Managing Clinical Variation at Intermountain: Better Patient Outcomes, Lower Costs

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Life is short, the art is long, opportunity fleeting, experience treacherous, judgment difficult.

Hippocrates

Some circumstances are a little more tractable:

- parallel tracks of evidence point to the same conclusions ...
- actions taken on the foundation of those conclusions produce convincing, positive results
Six clinical areas studied over 2 years:
- transurethral prostatectomy (TURP)
- open cholecystectomy
- total hip arthroplasty
- coronary artery bypass graft surgery (CABG)
- permanent pacemaker implantation
- community-acquired pneumonia

Pulled all patients treated over a defined time period across all Intermountain inpatient facilities - typically 1 year

Identified and staged (relative to changes in expected utilization)
- severity of presenting primary condition
- all comorbidities on admission
- every complication
- measures of long term outcomes

Compared physicians with meaningful # of cases
(low volume physicians included in parallel analysis, as a group)
IHC TURP QUE Study

Median Surgery Minutes vs Median Grams Tissue

GM / SM

Attending Physician

Median surgical time
Median grams tissue removed
IHC TURP QUE Study

Average Hospital Cost

Attending Physician

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Dollars

0 | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 |

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2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 9500 |

1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 |

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Total Hip Arthroplasty - LOS
Quality (physical outcomes) 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)
We have found proven solutions

**Shared baselines** *(a form of Lean Production)* -
A multidisciplinary team of health professionals:

1. **Select a high priority care process**

2. **Generate an evidence-based "best practice" guideline**

3. **Blend the guideline into the flow of clinical work**
   - staffing
   - training
   - supplies
   - physical layout
   - educational materials
   - measurement / information flow

4. **Use the guideline as a shared baseline, with clinicians free to vary based on individual patient needs**

5. **Measure, learn from, and (over time) eliminate variation arising from professionals; retain variation arising from patients** *("mass customization")*
Practical limitations on protocol use

When abstract guidelines hit real patient care, experience clearly shows that (with very rare exception)

No protocol fits every patient;

more important,

No protocol (perfectly) fits any patient.

Clinicians: We don't just allow, or even encourage, but demand that you adapt any shared baseline protocol to your individual patient needs.

Shared Baselines are, primarily, very efficient variation measurement tools for use within a process-focused Learning Network.
It is more important that you do it the same than that you do it "right"

When you "do it the same:"

- **error rates fall** -- less complexity = fewer mistakes = better outcomes
- **costs fall** -- staff is more efficient; you more are efficient
- **you can apply the scientific method to systematically improve** -- regardless of where you start, you will end up with best demonstrated care practices

*(Truth is found more often from mistakes than from confusion ...)*

*Francis Bacon (1561 - 1626)*
No good deed goes unpunished

- Neonates > 33 weeks gestational age who develop respiratory distress syndrome
- Treat at birth hospital with nasal CPAP (prevents alveolar collapse), oxygen, +/- surfactant
- Transport to NICU declined from 78% to 18%.

**Financial impact (NOI; ~110 patients per year; raw $):**

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<th>Before</th>
<th>After</th>
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<tr>
<td><strong>Birth hospital</strong></td>
<td>84,244</td>
<td>553,479</td>
<td>469,235</td>
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<tr>
<td><strong>Transport (staff only)</strong></td>
<td>22,199</td>
<td>-27,222</td>
<td>-49,421</td>
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<tr>
<td><strong>Tertiary (NICU) hospital</strong></td>
<td>958,467</td>
<td>209,829</td>
<td>-748,638</td>
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<tr>
<td><strong>Delivery system total</strong></td>
<td>1,064,910</td>
<td>736,086</td>
<td>-328,824</td>
</tr>
<tr>
<td><strong>Integrated health plan</strong></td>
<td>900,599</td>
<td>512,120</td>
<td>388,479</td>
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<tr>
<td><strong>Medicaid</strong></td>
<td>652,103</td>
<td>373,735</td>
<td>278,368</td>
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<tr>
<td><strong>Other commercial payers</strong></td>
<td>429,101</td>
<td>223,215</td>
<td>205,886</td>
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<tr>
<td><strong>Payer total</strong></td>
<td>1,981,803</td>
<td>1,109,070</td>
<td>872,733</td>
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Payment systems are a direct expression of social value

Current U.S. payment systems:
- pay health care providers to harm patients
- financially punish innovation that increases value (improve patient outcomes while reducing costs)
- provide strong incentives to "do more" (higher utilization), even for services that offer small or negative results

as reflected in the measured performance of the health care delivery system
Care falls short of its theoretical potential

1. **Well-documented, massive, variation in practices**
   (beyond the level where it is even remotely possible that all patients are receiving good care)

2. **High rates of inappropriate care**

3. **Unacceptable rates of preventable care-associated patient injury and death**

4. **A striking inability to "do what we know works"**

5. **Huge amounts of waste and spiraling prices, that limit access**
   (46.6 million uninsured Americans, and still climbing)