

UHIMSS 2016 Annual Spring Conference
Improving Performance Through Innovation
9th Floor West, Joseph Smith Memorial Building, Salt Lake City, Utah
Friday, 20 May 2016 – 8:10a–8:50a

We Count Our Successes in Lives: The Best Medical Result at the Lowest Necessary Cost



Brent C. James, M.D., M.Stat.
Chief Quality Officer and Executive Director
Intermountain Institute for Healthcare Leadership



Disclosures

Neither I, Brent C. James, nor any family members, have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.

I have no financial relationships beyond my employment at Intermountain Healthcare.

Core idea behind variation research

*Apply rigorous measurement tools
developed for **clinical research***

to

*routine **care delivery performance***



Quality, Utilization, and Efficiency (QUE)

- ◆ **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

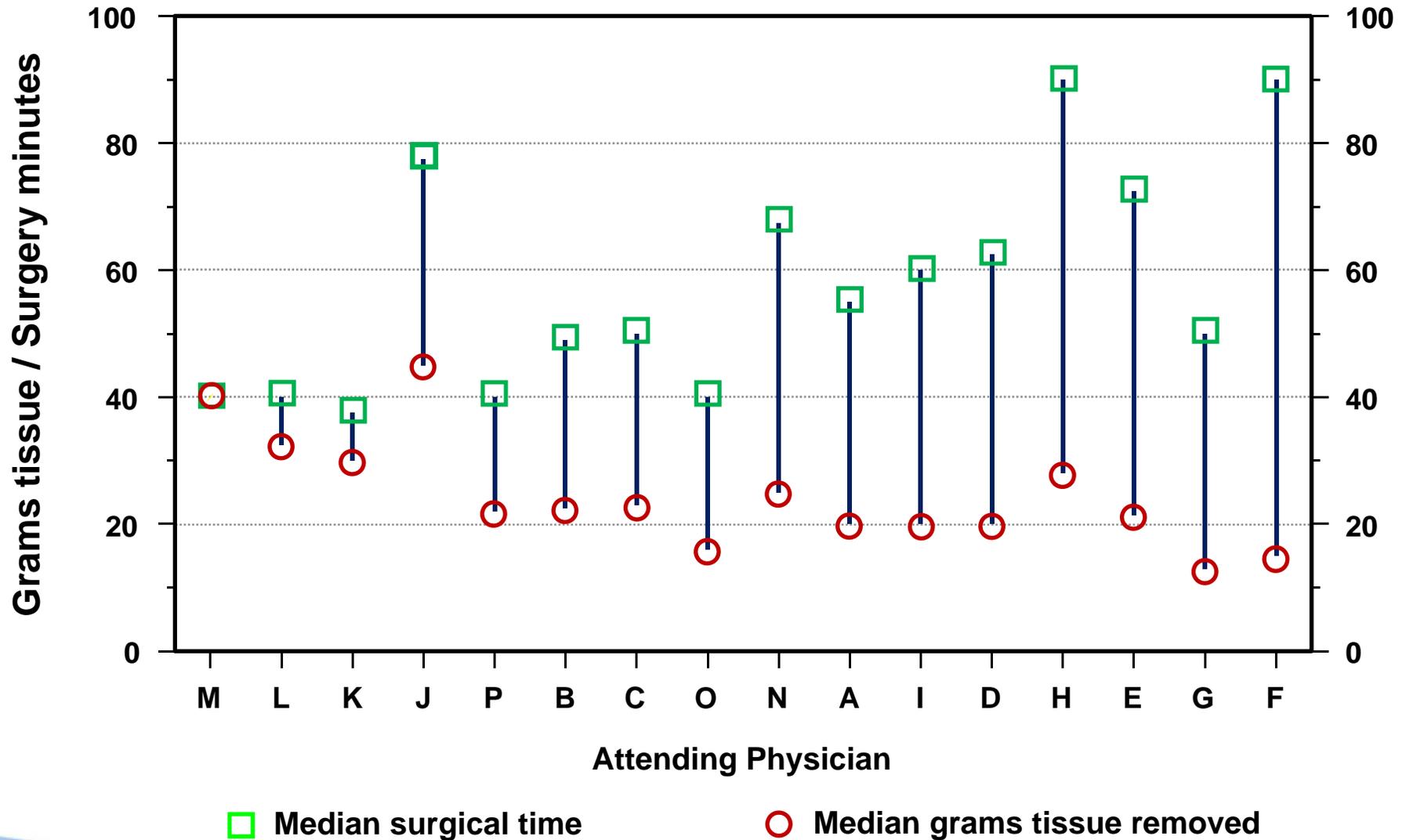
- ◆ **identified and staged** *(relative to changes in expected utilization)*

- 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)

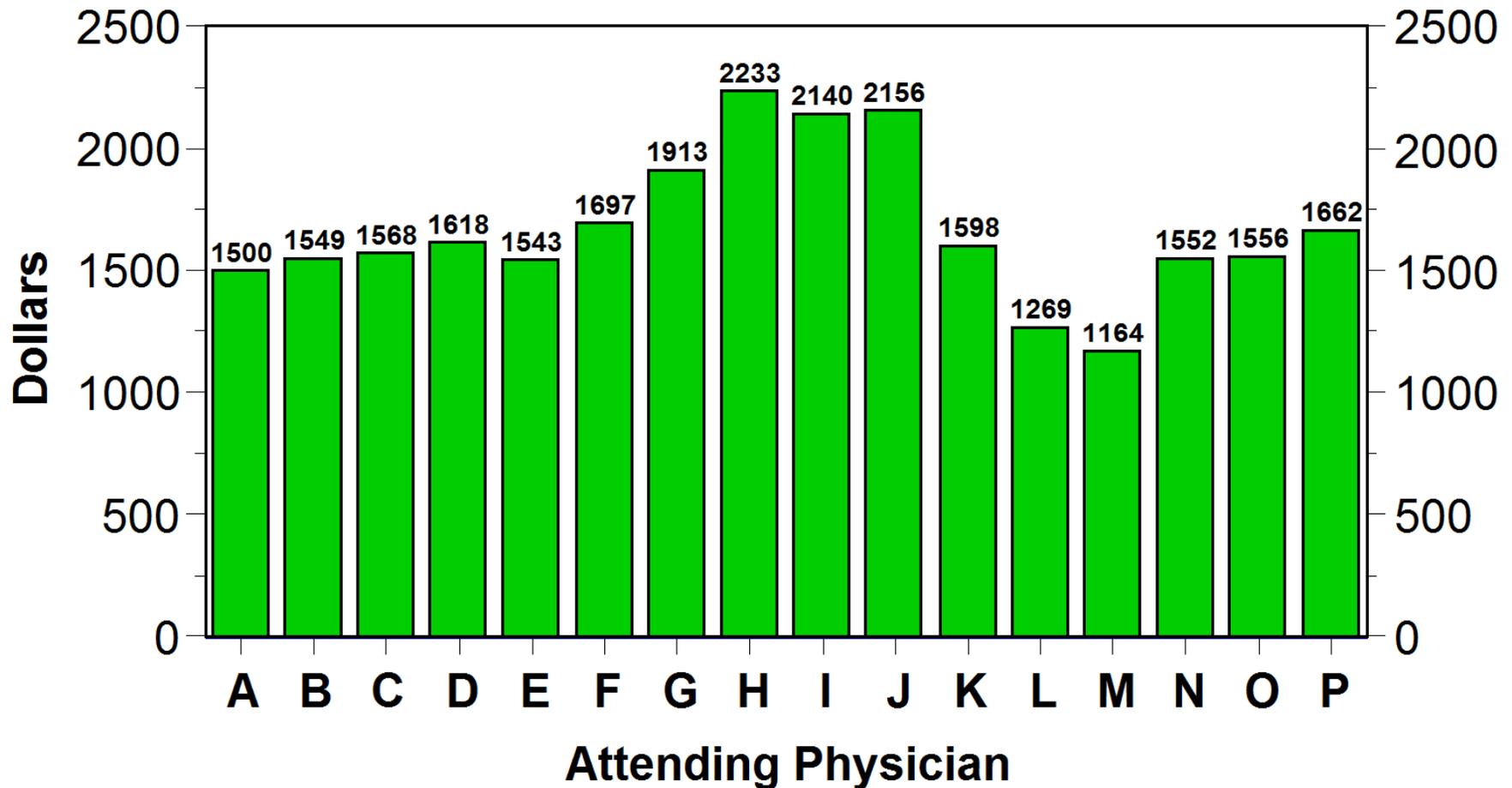
Intermountain TURP QUE Study

Median Surgery Minutes vs Median Grams Tissue



Intermountain TURP QUE Study

Average true cost to hospital



The opportunity *(care falls short of its theoretic potential)*

- 1. Massive variation in clinical practices** *(beyond even the remote possibility that all patients receive good care)*
- 2. High rates of inappropriate care** *(where the risk of harm inherent in the treatment outweighs any potential benefit)*
- 3. Unacceptable rates of preventable care-associated patient injury and death**
- 4. Striking inability to "do what we know works"**
- 5. Huge amounts of waste, leading to spiraling prices that limit access to care**

Dr. Alan Morris, LDS Hospital, 1991

- ◆ **NIH-funded randomized controlled trial**
assessing an Italian "artificial lung" vs. standard ventilator management for acute respiratory distress syndrome (ARDS)
- ◆ **discovered large variations in ventilator settings**
across and within expert pulmonologists
- ◆ **created a protocol** for ventilator settings in the control arm of the trial
- ◆ **implemented the protocol using Lean principles**
(Womack et al., 1990 - The Machine That Changed the World)
 - *built into clinical workflows - automatic unless modified*
 - *clinicians encouraged to vary based on patient need*
 - *variances and patient outcomes fed back in a Lean Learning Loop*

Problems with “best care” protocols

- ◆ **Lack of evidence for best practice**

- Level 1, 2, or 3 evidence available only about 15-25% of the time

- ◆ **Expert consensus is unreliable**

- experts can't accurately estimate rates relying on subjective recall
(produce guesses that range from 0 to 100%, with no discernable pattern of response)
 - what you get depends on whom you invite (specialty level, individual level)

- ◆ **Guidelines don't guide practice**

- systems that rely on human memory execute correctly ~50% of the time (McGlynn: 55% for adults, 46% for children)

- ◆ **No two patients are the same; therefore, no guideline perfectly fits any patient** (with very rare exception)

Shared Baseline “Lean” protocols *(bundles)*

1. **Identify a high-priority clinical process** *(key process analysis)*
2. **Build an evidence-based best practice protocol**
(always imperfect: poor evidence, unreliable consensus)
3. **Blend it into clinical workflow** *(= clinical decision support; don't rely on human memory; make "best care" the lowest energy state, default choice that happens automatically unless someone must modify)*
4. **Embed data systems to track (1) protocol variations and (2) short and long term patient results** *(intermediate and final clinical, cost, and satisfaction outcomes)*
5. **Demand that clinicians vary based on patient need**
6. **Feed those data back** *(variations, outcomes)* **in a Lean Learning Loop** - *constantly update and improve the protocol*

Results:

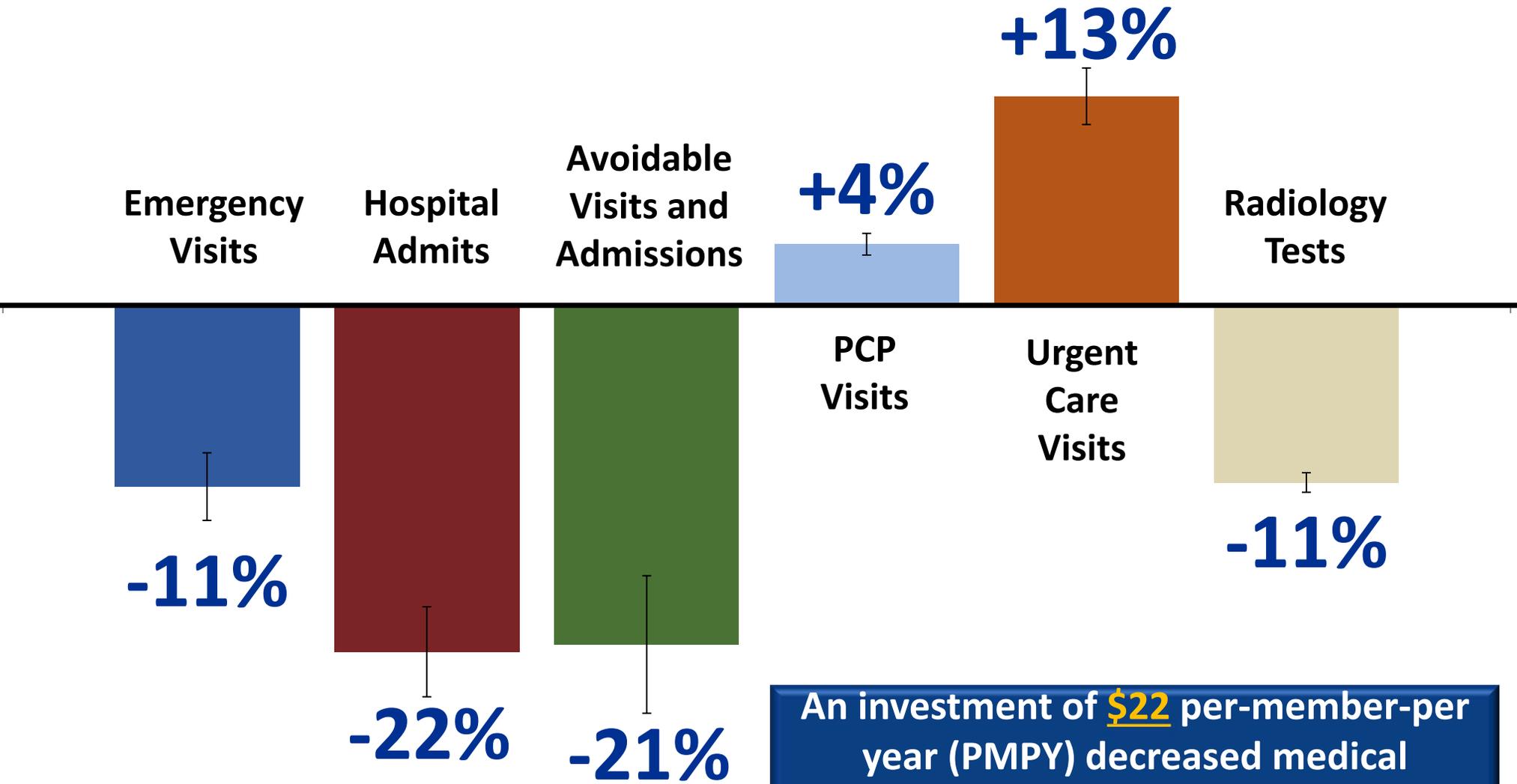
- **Survival** (for ECMO entry criteria patients) **improved from 9.5% to 44%**
- **Costs fell by ~25%** (from ~\$160,000 to ~\$120,000 per case)
- **Physician time fell by ~50%** (a major increase in physician productivity)

Lesson 1

We count our successes in lives

Team-Based Care

(coordinated medical home)



An investment of **\$22** per-member-per year (PMPY) decreased medical expenses by **\$115** PMPY

Lesson 2

Most often
(but not always)

better care is cheaper care

No good deed goes unpunished

- ◆ **Neonates > 33 weeks gestational age who develop respiratory distress syndrome (RDS)**
- ◆ **Treat at birth hospital with nasal CPAP (prevents alveolar collapse), oxygen, +/- surfactant**
- ◆ **Transport to NICU declines from 78% to 18%**
- ◆ **Financial impact (NOI; ~110 patients per year; raw \$):**

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

Lesson 3

*The long-term organizational viability of
clinical quality improvement strategies*

requires aligned financial incentives

Financial incentives for waste elimination under different payment mechanisms

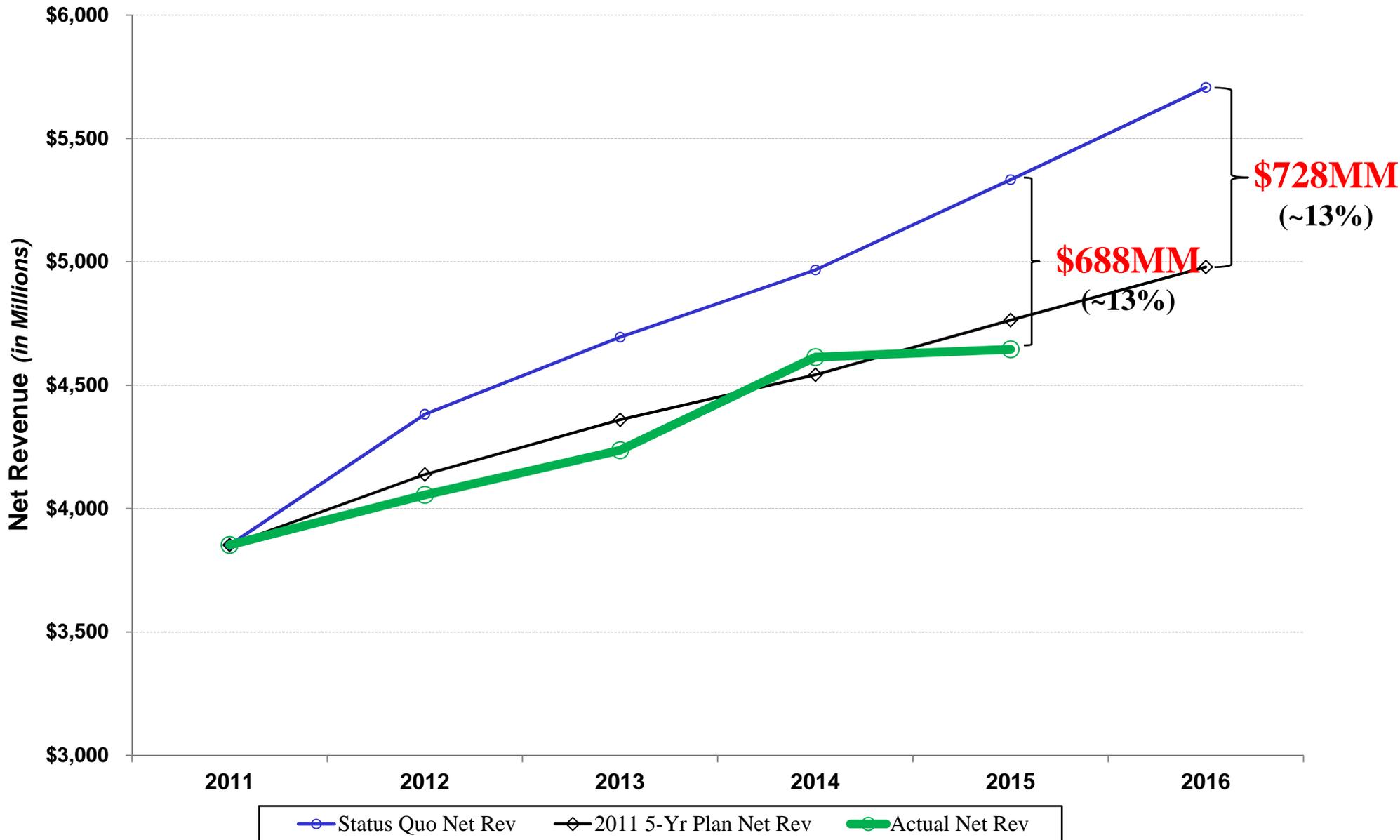
WASTE REMOVAL LEVEL	% of all waste	PAYMENT METHOD			
		Cost plus	FFS	Per case	Provider at risk
3. Case-rate utilization <i>(# cases per population)</i>	45%	▼	▼	▼	▲
2. Within-case utilization <i>(# and type of units per case)</i>	50%	▼	▼	▲	▲
1. Efficiency <i>(cost per unit of care)</i>	5%	▼	▲	▲	▲

Note: For green arrows, savings from waste elimination accrue to the care delivery organization; for red arrows, savings go to payer organizations.

Without access,
“quality” is meaningless;

Accessible means ***Affordable***

Goal: Limit rate increases to CPI+1%



Health Services

Process management is the key

- ◆ ***better clinical results produces lower costs***
- ◆ ***more than half of all cost savings will take the form of unused capacity*** (*fixed costs: empty hospital beds, empty clinic patient appointments, reduced procedure, imaging, and testing rates*)
- ◆ ***balanced by increasing demand:***
 - *demographic shifts (Baby Boom);*
 - *population growth;*
 - *behavioral epidemics (e.g., obesity);*
 - *technological advances*

Better has no limit ...

an old Yiddish proverb