AHRQ Toolkit
The Harborview Experience

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The Harborview Experience

Mission and Priority of care

- Persons incarcerated in the King County Jail
- Mentally ill patients, particularly those treated involuntarily
- Persons with sexually transmitted diseases
- Substance abusers
- Indigents without third-party coverage
- Non-English speaking poor
- Trauma
- Burn treatment
- Specialized emergency care
- Victims of domestic violence
- Victims of sexual assault
Objectives

July 2008
WHAT IS A PSI?

July 2009
Oh I wish I had a “toolkit”

July 2010
AHRQ Toolkit Project

July 2011
PSI Project Full Integration
Quality Improvement Initiative
Two Goals

External Reporting

University Health System Consortium
CMS – Hospital Acquired Conditions
State Reportable Events

Medical QI Committee (MQIC)

- Departmental M & M review reporting
- Standardization of identification of potentially preventable harm events for clinical review

Internal Case Identification
Section A
Readiness for Change

- IQI/PSI Fact Sheets
- AHRQ Specification Guidelines
- Readiness to Change (Self Assessment)
  - Medical Director – previous director of QI Dept
  - Leadership Support and directive for project
  - The Board was “on board”
  - Challenges identified: information dissemination about quality and patient safety to staff at all levels of the organization
Section B: Applying the Indicators to your hospital data

- Utilizing UHC database to track rates for PSI
- UHC Quarterly Summaries ~ 3 months behind
- Individual Case review from UHC ~ 6 weeks
- Too late to make an impact

How do we get PSI data in “real time”?

Can we use our internal data and the AHRQ software and get the same results?
Data Challenges – Input

- Internal Source System for data points (3M)
- 3M Report output = 2 pages, multiple Rows
- PERL Script to transform into usable input file

AHRQ Software is free and easy to download, but each hospitals’ source system may be slightly different
Data Challenges – Output

- Validate Numerator and Denominator against publically reported values
- Quality Improvement Project
  - Track each PSI cases individually for possible opportunities to improve care
Other Data Challenges

- Version changes and updates
- New AHRQ formats can cause a mismatch on your import file
- Publically reported information may utilize a different version (IE UHC, State reports)
Section C: Identifying Priorities for Quality Improvement

- HMC Project Originally utilized University Health System Consortium as PSI source
- Benchmarking performance against other hospitals to determine areas of focus
# Prioritization Matrix

**Annual Rates based on Q3 2009 to Q2 2010**

<table>
<thead>
<tr>
<th>List of PI/PIQIs</th>
<th>HMC Annual PI/PIQI Rate/1000</th>
<th>NIQR Fdata/1000</th>
<th>AHRQ Target Rate/1000</th>
<th>UHC Median Rate/1000</th>
<th>Volume of cases at risk</th>
<th>Cost of single event</th>
<th>Total Cost</th>
<th>Rate on a scale of 10 (agree/high) - 0 (disagree/low)</th>
<th>Total Score</th>
<th>BARRIER ASSESSMENT (indicate Yes or No)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Executive Level Support</td>
<td>Staff Capabilities</td>
<td>Staff Willingness</td>
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<tr>
<td>PSI1 Pressure Ulcer</td>
<td>0.53</td>
<td>24.06%</td>
<td>*</td>
<td>0.90</td>
<td>2</td>
<td>$109,869</td>
<td>$215,738</td>
<td>10</td>
<td>10</td>
<td>y</td>
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<tr>
<td>PSI2 Inpatient Pneumonia</td>
<td>0.30</td>
<td>0.72</td>
<td>0.50</td>
<td>0.60</td>
<td>5</td>
<td>$36,575</td>
<td>$182,875</td>
<td>10</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>PSI3 Central Venous Catheter-related Bloodstream Infections</td>
<td>1.86</td>
<td>1.79</td>
<td>1.70</td>
<td>1.30</td>
<td>22</td>
<td>$23,147</td>
<td>$1,807,234</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>PSI4 Postoperative Hip Fracture</td>
<td>0.00</td>
<td>0.22</td>
<td>0.20</td>
<td>0.00</td>
<td>0</td>
<td>$147,547</td>
<td>$0</td>
<td>10</td>
<td>10</td>
<td>y</td>
</tr>
<tr>
<td>PSI5 Postoperative Hemorrhage or Hematoma</td>
<td>2.93</td>
<td>2.44</td>
<td>2.20</td>
<td>3.70</td>
<td>21</td>
<td>$53,728</td>
<td>$1,254,288</td>
<td>10</td>
<td>8</td>
<td>0</td>
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<tr>
<td>PSI6 Postoperative Physiologic and Metabolic Derangement</td>
<td>1.02</td>
<td>0.35</td>
<td>1.00</td>
<td>0.90</td>
<td>3</td>
<td>$120,630</td>
<td>$361,890</td>
<td>8</td>
<td>10</td>
<td>0</td>
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<tr>
<td>PSI7 Postoperative Respiratory Failure</td>
<td>8.39</td>
<td>8.78</td>
<td>9.40</td>
<td>12.70</td>
<td>23</td>
<td>$51,507</td>
<td>$1,415,041</td>
<td>10</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>PSI8 Postoperative Pulmonary Embolism or Deep Vein Thrombosis</td>
<td>12.03</td>
<td>11.14</td>
<td>11.40</td>
<td>10.00</td>
<td>86</td>
<td>$64,476</td>
<td>$5,544,936</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>PSI9 Postoperative Septic</td>
<td>6.43</td>
<td>15.25</td>
<td>12.00</td>
<td>11.50</td>
<td>4</td>
<td>$49,215</td>
<td>$196,860</td>
<td>5</td>
<td>0</td>
<td>0</td>
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<tr>
<td>PSI10 Postoperative Wound Dehiscence</td>
<td>9.24</td>
<td>2.15</td>
<td>2.70</td>
<td>1.80</td>
<td>5</td>
<td>$55,791</td>
<td>$276,955</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PSI12 Accidental Puncture or Laceration</td>
<td>2.70</td>
<td>3.72</td>
<td>2.90</td>
<td>3.90</td>
<td>47</td>
<td>$22,629</td>
<td>$1,063,563</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Take it on the road!

- Presented to Surgical Council, Medical Executive Board, Critical Care Council, Hospital Board, Clinical Documentation Specialists, Coding
  - What are the PSIs?
  - Why do we care?
  - Current performance/UHC ranking
  - How are we going to review/expectations from teams
  - Possible opportunities for improvement
    - Clinical areas
    - Documentation – Coding
Section D: Implementation Methods

- Examples of effective PSI improvement strategies
- Evidence–based best practices for selected PSIs

• Team Charter and Goals ★
• Gap Analysis ★
• Implementation Plan ★
• Implementation Measurement

Confidential: Quality Improvement
Evidence-based best practices for select PSIs

- Clinical Teams – Task Force – who are the “experts” in these areas?

- PSI 03: Clinical Nurse Specialists wound care
- PSI 07: Infection Control
- PSI 12: Anticoagulation Task force: Trauma Surgeon, Hospitalist, Pharmacy, Nursing
PSI Improvement Opportunities

- Understanding of Metrics
- Validation of Metrics

Make friends with your Coders

PSI 6: 
- iatrogenic pneumothorax
  - Watch for inadequate documentation, such as “rule out pneumothorax without alternative diagnosis established after a study (chest x-ray or CT).”
  - Increase the use of bedside ultrason guidance during placement of central venous catheters, especially in the operating room, intensive care unit, and emergency department. This is proven to reduce iatrogenic injury during internal jugular placement.
  - Limit the use of the subclavian approach to patients for whom access to the neck is limited (e.g., trauma code resuscitations), patients with suspected neck injuries, and those lacking other available sites.

PSI 7: 
- Central Venous Catheter-Related Bloodstream Infection
  - Identify tunneled catheters that are infected at admission and code as present-on-admission (POA).
  - Minimize the use of femoral venous catheters, which are associated with higher rates of infection.
  - Remove catheters at the earliest opportunity that is consistent with patient safety.

PSI 9: 
- Postoperative hemorrhage/hematoma
  - The logic of the indicator may capture both intraoperative and postoperative hemorrhage, especially if bleeding persists after surgery.
  - The impact of true positive cases was significant, with most cases returning to the operating room, but opportunities for improvement are unclear.

PSI 11: 
- Postoperative respiratory failure
  - Avoid using CPT code 96.04, when intubation is an expected part of a procedure.
  - Improve documentation of the reasons for re-intubation or prolonged ventilation.
  - Three clinical issues that were identified during the project potentially warrant further attention. There were two cases of oxygenation leading to respiratory complications; some patients likely could have been extubated earlier, which would not have counted as respiratory failure, and several cases had massive blood loss which seemed to precipitate postoperative respiratory issues.

PSI 12: 
- Postoperative deep vein thrombosis/pulmonary embolism
  - Watch for inadequate documentation, such as “rule out deep vein thrombosis or pulmonary embolism without alternative diagnosis established after study.”
  - Use new ICD-9-CM codes to capture chronic venous thromboembolism.
  - More timely use, beginning on day 3, of pharmacologic prophylaxis may be beneficial, especially for perioperative patients at intermediate risk and without contraindications; consider whether mechanical prophylaxis alone is adequate.
  - Review deep vein thrombosis/pulmonary embolism cases for adherence to deep vein prophylaxis guidelines on a monthly basis.
  - Examine and present results from monitoring data to providers.
  - Educate physicians about deep vein thrombosis guidelines and order sets.

PSI 15: 
- Accidental puncture or laceration
  - There is occasional occurrence of intraoperative bleeding and other routine events as accidental puncture or laceration.
  - Most true positive cases had extenuating circumstances. Some were possibly preventable with earlier conversion of laparoscopic to open abdominal surgery, or with the use of Doppler ultrasound to identify structures.
  - Hospitals with inexperienced operators performing technically difficult procedures may experience similar patterns of events.
Section E: Monitoring Progress and Improvement Sustainability

- Input file pulled 10 days after end of previous month and run through AHRQ software for case identification
- Upload to internal database to track outcomes of each PSI
- Providers report back through M&M conferences and Medical Quality Improvement Committee
HMC PSI Case Review

Monthly Data Feed → AHRQ → QI Analysis

Coding or Documentation issue?

Documentation Coding Review

Agree? (Wrong code or exclusion criteria code missing)

Update coding

AHRQ

QI Analysis

Real Event?

Service Review

No Event

No Coding Issue

QI Concerns

No QI Concerns
# HMC Analysis and Tracking

<table>
<thead>
<tr>
<th>Event Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>AHRO</td>
<td>PSI 12 Postoperative Pulmonary Embolism or Deep Vein Thrombosis</td>
</tr>
<tr>
<td></td>
<td>TEAM REVIEW COMMENTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Referral Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact Id</strong></td>
<td><strong>Sent Date</strong></td>
</tr>
</tbody>
</table>
Focused on Highest Volume PSI Event

PSI Events based upon ICD.9 discharge coding, AHRQ inclusion/exclusion criteria
Clinical Event Search Tool
- VTE case finding from internal diagnostic systems for vascular and radiology events
- VTE prophylaxis data points from EMR
- Anticoagulation task force review all events to determine quality concerns on a case
Implementation Measurement

• For all VTE events, was *standard of care* met?
  • Compliance with UW Medicine guidelines?
    • *Type*?
    • *Timing*?
    • *Dose intensity*?
  • If guidelines do not specify, what is the standard?

• What are the opportunities for improvement?
Clinical Opportunities

- Transitions in care – teams/peri-procedural
  - Clinical pharmacists receive daily list of all patients not receiving chemical prophylaxis in the last 24 hrs
- Missed/held doses for OR
  - Changed Dalteparin dosing to 2100
- Education for Nursing and Residents
  - Clinical Education daily report for doses held for “pt ambulatory” and “hold for surgery”
  - Guideline directed therapy algorithm with increased web links through EMR and “clinical toolkit”
Is a high rate of events a true indicator of a quality issue at a hospital?
Are all PSI events “preventable”?
What about those “missed” events?
  ◦ Incomplete documentation and coding?
PSI Review Findings

- Standardized Case Review
  - Jan to Dec 2011
  - PSI 3, 6, 7, 9, 11, 12, 15
  - 260 Events
    - 116 occurred – no quality concerns
    - 46 occurred – possible opportunities
    - 65 events related to documentation or coding error
    - 33 events “flawed metric”
      - PSI 11 flagged related to a planned two stage surgery
      - PSI 9 flag related to intra-operative bleeding

<table>
<thead>
<tr>
<th>PSI Cases Reviewed</th>
<th>N = 260</th>
</tr>
</thead>
<tbody>
<tr>
<td>No QI concerns</td>
<td>45%</td>
</tr>
<tr>
<td>Possible Opportunity</td>
<td>18%</td>
</tr>
<tr>
<td>Documentation</td>
<td>25%</td>
</tr>
<tr>
<td>Flawed Metric</td>
<td>12%</td>
</tr>
</tbody>
</table>
VTE events from exams vs. PSI 12

- Jan to Dec 2011 (111 VTE Events)
- 72 AHRQ PSI 12
- 49 additional VTE events (false negative)
  - 31 cases not identified in administrative data
  - 18 cases no operative procedure

Without out internal clinical event search tool
these cases would be missed QI opportunities

* There were also 17 Cases of PSI 12 that were not real clinical events
Section F: Return on Investment

How can you measure the impact of PSI reduction?

- Cost Data from Prioritization Matrix
- Recent Publication by Sean Berenholtz, MD, MHS at Johns Hopkins on “Opportunity Estimator Tool” for CLABSI –
- January 2012, Joint Commission Journal on Quality and Patient Safety
Section G: Existing QI Resources

- Reviewed by our Research Librarian
- Incorporated into University of Washington Health Sciences LibGuides web page
  - Healthcare Quality News
  - Pub Med Searches (preselected QI topics)
  - eJournals related to quality and safety
  - Keep Current with Pub Med notifications
  - Measures – links to TJC, NQF, CMS, UHC, IHI, WSHA,
  - Publishing/RefWorks/EndNote

http://libguides.hsl.washington.edu/qualitysafety
HMC PSI Project Lessons Learned

- Validate, validate, validate ..........
- Leadership backing for project importance and accountability from providers
- Presentations to clinical providers should focus on actual clinical events and outcomes
- Coding department project lead/liaison
AHRQ Partnership

- http://www.qualityindicators.ahrq.gov/
- Help line: support@qualityindicators.ahrq.gov
AHRQ Feedback

- Technical tools for the AHRQ software to assist with mapping hospital input files
- Webinars for how to use the AHRQ software
- More report types within the AHRQ software
- Improved clarity regarding risk adjustment coefficients for each PSI
AHRQ QI rates are increasingly being used by external sources as a measure of quality

Upcoming Pay for Performance measures

Hospital acquired VTE – identify with ICD.9 but require validation in record

Chart review to validate if patients received appropriate chemical prophylaxis

Currently in review by NQF
AHRQ PSI Future

- Continue to develop from a rate based tracking tool to one that provides hospitals opportunity for real changes for patients
  - How can hospitals use the QIs to analyze “gaps” in current clinical care?
  - If you identify a problem – then what to do about it
  - Best Practice tools need to continue to evolve as evidence develops

To learn more about the toolkit from the developers register for a free AHRQ-sponsored Webinar

“How To Improve Performance on the AHRQ Inpatient Quality and Patient Safety Indicators: Introducing a Toolkit for Hospitals”

http://meet63385651.adobeconnect.com/hospitaltoolkitregistration/event/event_info.html

OBJECTIVES:

* The purpose of the toolkit.
* How it was developed.
* How it is organized for easy use.
* How a hospital has used it to assess performance on the AHRQ indicators, identify priorities, and implement changes to improve quality and safety.
Thank You

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