VBAC and follow-up closely.
- Admit to L&D for induction.

13:05
- EFW: 3,400gr; GBS: not known; FHR: reassuring; adequate pelvis

14:05
- Cervidil placed
- Cervidil removed

A LIFE SAVING ALERT is presented:

**Contraindication**
- Dinoprost (Cervidil/Prostin) is CONTRAINDIANTED

Uterine scar. The American College of OB/GYN discourages the use of prostaglandins for cervical opening or induction of labor for patients attempting VBAC.
Mother: Diabetes Mellitus

Main Complaint:
The patient arrived for induction of labor and trial of vaginal birth after Cesarean (VBAC)

12:45 On physical exam:
T: 98; HR: 98; BP: 120/80; R: 12
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Admit to L&D for induction

13:05 EFW: 3,400gr; GBS: not known; FHR: reassuring; adequate pelvis

14:05 Cervidil placed

14:05 Cervidil removed

The Hospital EMR

Physician reverts back from erroneous action

Patient SAVED
Shifting Patient Safety into High Gear

Lessons in Medication Safety

Jeffrey Rothschild, MD, MPH
Brigham & Women’s Hospital

Anne Bane, RN
Brigham & Women’s Hospital

Pat McCarthy, PA, MHA
Massachusetts General Hospital
Medication-related Malpractice Data

1,147 cases | $264M total incurred

2007-2011 (for CBS cases coded as of 10/31/12)
Ambulatory care medication claims trending up

Claimant Type Trends in Medication Cases

CBS N=1,147 professional liability cases asserted 1/1/07–12/31/11 with a Medication-related major allegation.
Close to 50% involved a high-severity injury

Injury Severity in Medication-related Cases

PERCENT OF CASES

- High 47%
- Med 46%
- Low 7%

PERCENT OF TOTAL INCURRED

- Low 1%
- Med 18%
- High 81%

CBS N=1,147 coded PL cases asserted 1/1/07–12/31/11 with a Medication-related major allegation.
Total Incurred=reserves on open and payments on closed cases.
Severity Scale: High= Death, Permanent Grave, Permanent Major or Permanent Significant
Medium= Permanent Minor, Temporary Major or Temporary Minor
Low= Temporary Insignificant, Emotional Only or Legal Issue Only

1,147 cases | $246M total incurred
## Monitoring, management top issue in both settings

### Process of Care in Medication Cases

<table>
<thead>
<tr>
<th>STEP</th>
<th>INPATIENT</th>
<th>AMBULATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># CASES</td>
<td>% CASES</td>
</tr>
<tr>
<td>1. Ordering</td>
<td>94</td>
<td>22%</td>
</tr>
<tr>
<td>2. Pharmacy dispensing</td>
<td>11</td>
<td>3%</td>
</tr>
<tr>
<td>3. Provider administration</td>
<td>59</td>
<td>14%</td>
</tr>
<tr>
<td>4. Monitoring and management</td>
<td>194</td>
<td>46%</td>
</tr>
<tr>
<td>Other medication related</td>
<td>62</td>
<td>15%</td>
</tr>
</tbody>
</table>

CBS N=1,147 coded professional liability cases asserted 1/1/07–12/31/11 with a Medication-related major allegation.

Total Incurred=reserves on open cases and payments on closed cases.
45% occur in MD Office or clinic practice
Top Locations in Medication Cases

- Physician Office/Clinic: 514 cases
- Patient's Room: 244 cases
- Emergency: 83 cases
- Intensive Care Unit: 41 cases

CBS N=1,147 coded professional liability cases asserted 1/1/07–12/31/11 with a Medication-related major allegation.
Case Study
Case Study

- 75-yo female with multiple recent admissions and PMH significant for:
  - end stage liver disease
  - chronic renal failure
  - candidal esophagitis
  - hypertension
  - non-insulin dependant diabetes mellitus
  - recent right arm fracture, complicated by DVT RUE and treated with Fragmin
Case Study

- Day 1 (Friday): Admit to IM with mental status changes and HIT (Heparin Induced Thrombocytopenia)
  - Hematology consult: anticoagulate with direct thrombin inhibitor
  - Lepirudin @ 0.15 mg/kg/hr (= 7.2 mg given pt’s wt) ordered
    - PTT Goal 50-70: titrate dose by PTT
    - Check PTT after start and q2 hrs after dose changes
Case Study (cont’d)

• Day 2 (Saturday): RN started Lepirudin
  • Dose set by Pharmacy at 0.1 mg/kg/hr (7.2 mg/hr)
  • Pharmacy set maximum dose at 11mg/hr
  • Bruise noted R chest
    • patient with potential medication clearing problems 2nd to CRF and liver disease discussed
    • but need for anticoagulation outweighed the bleeding potential

• Days 3-4 (Sun., Mon.): Lepirudin doses (based on PTT results):
  • 3.6 mg/hr
  • 1.8 mg/hr
  • 0.9 mg/hr
  • 0.45 mg/hr
Case Study (cont’d)

• **Day 5 (Tuesday)**
  
  • 6:00 a.m.: PTT 87.6: infusion stopped x2 hrs and ordered to restart at 50% previous dose
  
  • infusion pump turned off leaving pump with no visual display of previous rate
  
  • no new order for Lepirudin in CPOE System
  
  • poor documentation regarding dose changes, dose history,
    • some RNs documented dose changes on VS flow sheet while others documented changes in narrative notes
    7:00 a.m.: RN restarted Lepirudin at 0.229 mg/kg/hr (16.5 mg/hr)
  
  • Dose should have been 0.229 mg/hr
  
  • Patient received **72** times the dose
Case Study (cont’d)

- Day 5 (Tuesday)
- 12:00p: PTT lab drawn: lab listed as sample compromised. Sample *not* redrawn.
- 3:30p: MD writes order to continue Lepirudin @16.5 mg/hr with labs to be drawn in the morning.
  - ?? whether MD aware of actual doses being given.
  - Pharmacy approved order.
- 7:00p: patient c/o shoulder pain; ↑ size of ecchymotic area.
  - Lepirudin stopped.
  - Hct =16, platelets =19.
  - Patient transferred to MICU and transfused.
  - PTT >150, INR >19.
- Despite aggressive resuscitation, patient developed profound shock and expired.
Case Study (cont’d)

• Day 6 (Wednesday)
• Postmortem blood test showed significant presence of Lepirudin 10 hrs after it was discontinued
What are the key issues that led to this adverse outcome?
Case Study (cont’d)

Contributing Factors/Pitfalls

• Need for policy/procedure
• Staff training/education
• Patient monitoring: medication regimen
• Selection/management medication: other
• Medication error: administration of incorrect/inappropriate dose
• Incompatible systems/technology
• Inconsistent documentation
• Weekend/nights/holiday
Shifting Patient Safety into High Gear

Lessons in Medication Safety

Strategies for Decreasing Intravenous Medication Administration Errors

Anne Bane, RN, MSN | Brigham & Women’s Hospital Director, Clinical Systems Innovations
Strategies

• Medication Safety Technology
  • Bar Code Scanning at Administration
  • Smart Infusion Pumps
    • Maintaining clinically significant drug libraries
• “Back to the Basics” Campaign
• Share the Story
• Independent Double Checks
Medication Safety Technology

Bar Code Scanning

• Validates right drug for right patient

• Validates right admixture based on provider order

• Does not validate correct admixture/dose programmed on infusion pump at administration
Medication Safety Technology: Smart Infusion Pumps

- Smart Infusion pumps
  - Guardrails in drug libraries offer dosing guidance for the clinician
  - Pump does not provide alerts if dose errors occur within the defined guardrail range
  - Balancing alert fatigue with clinically significant alerts
  - Drug library maintenance requires dedicated resources
**IV Medication Administration System**

- **CPOE**: Provider writes order
- **Pharmacy**: Pharmacist Approves Order
- **eMAR**: RN acknowledges Approved order
- **Smart IV Pump**: RN logs in and obtains med from ADC machine

**Bi-directional information between Pump and eMAR**
- RN verifies prior to starting pump:
  - Right medication
  - Right dose
  - Right concentration
  - Right Patient

**Auto-ID**:RN verifies on pump:
- Right medication
- Right dose
- Right concentration

**Pharm -> Pump interface:**
- Right Patient

**RN Verifies:**
- Right Patient

**RN Starts Pump**

**RN Documents**
- Medication Administration

**Dotted lines denote future goal**
Drug Library Creation and Maintenance

Goal
• Continually striving to create clinically significant entries that provide optimal safety

How?
• Analyze Continuous Quality Improvement (CQI) data
• End user requests- must be consistent with organizations approved references
• BWH Smart Pump Infusion team
• Create library entries
• Validate library function with Informatics Committee
• Wireless capability
• Drug Safety Committee oversight
“Back to the Basics”

• 2013 Annual Competency “Reducing Intravenous Medication Errors”
  • Reviews high alert/ high risk medications
  • Highlights both human and system factors that contribute to medications errors
  • Identifies nursing practices that must be adopted to mitigate the risk of human error

• Unit based program
  • Share safety report data
  • Identify high risk meds
Alaris Smart Pump Safety Tips

1. **Use Drug/Fluid Libraries** whenever possible

2. Drug entries may be on different screens; be sure to **Page Down**

3. If the medication is not in the Drug Library and **Basic Infusion** is being used, consider having a **Colleague Review** the calculations and pump entries as an independent double check

4. **ONE at a TIME, RUN the LINE**: initiate only one infusion at a time and verify the IV bag and tubing is connected to the module being programmed and the correct infusion site on the patient.

5. **Pause and Review** settings prior to initiating the infusion

6. **Review** the pump set-up and dose entries with your colleague at **Hand Over Report**

7. If a medication is “on hold”/discontinued, **Disconnect** the tubing from the patient
Share the Story

• Safety leaders participate in CRICO patient safety forums

• Distribute Institute for Safe Medication Practices (ISMP) publications to all staff

• Benchmark your organization against other institutions

• Focus on the importance of safety reporting, especially near miss events
Independent Double Checks

• *ISMP Definition: An independent double check is a procedure in which two clinicians separately check (alone and apart from each other) then check results prior to administration.

• Is this a value added task?

• Who has adopted this practice?

Lessons in Medication Safety
Medication Reconciliation: Opportunities and Challenges

Pat McCarthy, PA, MHA
Massachusetts General Hospital
Case Study

- 67 year-old with PMH: AF, CABG and DM. Treated with Coumadin for 5 years to reduce risk of embolism

- PCP notes indicate that Cardiologist is overseeing coumadin management and that patient was sophisticated and understands meds, PCP checks INRs and adjusts doses, Last INR was prior to 4/09, no notes from PCP to cardiologist

- Cardiology notes suggest that PCP was monitoring warfarin, scattered INR measurements documented, occasional post-visit notes sent to PCP
Case Study

• 4/09 ED visit:
  • AF rate 140 while on vacation. Warfarin listed as current med. Patient converted to NSR.
  • Upon return, wife advised cardiologist of ED visit. Holter monitor performed - no AF. Patient currently off warfarin; placed on ASA.

• 5/09 Cardiology visit:
  • No mention of vacation AF episode but no documentation of further AF; Continued current dose of Norpace.
Case Study (cont’d)

• 3/10 Cardiology: Note “discontinuing warfarin”
• 6/10 PCP Rate controlled, no mention of warfarin
• 12/10 PCP (annual exam):
  • Patient in AF; PCP stated later that the patient said he was taking warfarin
  • No documentation of warfarin discussion, no warfarin in Tx plan, and no urgent cardiology consult
• 2/5/11 Cardiology:
  • EKG c/w AF; warfarin restarted, as well as Atenolol to control HR
Case Study (cont’d)

- 2/6/11: After 1st dose of Atenolol patient became dizzy and was admitted to hospital for hypotension
  - No EKG changes noted
  - PT 15.1; INR 1.2 (subtherapeutic)
  - Patient became aphasic and hemiplegic
  - Dx: Cerebral embolism due to AF and lack of anticoagulation
- 18 mos later: Patient expired of heart disease
Discussion

Coordination of care:
- Unclear who was making the decisions regarding whether the patient should/should not be on warfarin
- Lack of routine communication between the two providers
- INRs were not monitored routinely
- Patient not seen regularly

Inadequate patient assessment and documentation: lack of:
- updated H&P (e.g., recurrent AF not noted)
- problem list, or
- medication list (e.g., warfarin not noted in Tx plan)

Lack of patient education re: anticoagulation
Opportunities for Improvement:

Sound Medication Reconciliation Practices

Clearly delineate roles and responsibilities of providers when a patient has multiple care providers

Complete and maintain an up-to-date medication list:
including dosages, frequency, and any special instructions

• Provider update of medication list each time a change is made; leverage EMR

Patient education:

• Importance of taking medications as prescribed (e.g. risks of not taking medication as ordered)
• Advise patient to bring/review up-to-date medication list with providers at each visit
Optimal Medication Reconciliation practices for shared patients

Potential Approaches

• Every provider is responsible for every medication.
• Every provider is responsible for reconciling medications at each encounter.
• Providers are responsible only for medications they prescribe or medications within the scope of their practice.
• Other suggestions?