

# **Moving from 'My Experience' to 'My Measured Experience'**

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## **Objectives:**

- Discuss the gap between current care delivery and the transition results
- Describe the difference between improvements and research
- Discuss the need to move from managed care to managing processes of care
- Explain process control theory to clinical process and a multidisciplinary team approach

Intermountain Healthcare Continuing Medical Education  
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# **The Learning Healthcare System: Building Effective, Affordable Care**

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# 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.***

# Outline

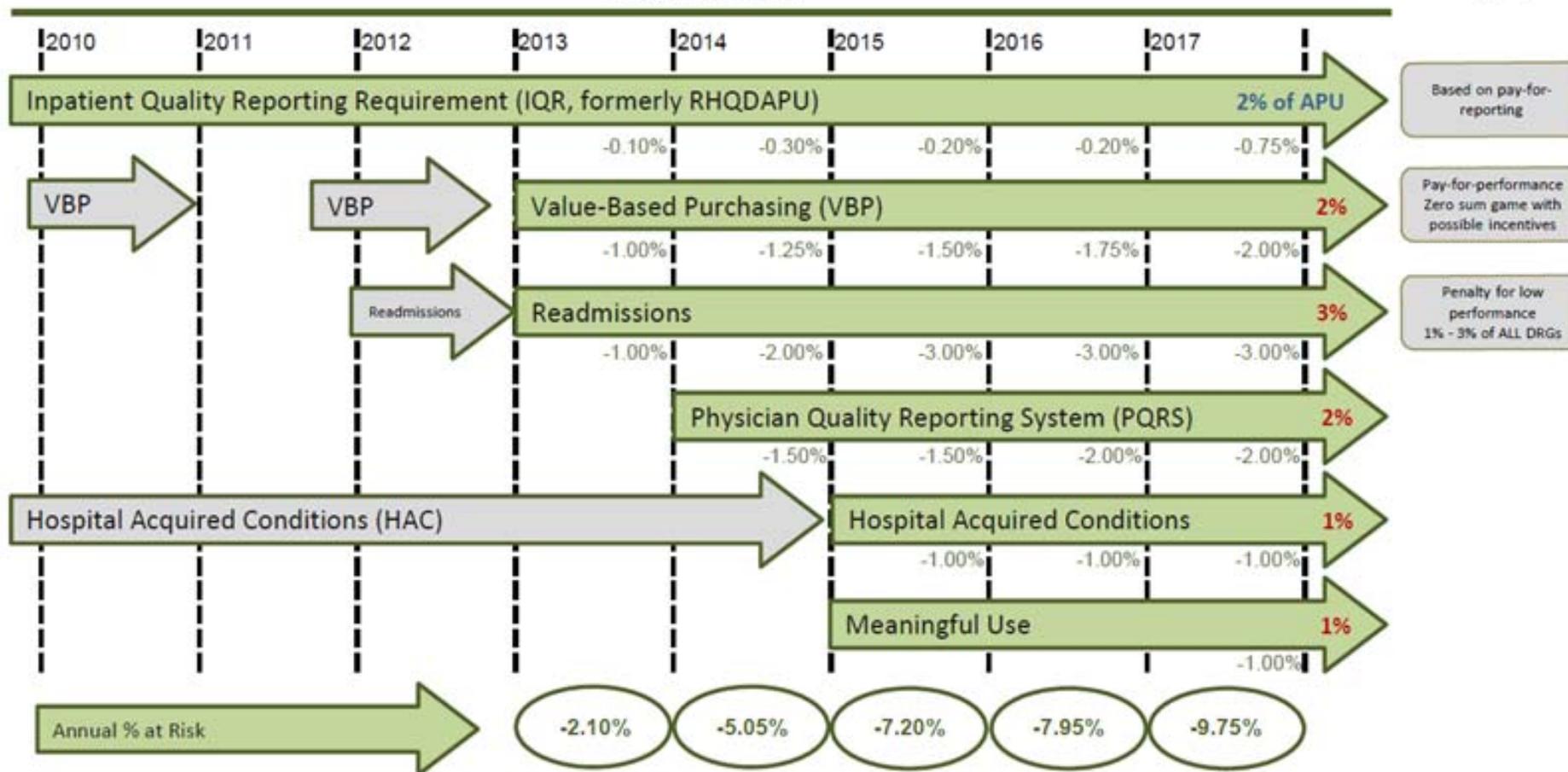
1. **Change accelerates:**  
*Health reform = "bending the cost curve"*
2. **Quality** (*process management with cost control*) **becomes the core business**
3. **Building a Learning Health Care System**

# Impact of CMS cost controls *(Avera 2013)*

## CMS Quality-Based Payment Reform Initiatives

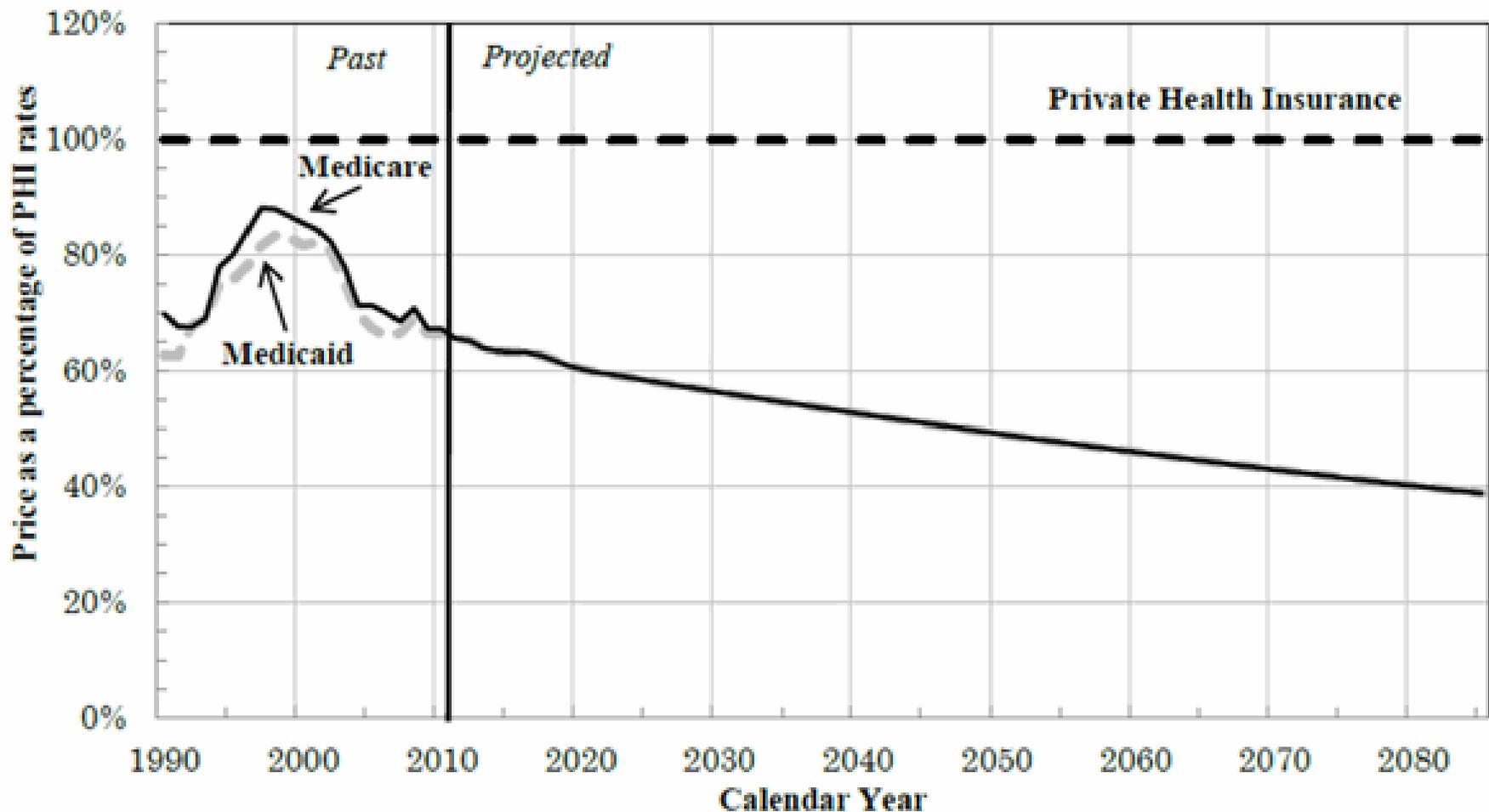
Federal Fiscal Years\*

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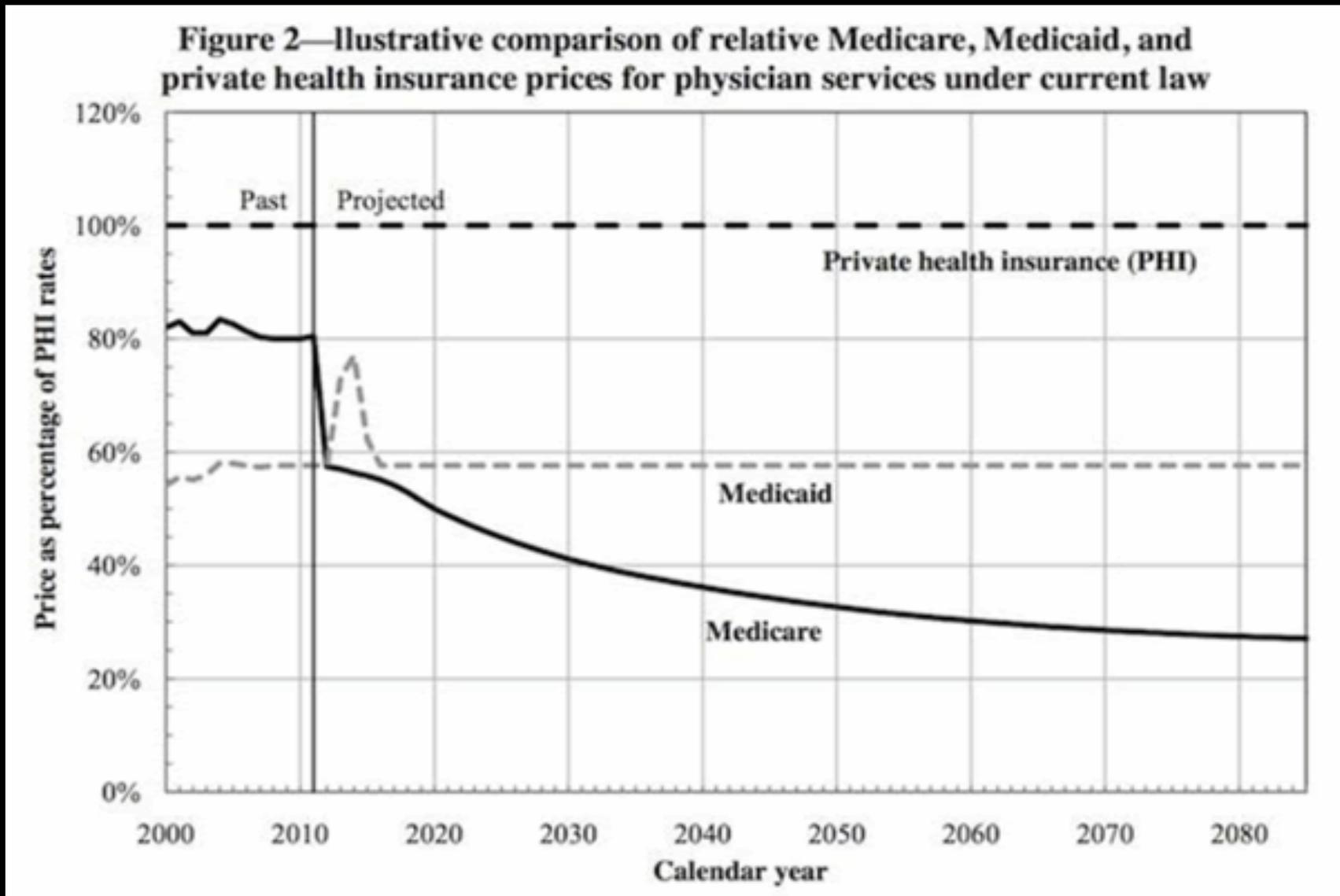
# Health care payments under PPACA

Figure 1. Illustrative comparison of relative Medicare, Medicaid, and private health insurance prices for inpatient hospital services under current law



Shatto & Clemens. Projected Medicare expenditures under the PPACA. Washington, DC: Medicare Office of the Actuary. May 18, 2012.

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# 2 main coping strategies

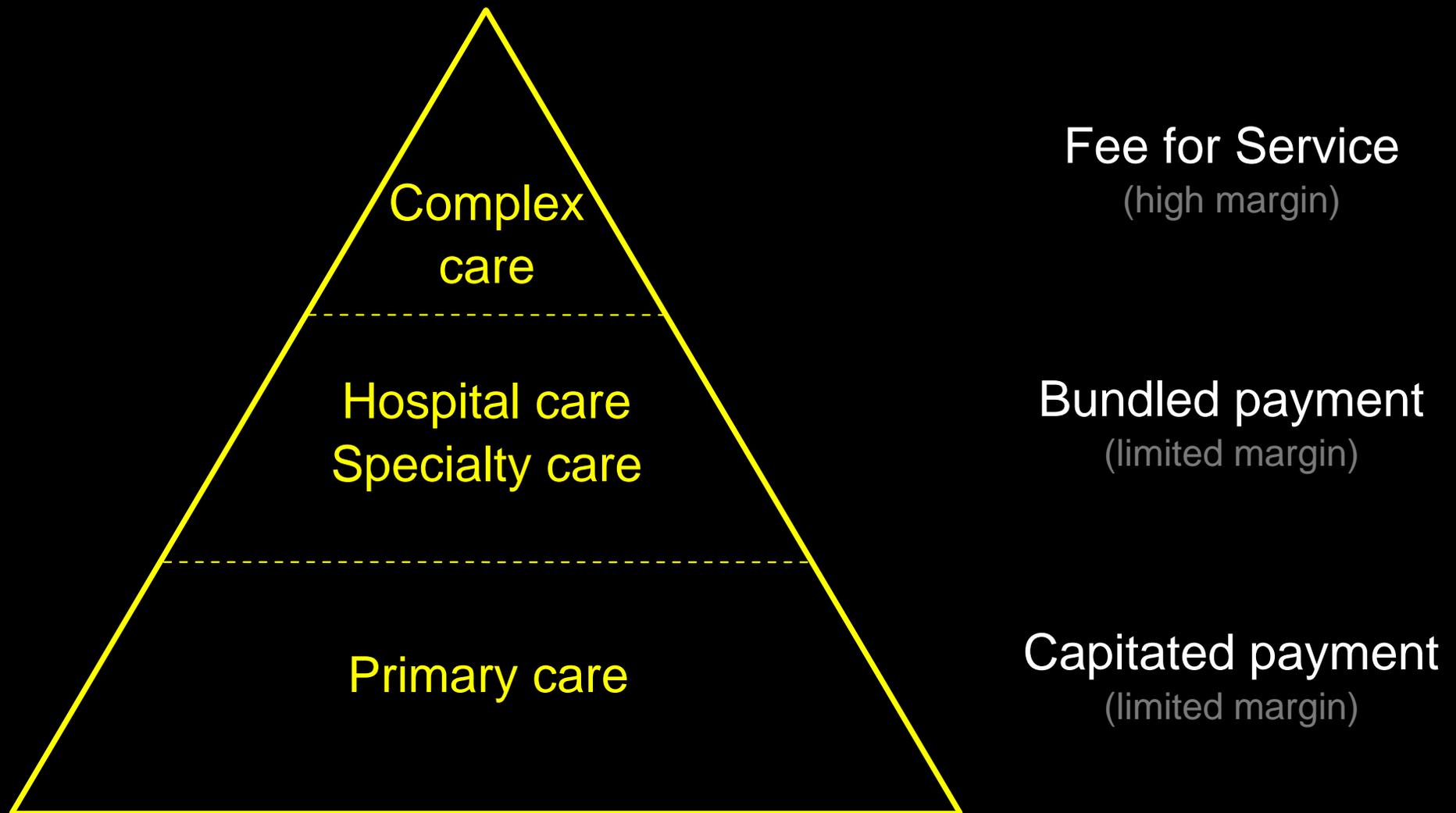
## 1. **Continued focus on top line revenue**

- *"Ride this horse 'til it drops"*
- *build market power - consolidate to negotiate with purchasers;*
- *compete vigorously for fee-for-service cases (medical tourism);*
- *develop new top-end fee-for-service products;*
- *seek special legislative protections ("rent seeking")*

## 2. **Shift focus to bottom line costs:** *eliminate waste* *"all needed care, but only needed care; delivered at the lowest necessary cost"*

# Top-line strategy: Mayo Clinic (\$6BB expansion)

*"Ten years from now, there will emerge just a few medical centers with the reputation for health care excellence and patient-focused outcomes that will attract patients from all over the world to their flagship medical center ... [we will], significantly expand our highly-effective practice model and medical assets to be clearly recognized as a global destination medical center for decades to come." Mayo CEO John Noseworthy*



# Bottom line strategy: eliminate waste

**50+% of all resource expenditures in hospitals is**

**quality-associated waste:**

- ◆ *recovering from preventable foul-ups*
- ◆ *building unusable products*
- ◆ *providing unnecessary treatments*
- ◆ *simple inefficiency*

# A fundamental shift in focus

## ***The past:***

- 1. "Top-line" revenue enhancement***
- 2. Quality defined as regulatory compliance - e.g.***
  - CMS Core Measures*
  - Pay for Value*
  - Meaningful Use*

## ***The future:***

- 1. "Bottom-line" cost control and waste elimination***
- 2. Quality becomes the core business***
  - Capitated payment with accountable (measured and reported) performance for key clinical processes*

# Process management is the key

- ◆ *higher quality drives lower costs*
- ◆ *aligned financials: under capitated payment, savings drop to care groups' bottom lines*
- ◆ *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; *all = lower wait times*)
- ◆ *balanced by increasing demand* (Baby Boom; obesity; community growth; technological advances)

# Managing clinical processes

Dr. Alan Morris, LDS Hospital, 1991:

- ◆ **NIH-funded randomized controlled trial**  
*assessing an "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*

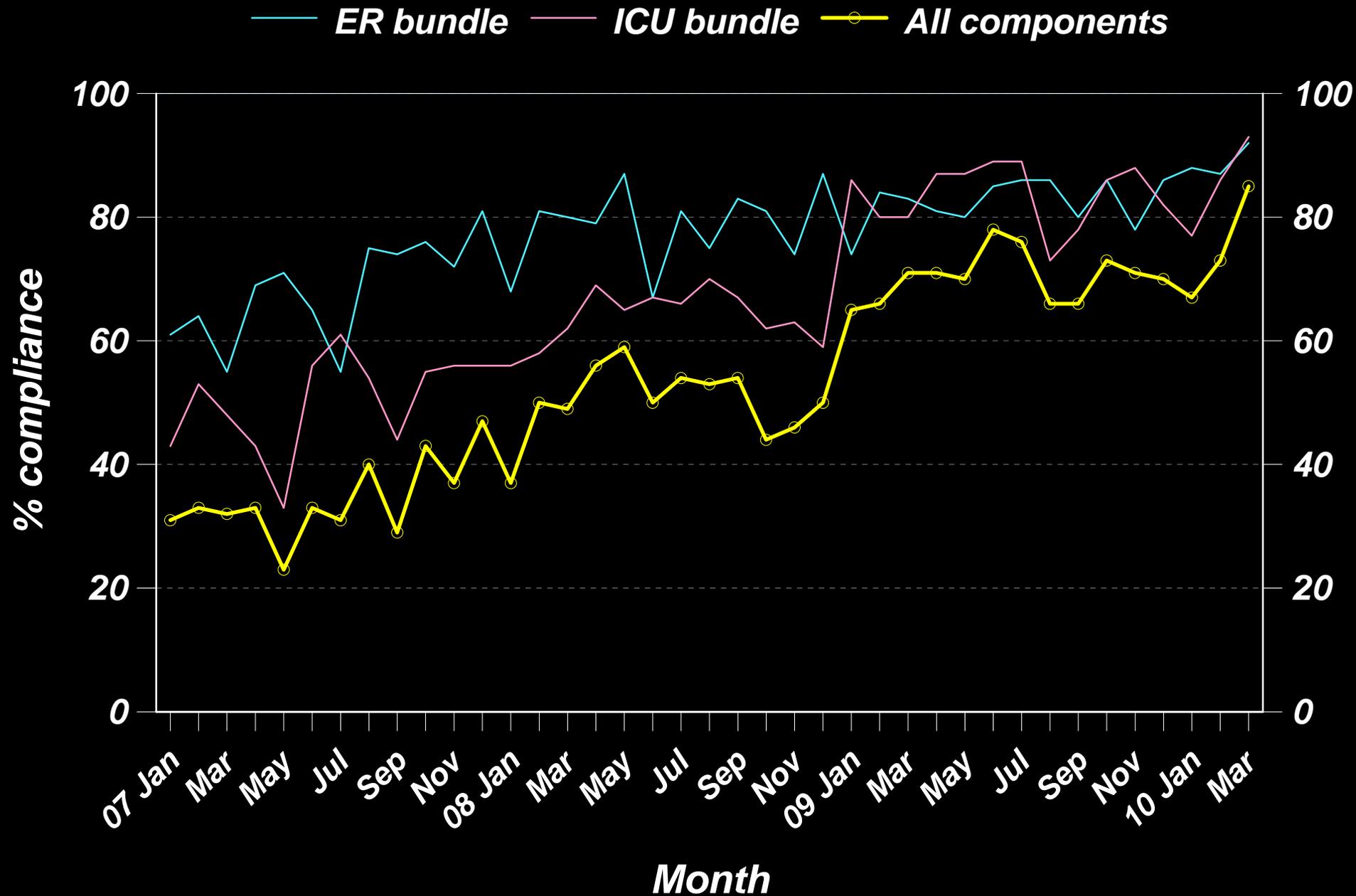
# Shared Baseline protocols *(bundles)*

- 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
  - **provide true transparency to front-line clinicians**
  - generate formal knowledge *(peer-reviewed publications)*

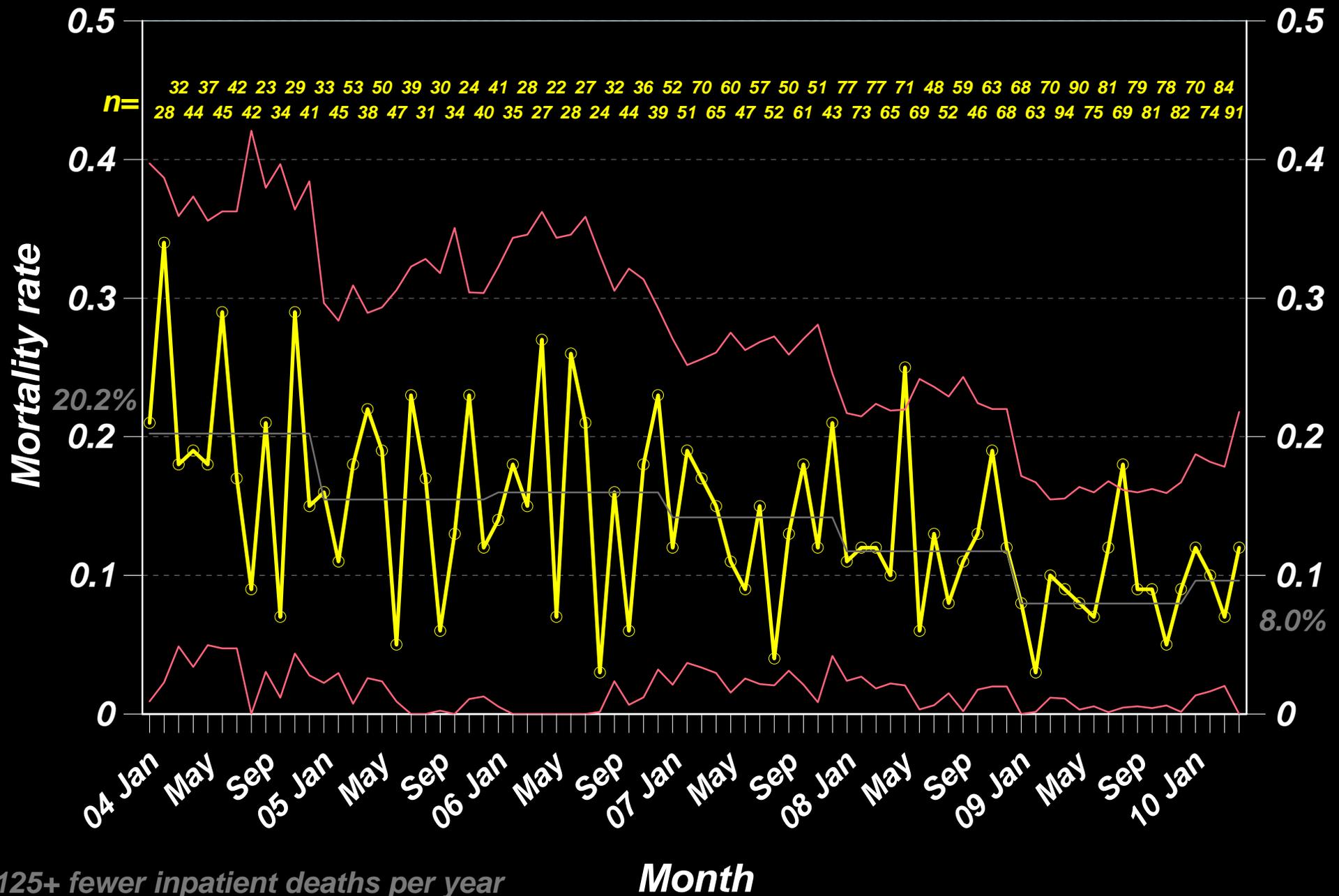
## ◆ **Results:**

- **Survival** (for ECMO entry criteria patients) **improved from 9.5% to 44%**
- **Costs fell by ~25%** (from \$160k to \$120k)
- **Physician time fell by ~50%** (a major increase in physician productivity, and arguably the only way we can protect physician income in the future)

# Sepsis bundle compliance



# Sepsis mortality - ER-ICU transfers



# Sepsis costs - all ER-ICU transfers

*Adjusted for age and severity at admission (CCIS); inflation adjusted to 2012 dollars*

<u>Year</u>	<u># cases</u>	<u>Compliance rate</u>	<u>Mortality rate</u>	<u>Total cost reduction (\$)</u>	<u>Annual NOI impact (\$)</u>
2004	384	4.4%	21.2%	18,062	9,967
2005	469	23.2%	15.0%	115,628	63,752
2006	395	24.8%	14.5%	103,774	57,362
2007	680	35.0%	13.5%	252,652	139,374
2008	756	50.0%	13.2%	401,436	221,760
2009	927	70.2%	8.8%	692,416	381,746
2010	965	73.4%	8.7%	752,292	414,876
2011	1097	81.2%		948,500	523,658
2012	1146	85.1%		1,036,648	573,038
2013	1405	87.3%		1,302,379	719,258

*No significant inflation-adjusted financial change for patients presenting w septic shock.*

*For patients presenting with severe sepsis, savings of*

*11% (\$2557 per case) in total cost,*

*12% (\$1288 per case) in variable cost.*

# Lesson 1

*We count our successes in lives ...*

# Lesson 2

***Most often***  
*(but not always)*

***better care is cheaper care ...***

# Managing the core clinical business

*(Education programs: A learning organization)*

*(A shared vision for a future state)*

**1996:** *(strategic) Key process analysis*

**1997:** *Integrated management information systems*  
*(an outcomes tracking system)*

**1998:** *Integrated clinical / operations management structure*

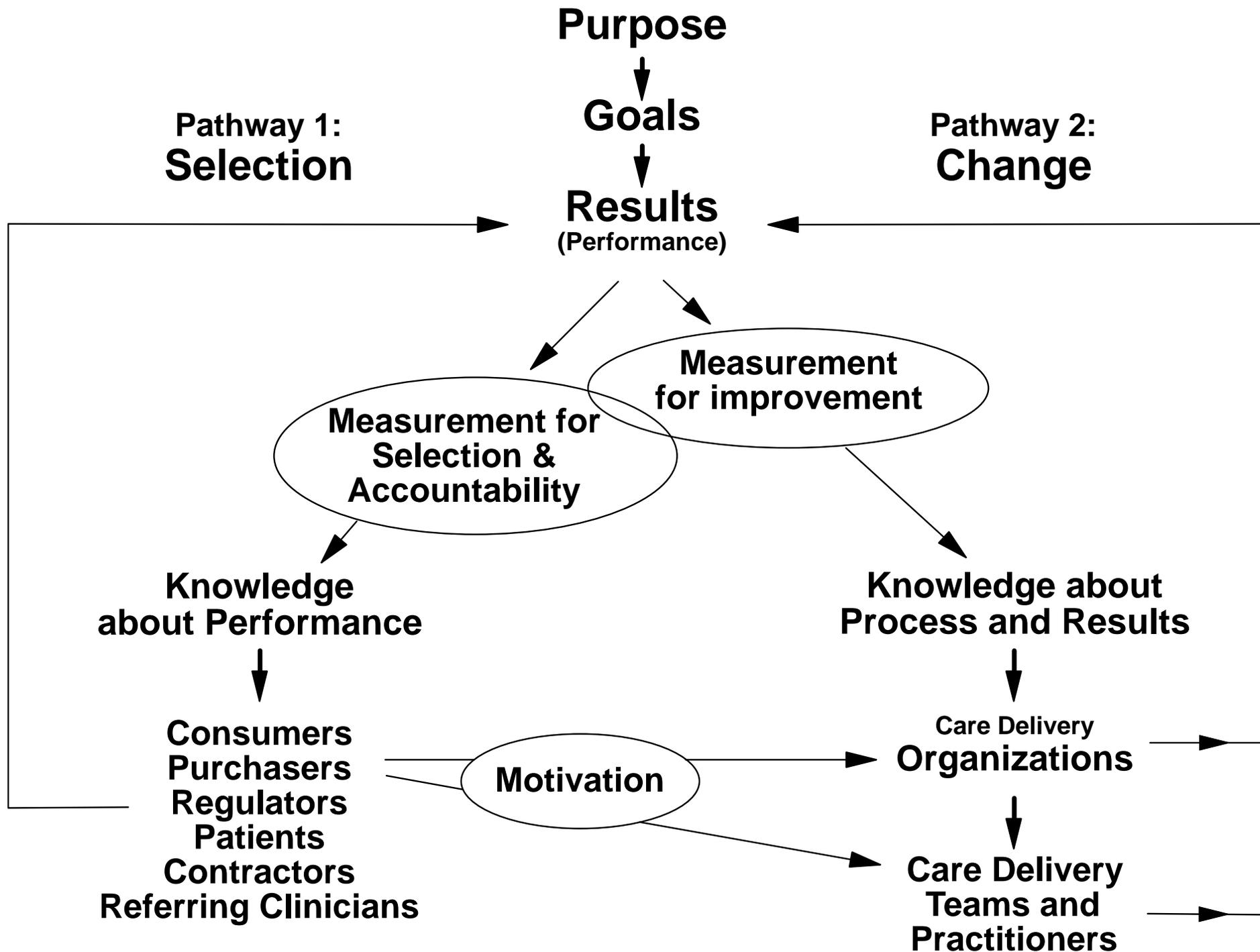
**1999:** *Integrated (aligned) incentives*

- ◆ *cost structure vs. net income (mediated by payment mechanisms)*
- ◆ *integrated facility / medical expense budgets*

**2000:** *Full roll-out and administrative integration*

# Measure for clinical management

- ◆ **We already had "sophisticated" automated data**
  - financial systems (claims data)
  - time-based Activity Based Costing (since 1983)
  - clinical data for government reporting (JCAHO, CMS Core Measures, etc.)
  - other automated data (lab, pharmacy, blood bank, etc.)
  - **Danger! Availability bias!**
- ◆ **Still missing 30 - 50% of data elements essential for clinical management**  
*(the reason that the 2 initial Intermountain initiatives for clinical management failed)*
- ◆ **We deployed a methodology to identify critical data elements for clinical management**, then built them into clinical workflows *(Danger! Recreational data collection!)*



# "Selection" measurement assumes

## 1. **Sufficiently accurate ranking**

- sufficient science (identify all the right factors)
- accurate and complete assessment and extraction, often across disperse settings
- high statistical resolution (mathematical problems w ranking)
- appropriate attribution
- defensible methods to combine across individual scores

## 2. **Consumers will respond to the rankings**

## 3. **Sufficient "good" system capacity**

*within geographic reach, to handle resulting concentrated volume*

## 4. **Poor performers will respond with real**

**improvement**, not just "better documentation," risk selection, or resource concentration

# Measurement for Change / Learning

- 1. Generates very different data sets** *than selection*
  - strong, evidence-based method derived from RCT data design
  - intermediate and final clinical, cost, and satisfaction outcomes
  - optimized for process management and improvement
  - more extensive, clinically focused than typical Selection Measures
- 2. Parsimonious** *(no "recreational data collection"); but **avoids availability bias***
- 3. Minimizes burden** - *integrates into clinical workflow, tends to be what clinical teams must generate to deliver care*
- 4. "Contains" selection measures** - *includes robust patient outcomes measures suitable for public accountability*

# The clinician as a "trusted advisor"

## ***True transparency:***

***a situation in which those involved in health care choices (patients, health professionals, payers) have sufficiently accurate, complete, and understandable information about expected clinical results to make wise decisions.***

*Such choices involve not just the selection of a health plan, a hospital, or a physician, but also the series of testing and treatment decisions that patients routinely face as they work their way through diagnosis and treatment.*

*Most clinicians don't know (don't measure, or have easy access to) their own short- and long-term clinical outcome results. As a result, they cannot accurately advise patients regarding treatment choices.*

# Enterprise Data Warehouse (EDW)

- ◆ **currently tracks 58 clinical processes** *representing about 80% of all care delivered within Intermountain*
- ◆ **follows every patient longitudinally over time** *condition-specific clinical, cost, and service process and outcomes*
- ◆ **about 2 petabytes** *(million gigabytes)* **of storage**
- ◆ **primary use: routine clinical management**

# The Learning Health Care System

- 1. Build a system to manage care**
- 2. Justify the required required major financial investment on the basis of care delivery performance** -- *"the best clinical result at the lowest necessary cost"*
- 3. Use the resulting clinical management data system to:**
  - (a) Generate true transparency at the clinician-patient level, rolling up to the national level*
  - (b) "Learn from every patient" - integrate clinical effectiveness research into front-line care*

# 5 levels of clinical research

## 1. **Rapid impact on care delivery performance**

*(best medical result at lowest necessary cost)*

- *internally funded - patient care dollars*
- *publication, external grant funding = "icing on the cake"*

## 2. **Investigator-initiated research**

- *traditional academic model*
- *external grant funding*

## 3. **Collaborations with external investigators**

- *multi-center trials*
- *local universities*
- *requires an internal "champion"*

## 4. **Industry-based groups** *(pharma, device manufacturers)*

## 5. **"Research" done by affiliated medical staff independent of Intermountain's administration**

# 2013 "Level 1" learning production

- ♦ *NICU Development Team: **23 peer-reviewed articles***
- ♦ *Cardiovascular Clinical Program (3 Development Teams):*
  - 64 peer-reviewed articles**
  - 67 abstracts**
  - 15 "other" - book chapters, editorials, etc.**
- ♦ *Other Clinical Development Teams also published*  
*(just not as prolific as Women & Newborn and CV)*
- ♦ *Presently calculating direct impact on cost of operations*

Goal: **1,000 per reviewed Level 1 publications**  
**in a single year** *(sometime before I retire)*

***Better has no limit ...***

*an old Yiddish proverb*

# PPACA evolves *(it's the law of the land)*

## 1. **Exchange technical problems fixed over time**

*Two to watch:*

- *data security = identity theft*
- *coordination problems between federal, State, and private systems*

## 2. **True costs of ACA become widely** *(politically)* **visible**

- *Increased costs: new taxes, higher health insurance \$ (hits current insured)*
- *Narrow provider networks (can't keep my doctor, hospital)*
- *Very high deductibles (insurance shifts to a "major medical" model; those least capable of tolerating high out-of-pocket costs most exposed)*
- *There will still be a large number of people without health insurance (many [most?] of those covered under the new programs were already insured; many others were eligible under the old system, just hadn't signed up)*
- *Adverse risk selection within the program = dramatic price hikes (potential federal bail-out of large for-profit insurers [ACA Sections 1341 & 1342])*
- *Access issues, partially driven by inadequate primary care capacity (more concierge medicine, for those who can afford it; scheduling problems: those with poor payment fall to the back of the line; EDs saturated, mostly with patients holding reduced payment insurance)*

# PPACA evolves *(it's the law of the land)*

## 3. **Employers shift to "defined contribution"** *(lower wage)* **or "tightly managed defined benefit"** *(higher wage)*

- *depends on overall pay level of workforce or broken-out subgroups*
  - *e.g., "defined contribution" starts with retail and food-services industries, State governments*
- *(low) drop health insurance entirely, move workforce to Exchanges*
  - > *current total health insurance cost per employee = ~\$11k, split \$8k employer / \$3k employee*
  - > *Federal penalty for employer = \$2k, leaving \$8k - \$2k = \$6k in play*
  - > *employer gives employee additional \$3k (for example), pockets \$3k*
  - > *employee gets additional federal subsidy on Exchange*
  - > *so everybody comes out ahead (except the Federal government, course: program costs explode)*
- *(low) shortened work hours to avoid Federal penalties altogether*
- *(high) absenteeism, presenteeism, recruitment outweigh health costs*
- *(high) implemented as on-site clinics, health maintenance, etc.*
- *(both) growth of private Exchanges*

## 4. **It's primarily a *political* problem**

- *all of these policy issues could be solved over time, but ...*
- *key marker: how many Democrats campaign against it*