Financial Incentives and Quality Improvement

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Organize everything around value-added (front line) work processes

(Quality improvement is the science of process management)
Three classes of outcomes

- **Physical outcomes** *(traditional medical "quality")*
  - medical outcomes: complications and therapeutic goals
  - includes functional status measures (patient perceptions of medical outcomes)

- **Service outcomes**
  - satisfaction: patients and families, communities, professionals, purchasers, and employees
  - includes access issues (e.g., waiting times)

- **Cost outcomes**
  - just another outcome of a clinical process
  - includes the cost of the burden of disease
Quality controls cost

More accurately,

Quality and cost are two sides of the same coin ...

anything you do to one affects the other

(similarly, cost controls access)
### Quality controls cost

<table>
<thead>
<tr>
<th>Waste:</th>
<th>Quality</th>
<th>Cost</th>
<th>Forum</th>
<th>Potential Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality waste</strong></td>
<td>↑</td>
<td>↓</td>
<td>internal</td>
<td>25-40%</td>
</tr>
<tr>
<td><strong>Inefficiency waste</strong></td>
<td>-</td>
<td>↓</td>
<td>internal</td>
<td>&gt; 50%</td>
</tr>
<tr>
<td><strong>Cost-benefit</strong></td>
<td>↑</td>
<td>↑</td>
<td>society</td>
<td>(none)</td>
</tr>
</tbody>
</table>
CAP protocol compliance

Implementation Group -- Loose Abx Compliance

Month relative to CPM implementation

Proportion compliant
### Community acquired pneumonia

<table>
<thead>
<tr>
<th>Metric</th>
<th>Without Protocol</th>
<th>With Protocol</th>
<th>Change</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Outlier&quot; (complication) DRG at discharge</td>
<td>15.3%</td>
<td>11.6%</td>
<td>↓ 24.7%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>In-hospital mortality</td>
<td>7.2%</td>
<td>5.3%</td>
<td>↓ 26.3%</td>
<td>p=0.015</td>
</tr>
<tr>
<td>Relative resource units (RRUs) per case</td>
<td>55.9</td>
<td>49.0</td>
<td>↓ 12.3%</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Cost per case</td>
<td>$5211</td>
<td>$4729</td>
<td>↓ 9.3%</td>
<td>p=0.002</td>
</tr>
</tbody>
</table>
CAP - cost versus reimbursement

- **expected cost** projected from risk-adjusted history, controls
- **actual cost** as complication rate fell
- **actual reimbursement**

Month relative to protocol introduction

Actual vs. expected reimbursement ($)
### Impact on net income

<table>
<thead>
<tr>
<th>Improvement to cost structure</th>
<th>Payment mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discounted FFS</td>
</tr>
<tr>
<td>Decrease cost per unit</td>
<td>↑</td>
</tr>
<tr>
<td>Decrease # units per case</td>
<td>↓</td>
</tr>
<tr>
<td>Decrease other units per case</td>
<td>↓</td>
</tr>
<tr>
<td>Decrease LOS (# nursing hours)</td>
<td>↓</td>
</tr>
<tr>
<td>Decrease # of cases</td>
<td>↓</td>
</tr>
</tbody>
</table>

- Decrease cost per unit: (45%)
- Decrease # units per case: (40%)
- Decrease other units per case: (0%)
- Decrease LOS (# nursing hours): (15%)
## Impact on net income

### Improvement to cost structure

- **Decrease cost per unit**
- **Decrease # units per case**
  - Decrease other units per case
  - Decrease LOS (# nursing hours)
- **Decrease # of cases**

### Payment mechanism

<table>
<thead>
<tr>
<th>Improvement to cost structure</th>
<th>Discounted FFS</th>
<th>Per case</th>
<th>Per diem</th>
<th>Shared risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease cost per unit</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Decrease # units per case</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
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<tr>
<td>Decrease other units per case</td>
<td>↓</td>
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<td>Decrease LOS (# nursing hours)</td>
<td>↓</td>
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<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Decrease # of cases</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↑</td>
</tr>
<tr>
<td>(45%)</td>
<td>(40%)</td>
<td>(0%)</td>
<td>(15%)</td>
<td></td>
</tr>
</tbody>
</table>
1. **Target specific improvement projects**
   - project likely medical and cost improvements
   - track to final budgets
   - select projects with *internal* savings

2. **Use in contract negotiations**
   - e.g., demonstrate that clinical improvement has produced a superior total cost compared to competitors, even with a lower fee-for-service discount
   - always looks worse within current budget cycle, but savings appear in subsequent cycles

3. **Partner with purchasers: "shared risk" contracts**

*All of these strategies require sophisticated cost and clinical outcome information*
Operationalizing QI savings

- **Put a finance person on every improvement team**
  - predict work process changes;
  - play through payer mix
  - into existing expense and income budgets.

- **Market clinical quality** *(medical outcomes)*
  - service quality drives market share;
  - think branding strategies;
  - create patient-level demand for access, then

- **Use quality results in commercial contracting** *(shared savings)*

- **Medicare / Medicaid ???**
Pay for performance methods

**Quality premiums:**
- Condition specific
- *extra payments* (usually a percentage)
- *quality targets* (intermediate [process] and final medical or service outcomes, often in comparison to competing groups)

**Shared savings:**
- Condition specific
- separate quality performance thresholds
- *cost comparison group* (national? local? your own history?)

**Issues:**
- *cost and quality data systems* (often presently don't exist)
- *full versus partial process view* (suboptimization)
- *lead times for savings* (who makes up-front investment? who reaps final savings?)
NICU admits by weeks gestation

Deliveries w/o Complications, 2002 - 2003

Weeks gestation

0 2 4 6 8

Percent NICU admissions

n = 8,001 18,988 33,185 19,601 4,505 258

NICU admits by weeks gestation

37 38 39 40 41 42

6.66 3.36 2.47 2.65 3.44 4.26

4.26
Unplanned c-section rates

Electively induced patients by Bishop score, Jan 2002 - Aug 2003
Average hours in labor & delivery

Electively induced patients by Bishop score, Jan 2002 - Aug 2003

<table>
<thead>
<tr>
<th>Bishop score</th>
<th>Multips</th>
<th>Primips</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>49</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>130</td>
<td>61</td>
</tr>
<tr>
<td>4</td>
<td>274</td>
<td>99</td>
</tr>
<tr>
<td>5</td>
<td>567</td>
<td>164</td>
</tr>
<tr>
<td>6</td>
<td>856</td>
<td>278</td>
</tr>
<tr>
<td>7</td>
<td>1114</td>
<td>375</td>
</tr>
<tr>
<td>8</td>
<td>1266</td>
<td>487</td>
</tr>
<tr>
<td>9</td>
<td>1062</td>
<td>453</td>
</tr>
<tr>
<td>10</td>
<td>737</td>
<td>346</td>
</tr>
<tr>
<td>11</td>
<td>415</td>
<td>179</td>
</tr>
<tr>
<td>12</td>
<td>86</td>
<td>47</td>
</tr>
<tr>
<td>13</td>
<td>19</td>
<td>7</td>
</tr>
</tbody>
</table>
Elective inductions < 39 weeks
**Primiparous elective inductions**

- **Bishop's score < 10**
- **Bishop's score < 8**
- **Goal: Reduce "inappropriate" nullip inductions by 50%**
Labor & delivery variable cost

Expected maternal and fetal combined variable cost
Goal: hold increase to no more than 6.85%
Actual combined variable cost
Quality-based cost improvement

Combined maternal and neonatal variable cost
Deliveries without complications resulting in normal newborns
Actual - expected cost, based on year-end 2000 with PPI inflation