A strong business case for quality

- Not all appropriate care is rendered
- Unnecessary care is being provided
- Compliance with evidence-based guidelines known to improve outcomes is poor
- Outcomes of care vary widely
ProvenCare®

- **Concept:** Link evidence-based practices to a continuum of care in a subclass of patients and reliably give that care **to each and every patient**

- **Purpose:** Fully optimize patient outcomes
  Reduce unnecessary variability in care
  Create an idealized flow for providers and patients
Evidence

- Evidence-based practices are Class I and Class IIa recommendations published by the sub-specialty’s national governing body

- Physician consensus-based practices are guided by the sub-specialty’s national governing body

- Applicable regulatory requirements are incorporated into best practices
ProvenCare®

- Elective CABG
- Elective Cataract Surgery
- Elective Total Hip Replacement
- Elective PCI (Percutaneous Coronary Intervention)
- Bariatric Surgery
- Low Back
- Perinatal
Why? Because typical care has…

- Clinical
  - Uncertain appropriateness
  - Variable compliance with known-to-be beneficial evidence-based best practice
  - Limited patient engagement
  - Variable outcomes
- Business
  - Lack of accountability for outcomes and quality
  - A la carte payment for services
  - Perverse incentives: more payment for complications
**ProvenCare** CAB and PCI

**ProvenCare** CABG

Snapshot:
- 5 Surgeons
- 2 hospitals
ProvenCare patients through Aug 2009
393

**ProvenCare** PCI

Snapshot:
- 6 Interventionalists
- 2 Hospitals
ProvenCare patients through July 2009
945
**ProvenCare Cataract and Total Hip Replacement**

**ProvenCare Cataract**

Snapshot:
- 9 Surgeons
- 4 Hospitals (2 non-Geisinger)
- 2 Surgical Centers
ProvenCare patients through July 2009 4022

**ProvenCare THR**

Snapshot:
- 6 Surgeons
- 2 Hospitals
ProvenCare patients through July 2009 871
ProvenCare Bariatric

Snap Shot:
Patient population: ~800 in the program, 400 proceed to surgery each year
Duration: Pre-surgery- 7 months
Post-surgery- 12 months
Surgical approaches: 2
Professionals: Surgeons-5 Internal Medicine- 2
Psychology-2 Nutritional Spec.-6

ProvenCare patients through July 2009 599
Perinatal ProvenCare® Goals

• 103 Discrete evidence-based elements of care are incorporated, measured and tracked for compliance
• Redesign, from the ground up, all aspects of provider workflow
  – Drive fundamental efficiency improvements
  – Increase patient safety and process reliability
  – Reduce/eliminate documentation redundancy
  – Streamline patient education and cut costs
• Seek observable reductions in C-section rates and premature births
• Enhance management of comorbid conditions
• Improve fetal/child health and wellness
Does it work?
May 24th, 2007 at the George Washington University Medical Center

HEALTH CARE: Hillary Remarks on Reducing the Cost of Health Care

ProvenCare® brings national attention

The New York Times
National
In Bid for Better Hospital Care, Heart Surgery With a Warranty
Lessons Learned
Total Hip Quality Manager Data Improvements with >90% compliance

- Decreased LOS
  - 3.6% reduction
- Decreased 30 day readmission rate
  - 58% reduction
- Decreased DVT rate
  - 49% reduction
- Decreased PE rate
  - 67% reduction

Quality Manager Data
Not statistically significant
<table>
<thead>
<tr>
<th></th>
<th>CY prior to ProvenCare</th>
<th>Expected</th>
<th>CY 2009</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mortality</strong></td>
<td>0.90%</td>
<td>0.10%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td><strong>Morbidity¹</strong></td>
<td>3.50%</td>
<td>1.90%</td>
<td>1.00%</td>
<td>71%</td>
</tr>
<tr>
<td><strong>Complications</strong></td>
<td>27.90%</td>
<td>27.10%</td>
<td>16.30%</td>
<td>42%</td>
</tr>
<tr>
<td><strong>LOS</strong></td>
<td>3.8</td>
<td>2.8</td>
<td>2.8</td>
<td>26%</td>
</tr>
<tr>
<td><strong>Geometric Cost</strong></td>
<td>$10,057</td>
<td>$14,292</td>
<td>$12,715</td>
<td>26%</td>
</tr>
</tbody>
</table>

¹Morbidity Rate, as defined by Quality Manager, is the percentage of patients who develop at least one morbid complication during hospitalization. Patients are said to have a morbid complication if the clinical impact of the complication was determined to be in the category of D or E as outlined below:

<table>
<thead>
<tr>
<th>Morbidity</th>
<th>Clinical Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None or trivial</td>
</tr>
<tr>
<td>B</td>
<td>One or two day increase in LOS</td>
</tr>
<tr>
<td>C</td>
<td>Unscheduled ICU admission and one or two day increase in LOS</td>
</tr>
<tr>
<td>D</td>
<td>50%+ risk of temporary impairment, unscheduled ICU admission and / or 3+ day increase in LOS</td>
</tr>
<tr>
<td>E</td>
<td>50%+ risk of temporary impairment, unscheduled ICU admission and / or doubling LOS</td>
</tr>
</tbody>
</table>
Transfusion Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>GMC</th>
<th>GWV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>2008</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>2009</td>
<td>15%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Quality Manager Data
ProvenCare Perinatal Quality Measures

GWV Primary C-Sections Jan 2008-Dec 2009

- Avg=29.0
- Avg=21.4
- Avg=11.4
- UCL=45.5
- UCL=31.4
- LCL=12.5
- LCL=11.4

Implementation of electronic process
Balancing the Message- AHRQ Patient Safety Indicator 17

• The numerator includes any of the following diagnosis codes: 767.0, 767.11, 767.3, 767.4, 767.5, 767.7, 767.8
• Subdural and cerebral hemorrhage (due to trauma or to intrapartum anoxia or hypoxia)
• Epicranial subaponeurotic hemorrhage (massive)
• Injuries to skeleton (excludes clavicle)
• Injury to spine and spinal cord
• Facial nerve injury
• Other cranial and peripheral nerve injuries
• Other specified birth trauma
## Quality Performance- AHRQ Patient Safety Indicator 17

<table>
<thead>
<tr>
<th>Year</th>
<th>Population of Mothers</th>
<th>Population of Babies</th>
<th># of All Diagnoses Birth Trauma Cases</th>
<th>Number of Excluded Cases</th>
<th>Numerator based on PSI 17 definition</th>
<th>Birth Trauma Rate based on PSI 17 definition (per 1000 babies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2008</td>
<td>2635</td>
<td>2888</td>
<td>20</td>
<td>5</td>
<td>15</td>
<td>5.19</td>
</tr>
<tr>
<td>FY2009</td>
<td>2786</td>
<td>3054</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>1.64</td>
</tr>
</tbody>
</table>

- At GWV, there is no change in PSI 17 Birth Trauma Rates although vaginal deliveries have increased (GWV remains below the national average).
- As a system, there is a significant decline in PSI 17 for FY09 (p=0.047). The national average is 2.31.

[http://www.ahrq.gov/qual/nhqr07/measurespec/patient_safety.htm#rtraumt1](http://www.ahrq.gov/qual/nhqr07/measurespec/patient_safety.htm#rtraumt1)
Length of stay

- 488 Proven Care patients from May 2008 through June 2009
- Length of stay was categorized into two groups (\(\leq 2\) days, 3+ days). This was correlated with a 4-level categorical version of compliance (<90%, 90-94%, 95-99%, 100%) using a Cochran-Armitage trend test.
- **Results**: Those with a lower rate of compliance were more likely to have an extended length of stay (>2 days)

![Categorical Length of Stay Analysis](chart)

This categorical length of stay was correlated with 100% compliance using a Cochran-Armitage Trend test.
90 day Readmissions

FY 2008: 413 cases, 51 readmissions
FY 2009: 427 cases, 29 readmissions
Why Were Our Outcome Not Even Better?

• Only 60-70% of patients received all 42 measures
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--- But most patients missed only 1 measure
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Why Were Our Outcome Not Even Better?

• Only 60-70% of patients received all 42 measures

--- But most patients missed only 1 measure

• Some measures increased detection of complications
  – Proven PCI measures that prevent complications: 14
  – Proven PCI measures detect more complications: 10
  – Proven PCI measures no affect on complications: 18
ProvenCare should deliver more value

- Approach is patient centric
- Evidence-based care delivers better outcomes
- Provider documents appropriateness
- Enables an activated participative member
Every system is perfectly designed to get the result it gets—*Paul Batalden, MD*