



INSTITUTE FOR  
HEALTHCARE  
IMPROVEMENT

# Better Care, Lower Cost: Principles of Design

Donald M. Berwick, MD, MPP  
President and CEO  
Institute for Healthcare Improvement

*Alliance of Community Health Plans  
23<sup>rd</sup> Annual Boards of Directors Symposium  
Scottsdale, AZ: March 21, 2010*

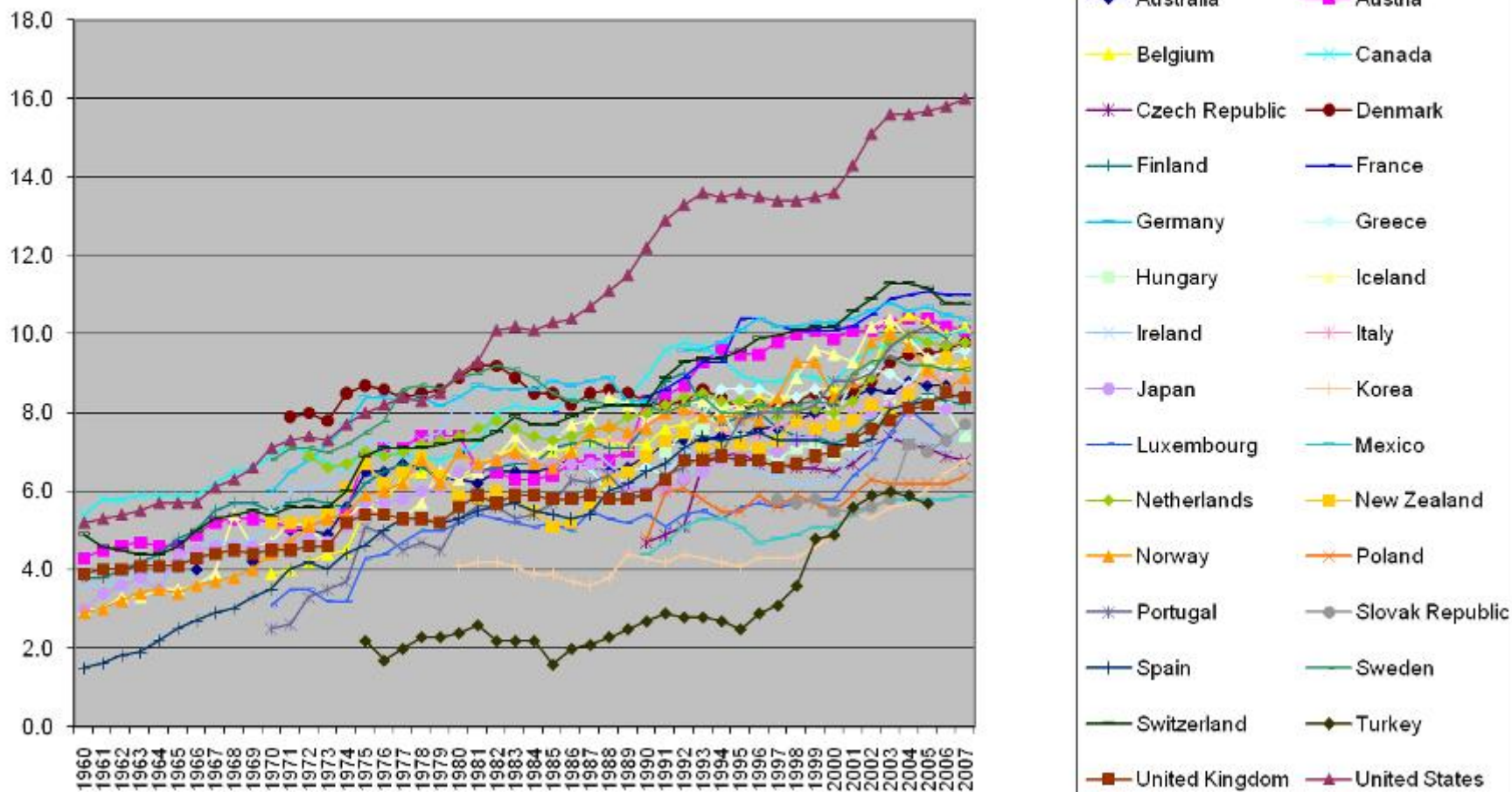
# US Health Care Reform - Meanwhile

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- “ACO Preparation” underway widely
- “Bundled Payment Preparation” underway widely
- New physician-hospital formats and relationships
- Curiosity at state level
- Insurance premiums rising rapidly in some places
- No abatement of risks to Medicare Trust Fund and state Medicaid deficits, or to health care cost inflation
- HHS programs on safety
- AHRQ programs on new models
- IOM programs on community health

# Health Care Expenditure Out of GDP

OECD 2009: Total Expenditure on Health, % Gross Domestic Product

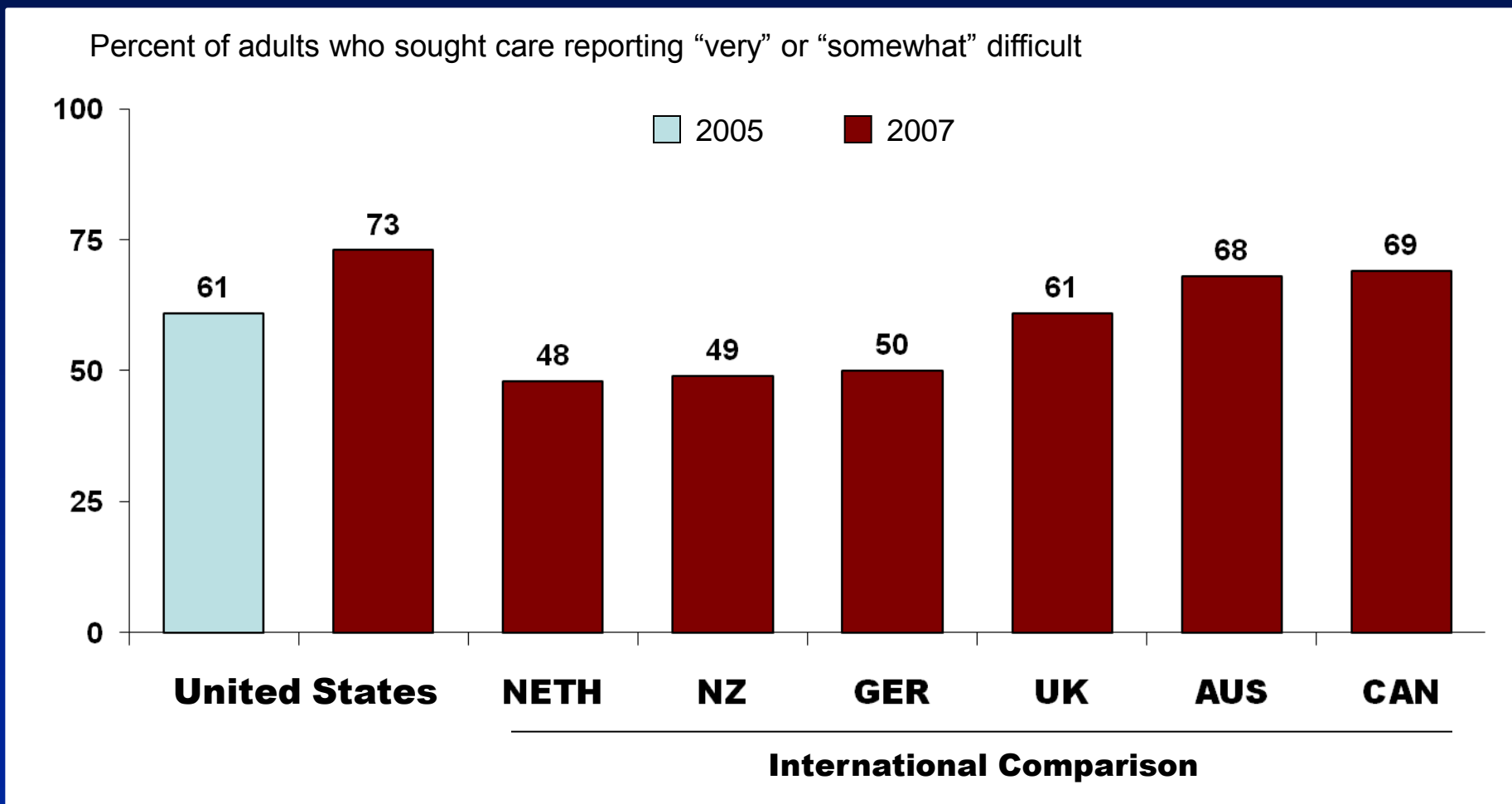


# Major Biomedical Successes

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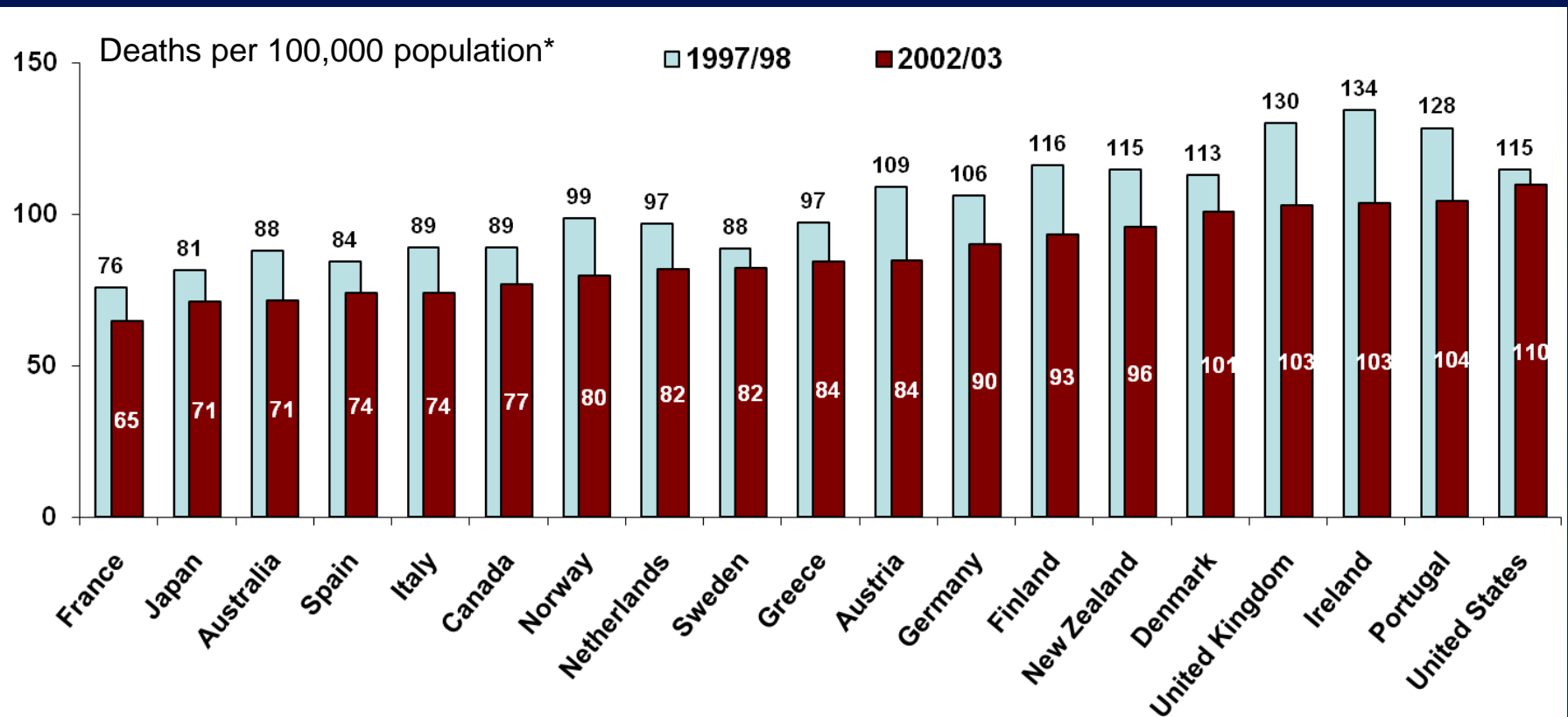
- Acute Lymphoblastic Leukemia
- Coronary Heart Disease
- Acute Myocardial Infarction
- Erythroblastosis Fetalis
- Diabetes Mellitus
- Asthma
- Organ Transplantation

# Difficulty Getting Care on Nights, Weekends, Holidays Without Going to the Emergency Room, Among Sicker Adults



Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008

# Mortality Amenable to Health Care



\* Countries' age-standardized death rates before age 75; including ischemic heart disease, diabetes, stroke, and bacterial infections.

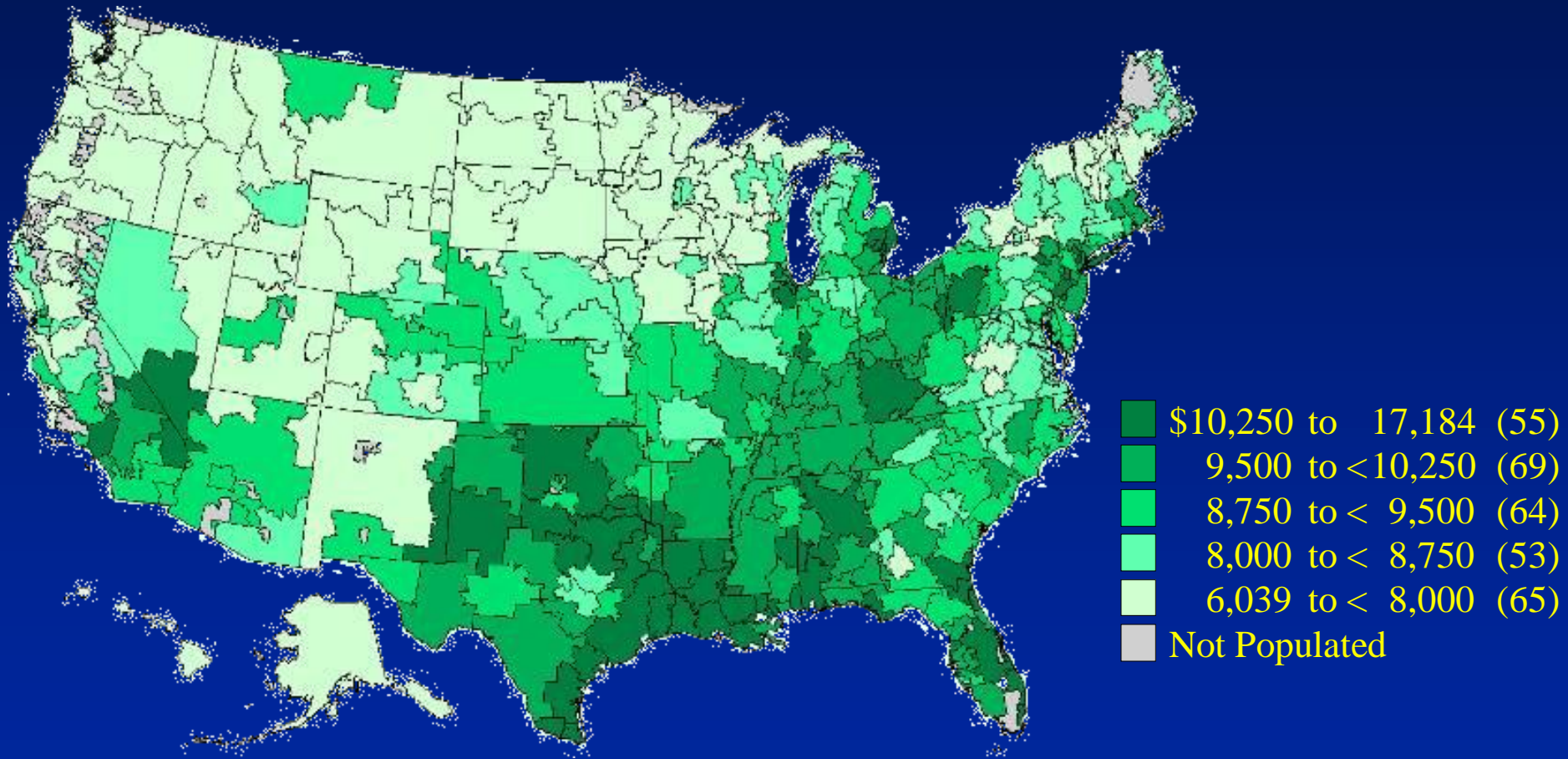
See report Appendix B for list of all conditions considered amenable to health care in the analysis.

Data: E. Nolte and C. M. McKee, London School of Hygiene and Tropical Medicine analysis of World Health Organization mortality files (Nolte and McKee 2008).

# The Dartmouth Atlas

## Regional Variation in Medicare Spending *per Capita*

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Source: Elliott Fisher and the Dartmouth Atlas Project

# What Do Highest Quintile Cost Regions Get for \$3000 Extra *per Capita* per Year?

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## COSTS AND RESOURCE USE....

- 32% more hospital beds *per capita*
- 65% more medical specialists
- 75% more internists
- More rapidly rising *per capita* resource use

## QUALITY AND RESULTS...

- Technically worse care
- No more major elective surgery
- More hospital stays, visits, specialist use, tests, and procedures
- Slightly higher mortality
- Same functional status
- Worse communication among physicians
- Worse continuity of care
- More barriers to quality of care
- Lower satisfaction with hospital care
- Less access to primary care
- Lower gains in survival

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INSTITUTE OF MEDICINE

# CROSSING THE QUALITY CHASM

A New Health System for the 21st Century

# Aims

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- Safety
- Effectiveness
- Patient-centeredness
- Timeliness
- Efficiency
- Equity

# “The First Law of Improvement”

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Every system is perfectly designed to achieve exactly the results it gets.

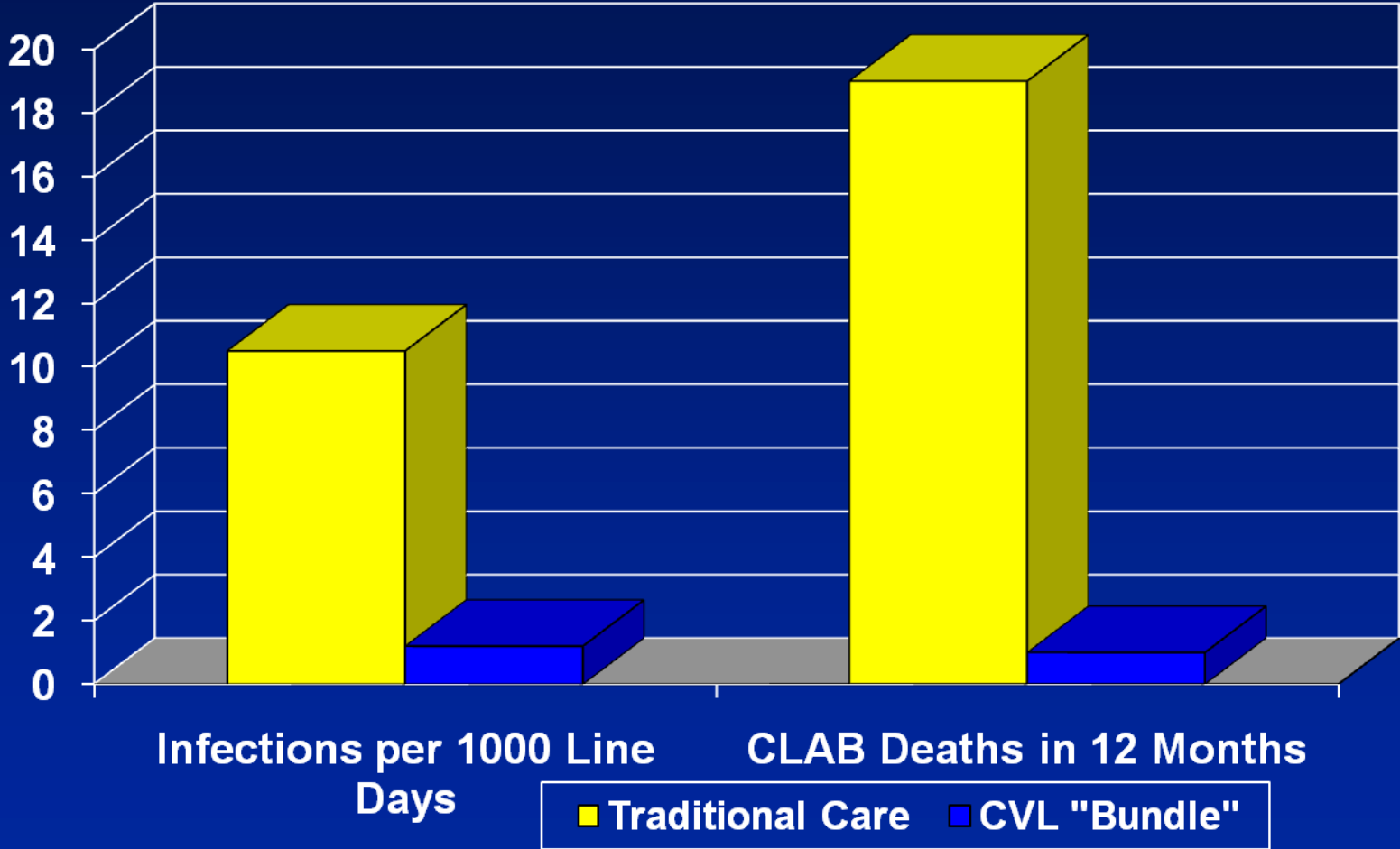
# Preventing Central Line Infections

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- Hand hygiene
- Maximal barrier precautions
- Chlorhexidine skin antisepsis
- Appropriate catheter site and administration system care
- Daily review of line necessity and prompt removal of unnecessary lines

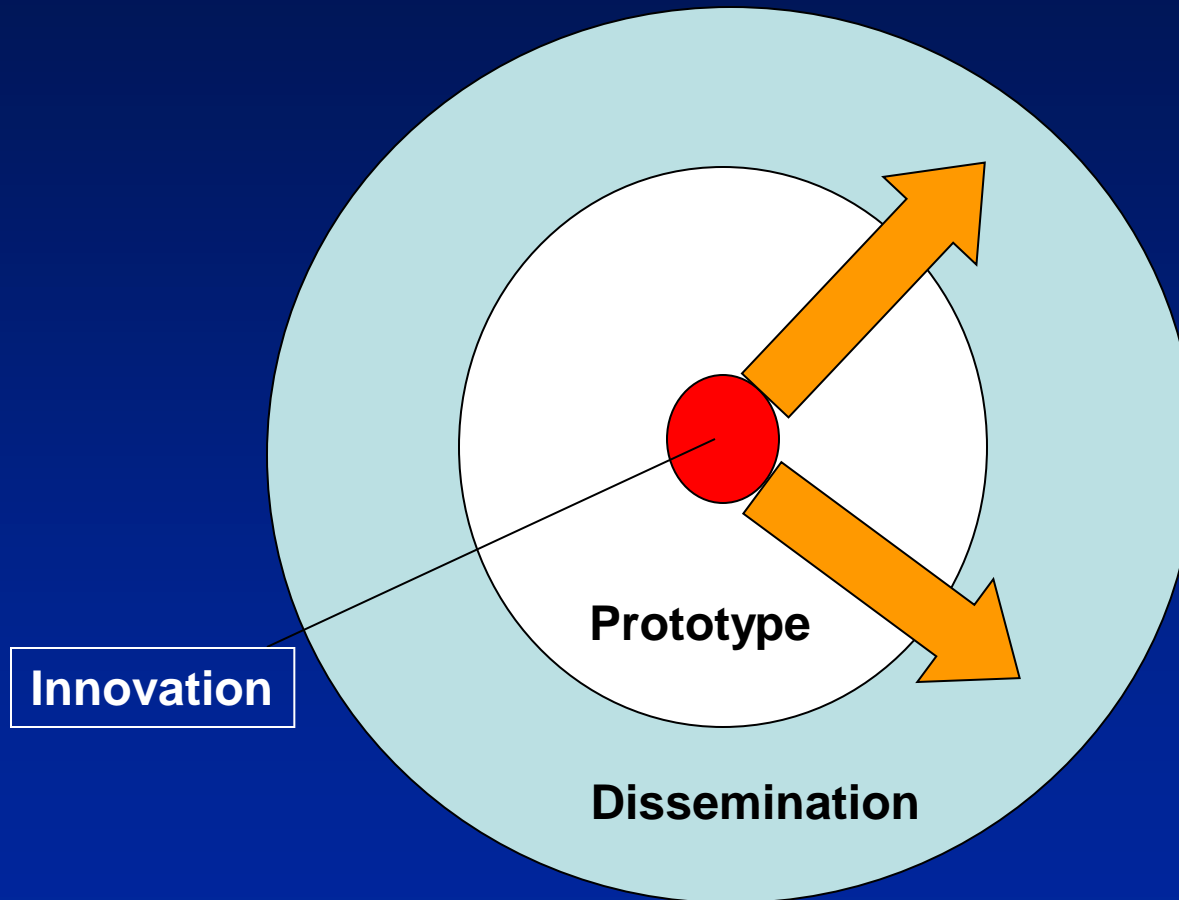
# Central Line Associated Bloodstream Infections (CLABs)

(from Rick Shannon, MD, West Penn Allegheny Health System)



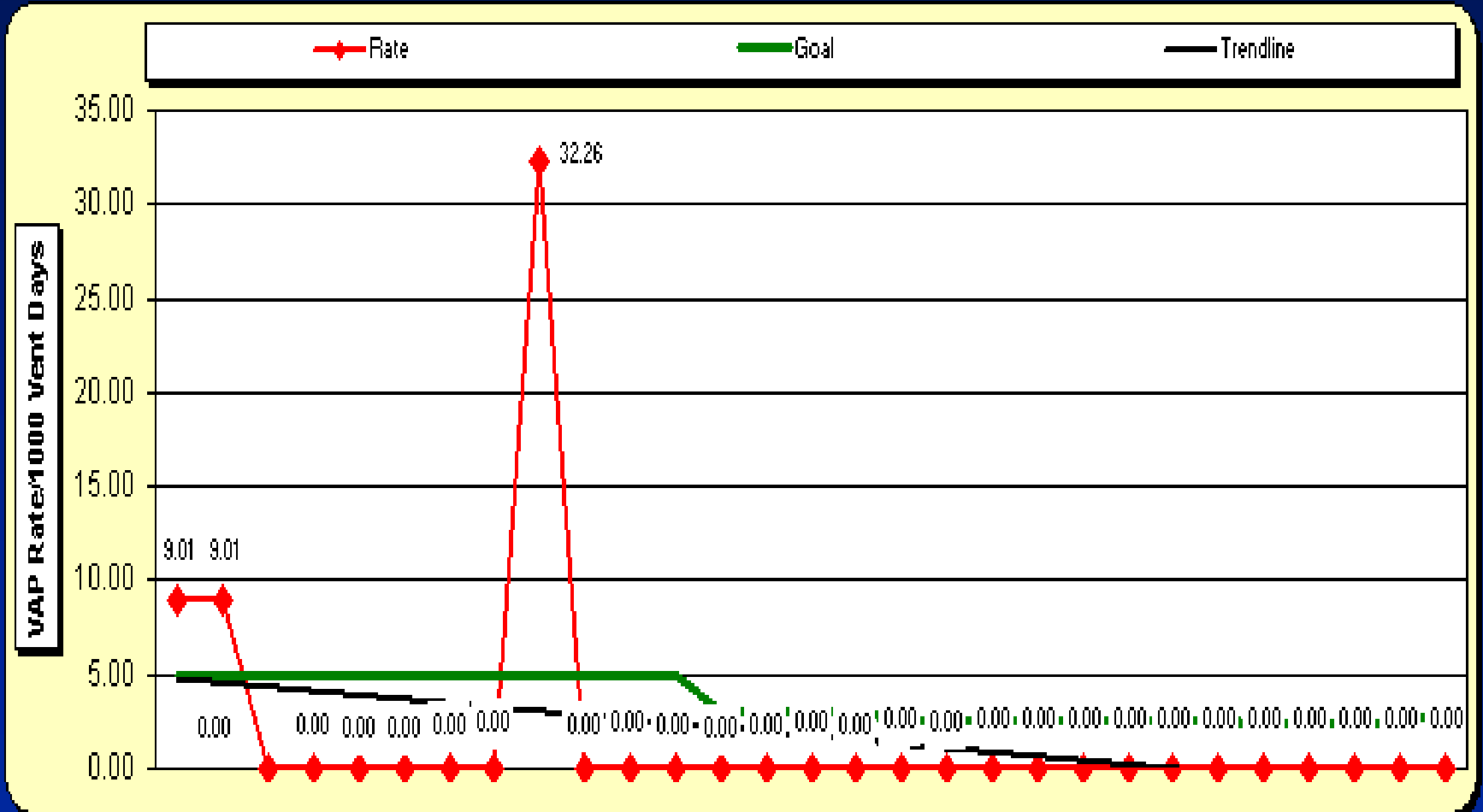
# IHI's "Rings" of Activity

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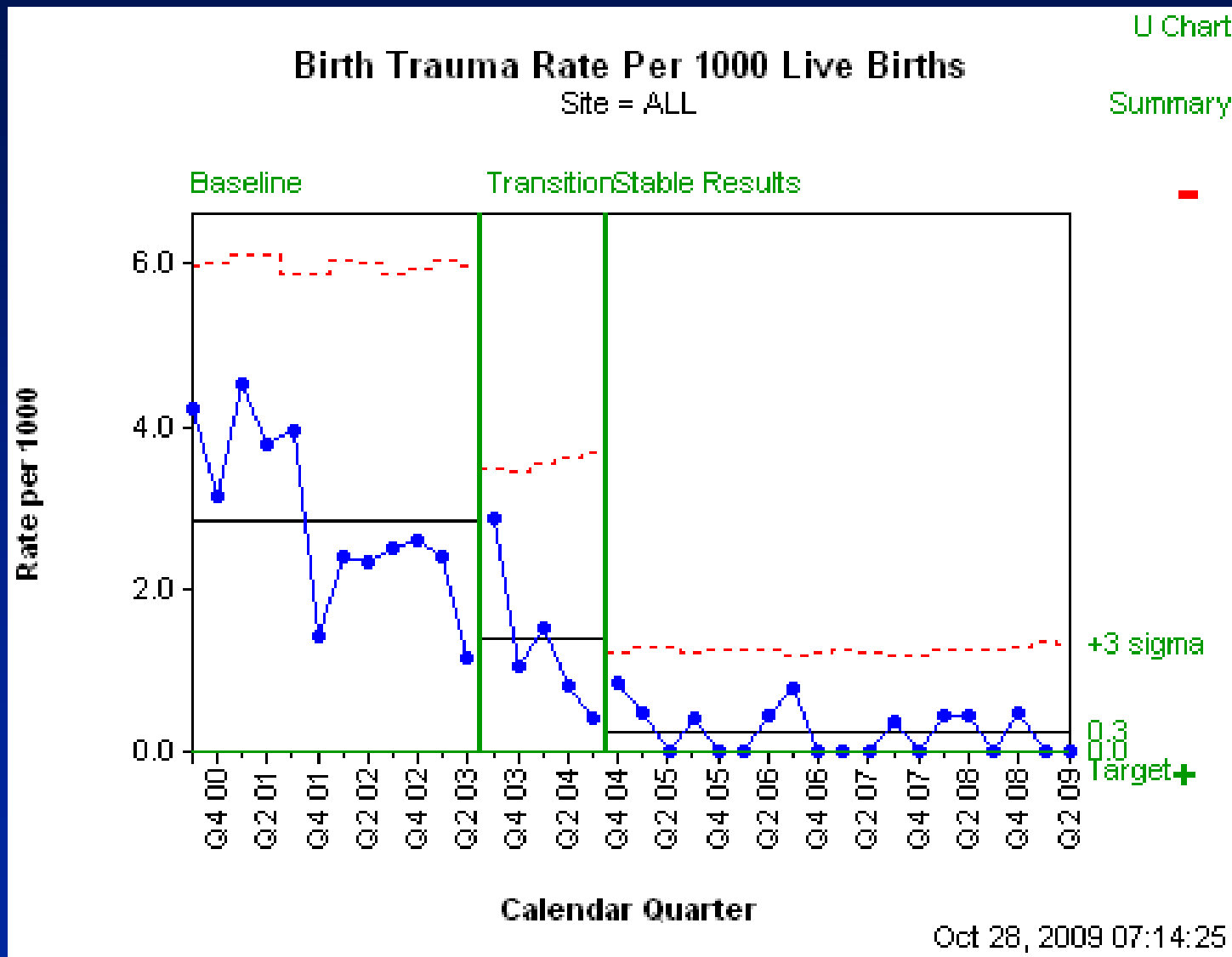


# Sentara Williamsburg

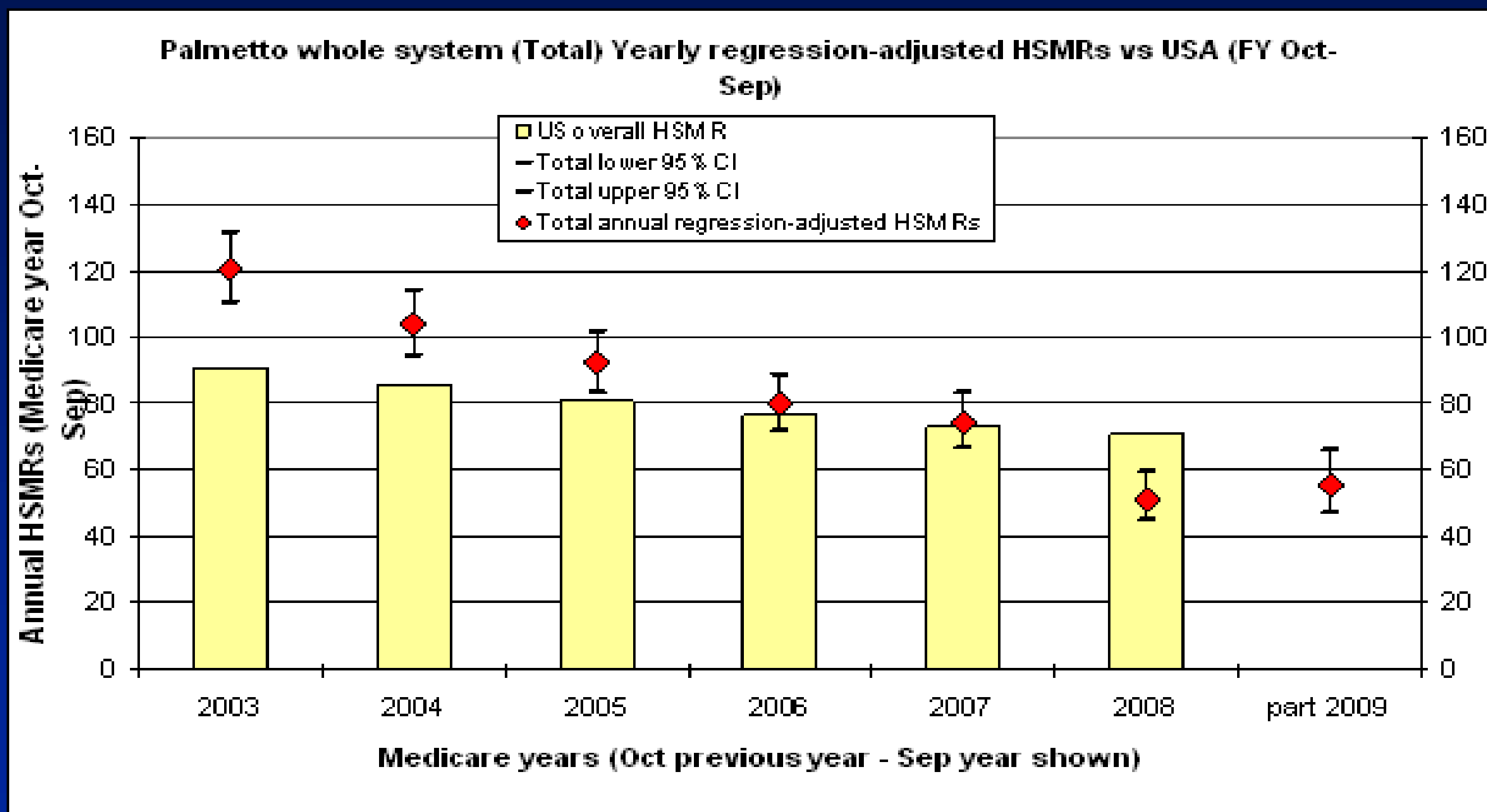
## Zero Ventilator Pneumonias in Five Years!



# Seton Family of Hospitals Birth Trauma Prevention



# Palmetto Hospital Mortality Rates



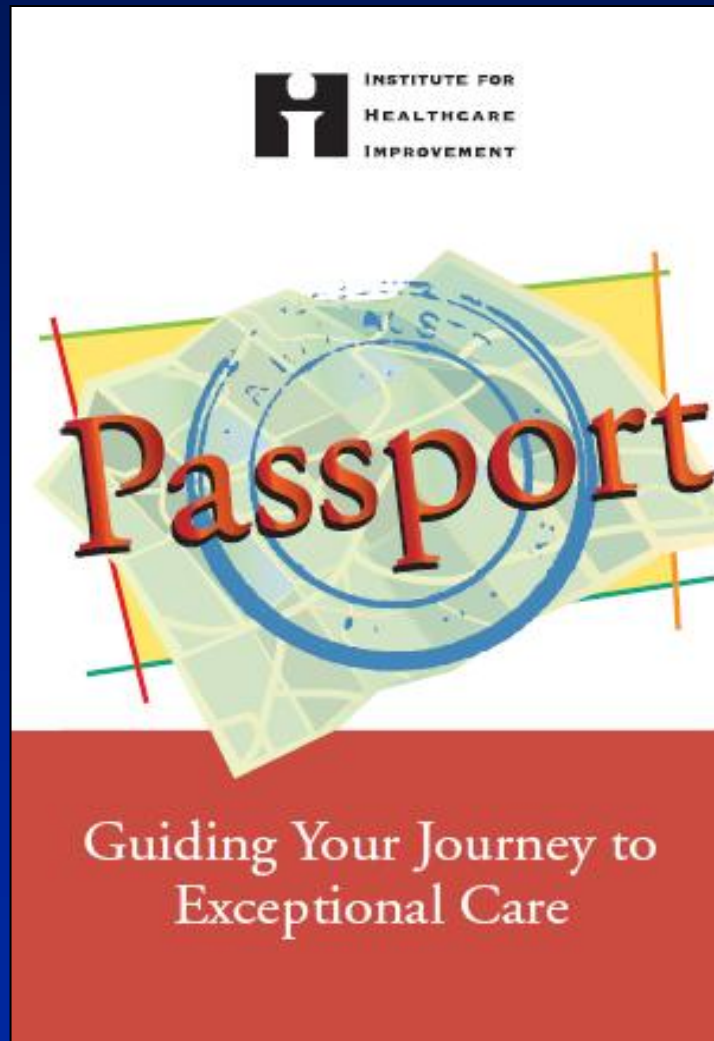
# IHI's "Improvement Map"

[www.ihl.org](http://www.ihl.org)

**IHI**  
i m p r o v e m e n t  
**map** • *from here to excellence*  
RELIABLE ROUTES TO  
EXCEPTIONAL HOSPITAL CARE

<p><b>Advance Care Planning</b></p> <p>Along with advance care directives, advance care planning allows providers and caregivers to adequately anticipate patient's desires and needs at the end of life.</p> <p>\$ 1   2   3   3</p>	<p><b>Communication with Patients &amp; Families after an Adverse Event</b></p> <p>Communication, including disclosure and apology, with patients and families after an adverse event is ethical, patient-centered, and essential to mitigating the impact of the event.</p> <p>\$ 1   2   3   3</p>	<p><b>Daily Goal Setting &amp; Planning</b></p> <p>Establish daily goals to include patients and families in care and prepare patients for treatment and discharge.</p> <p>\$ 1   1   3   3</p>	<p><b>Efficient and Reliable Transportation Services</b></p> <p>Establish the mechanisms for timely and reliable patient transportation within the hospital.</p> <p>\$ 1   1   3   1</p>
<p><b>L3 Will: Patients &amp; Families</b></p> <p>Leaders engage with patients and families in all elements of care delivery, design, measurement, assessment, and improvement.</p> <p>\$ 1   2   2   3</p>	<p><b>Multidisciplinary Rounding</b></p> <p>Multidisciplinary rounds (MDR) enable several members of the team caring for at-risk patients to come together to offer expertise and coordinate patient care.</p> <p>\$ 1   1   2   2</p>	<p><b>Neonatal Intensive Care Unit (NICU) Standard Care</b></p> <p>Establish routine care to assure safety and effectiveness in the neonatal intensive care unit.</p> <p>\$ 1   1   2   2</p>	<p><b>Patient Transitions &amp; Handoffs</b></p> <p>Improve transitions and handoffs in care with standard processes and communication techniques.</p> <p>\$ 1   2   2   3</p>

# IHI's "Passport" Program: A Key to the Improvement Map



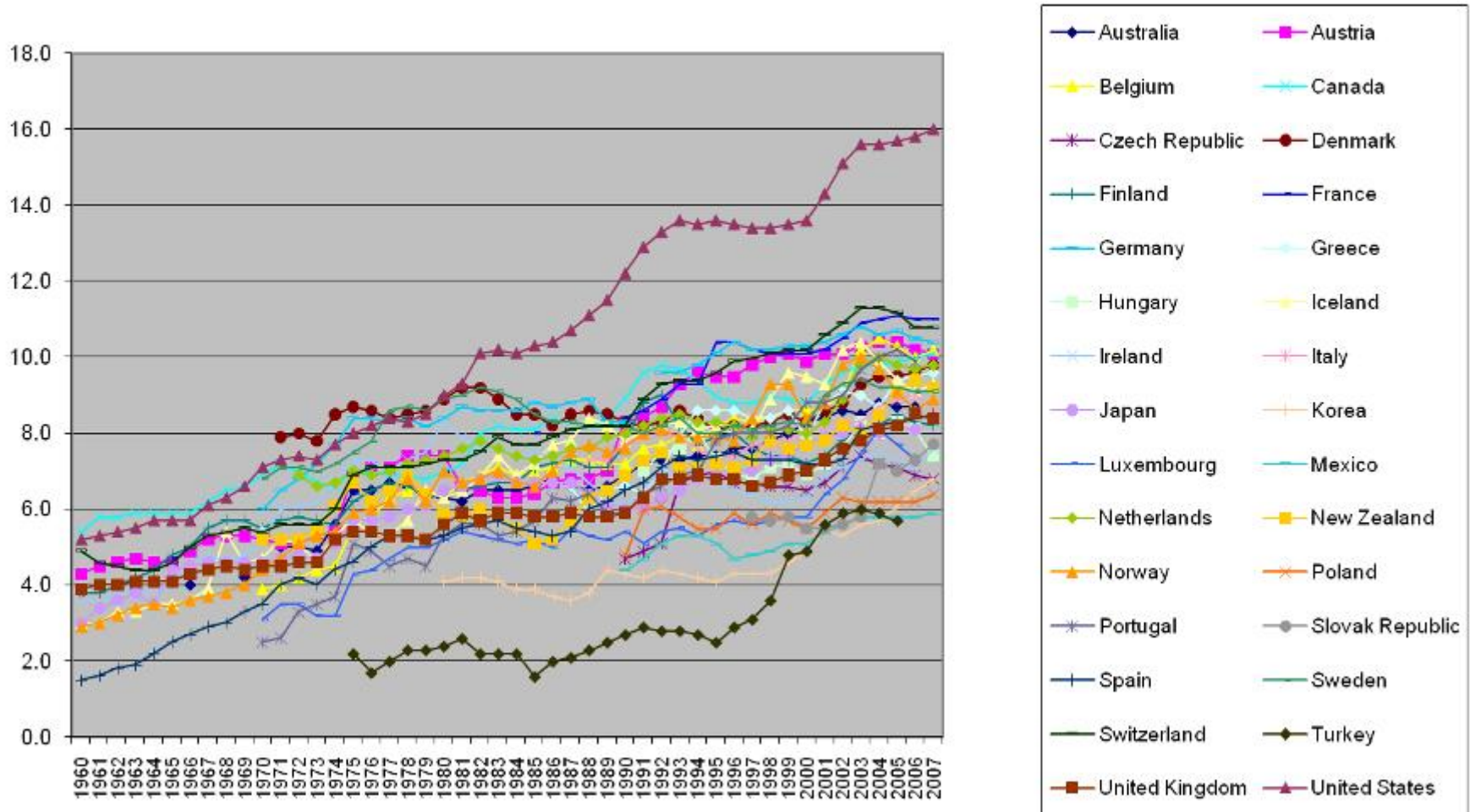
# Does Improving Safety Save Money?

## HENRY FORD HEALTH SYSTEM

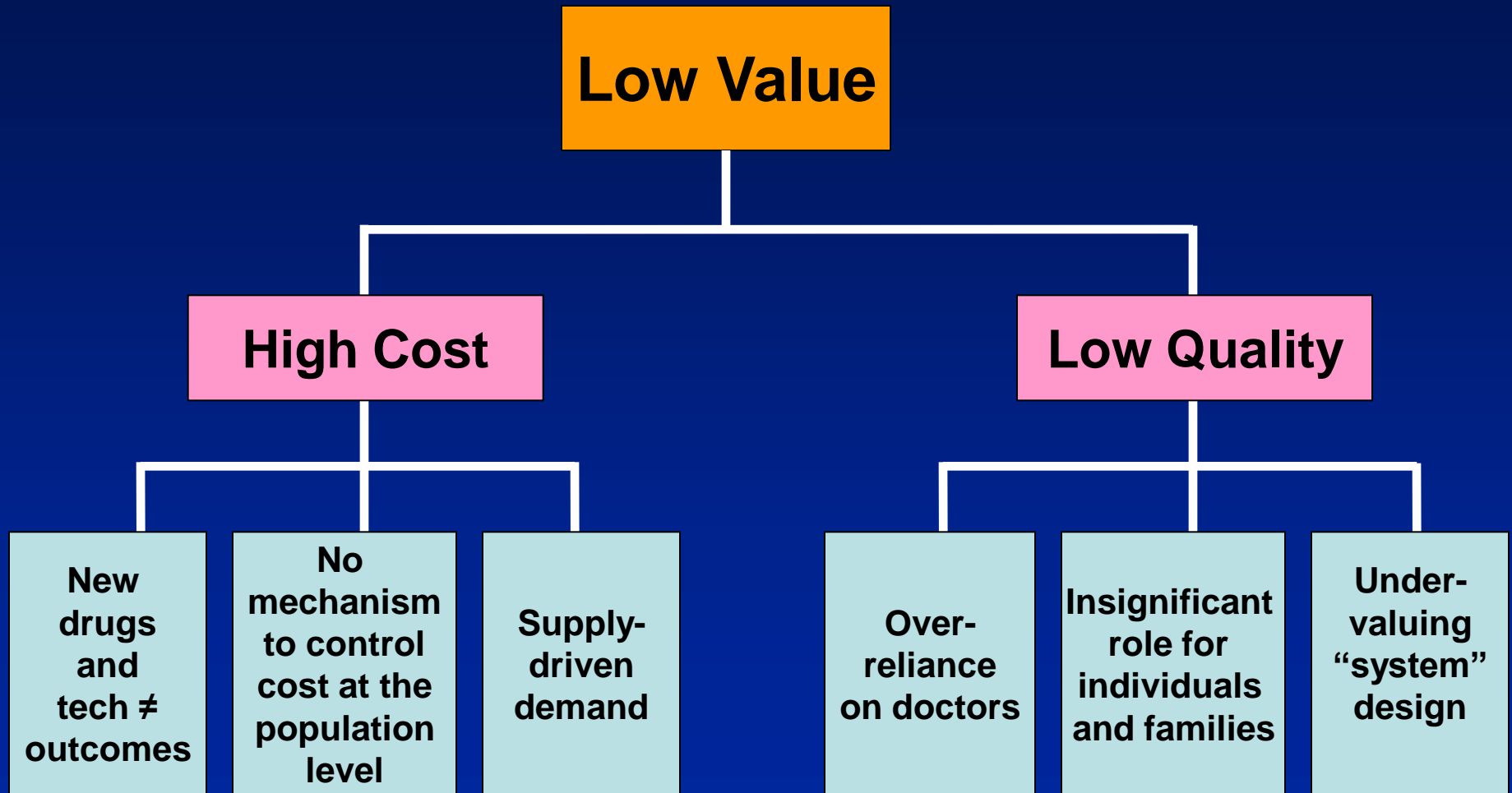
IMPROVEMENT	COST	SAVINGS	NET
<i>SURGICAL INFECTIONS</i>	(\$110,000)	\$540,000	\$430,000
<i>BLOODSTREAM INFECTIONS</i>	(\$22,500)	\$4,780,000	\$4,757,500
<i>VENTILATOR PNEUMONIAS</i>	(\$1,268,500) (Reduced Revenue)	\$1,166,400	(\$102,100)
<i>RAPID RESPONSE TEAMS</i>	(\$390,000)	?	(\$390,000)
<b>TOTAL</b>	<b>(\$1,791,000)</b>	<b>\$5,320,000</b>	<b>\$4,695,400</b>

# Health Care Expenditure Out of GDP

OECD 2009: Total Expenditure on Health, % Gross Domestic Product



# Drivers of a Low-Value Health System ( from Tom Nolan)



# Health Care Reform: The Apparent Choice

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- Spend More.
- Accomplish Less.

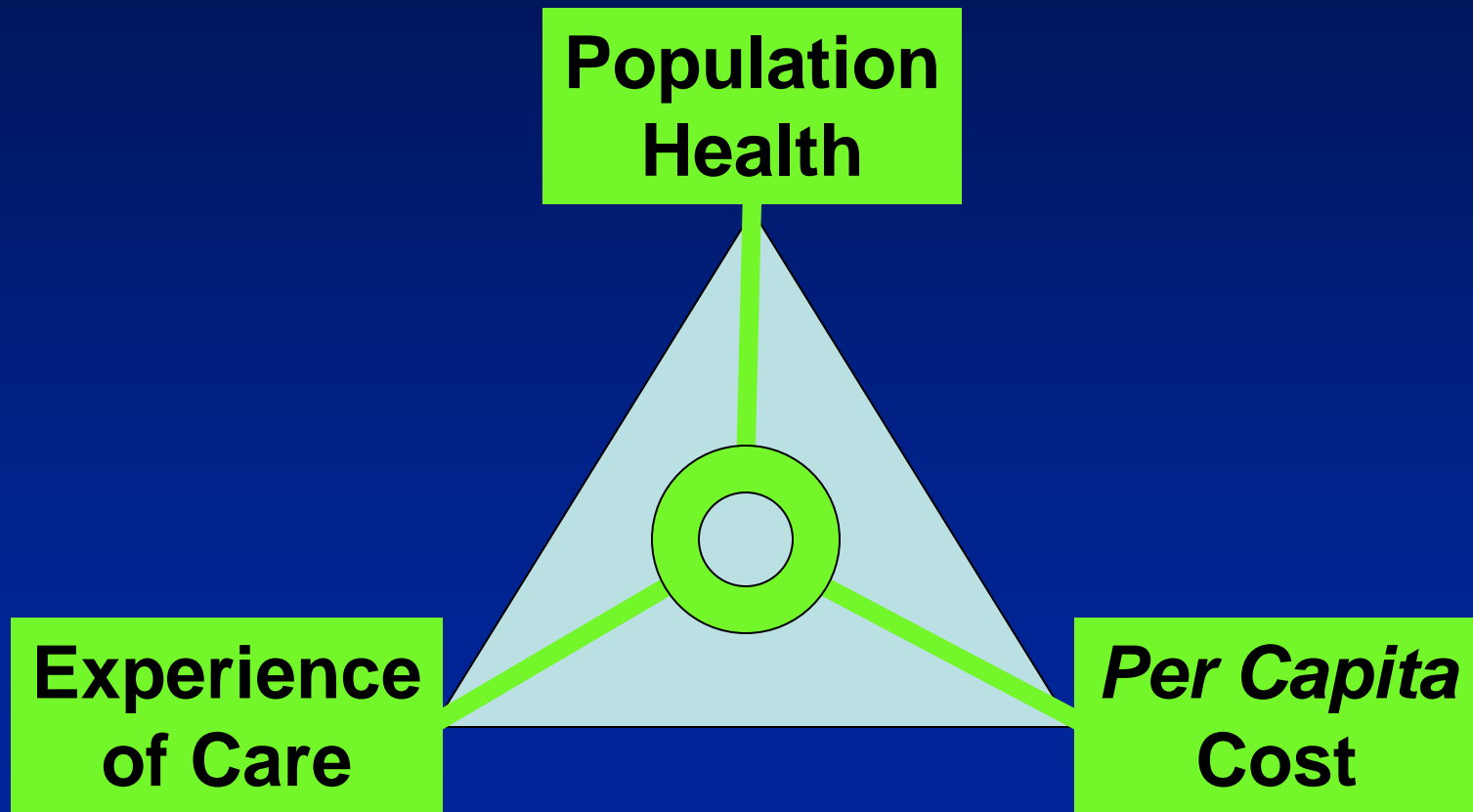
# Health Care Reform: The Better Choice

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-  Spend More.
-  Accomplish Less.
-  Change the System.

# The “Triple Aim”

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# THE NEW YORKER

REPORTING & ESSAYS

ARTS & CULTURE

HUMOR

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THE TALK OF THE TOWN

ONLINE ONLY

NOVEMBER 25, 2009

## THE POLITICAL SCENE

Evan Osnos on Obama's visit to China, and John Cassidy on the economy.



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**Jon Michaud:** Reading List:

ANNALS OF MEDICINE

## THE COST CONUNDRUM

*What a Texas town can teach us about health care.*

by Atul Gawande

JUNE 1, 2009

It is spring in McAllen, Texas. The morning sun is warm. The streets are lined with palm trees and pickup trucks. McAllen is in Hidalgo County, which has the lowest household income in the country, but it's a border town, and a thriving foreign-trade zone has kept the unemployment rate below ten per cent. McAllen calls itself the Square Dance Capital of the World. "Lonesome Dove" was set around here.

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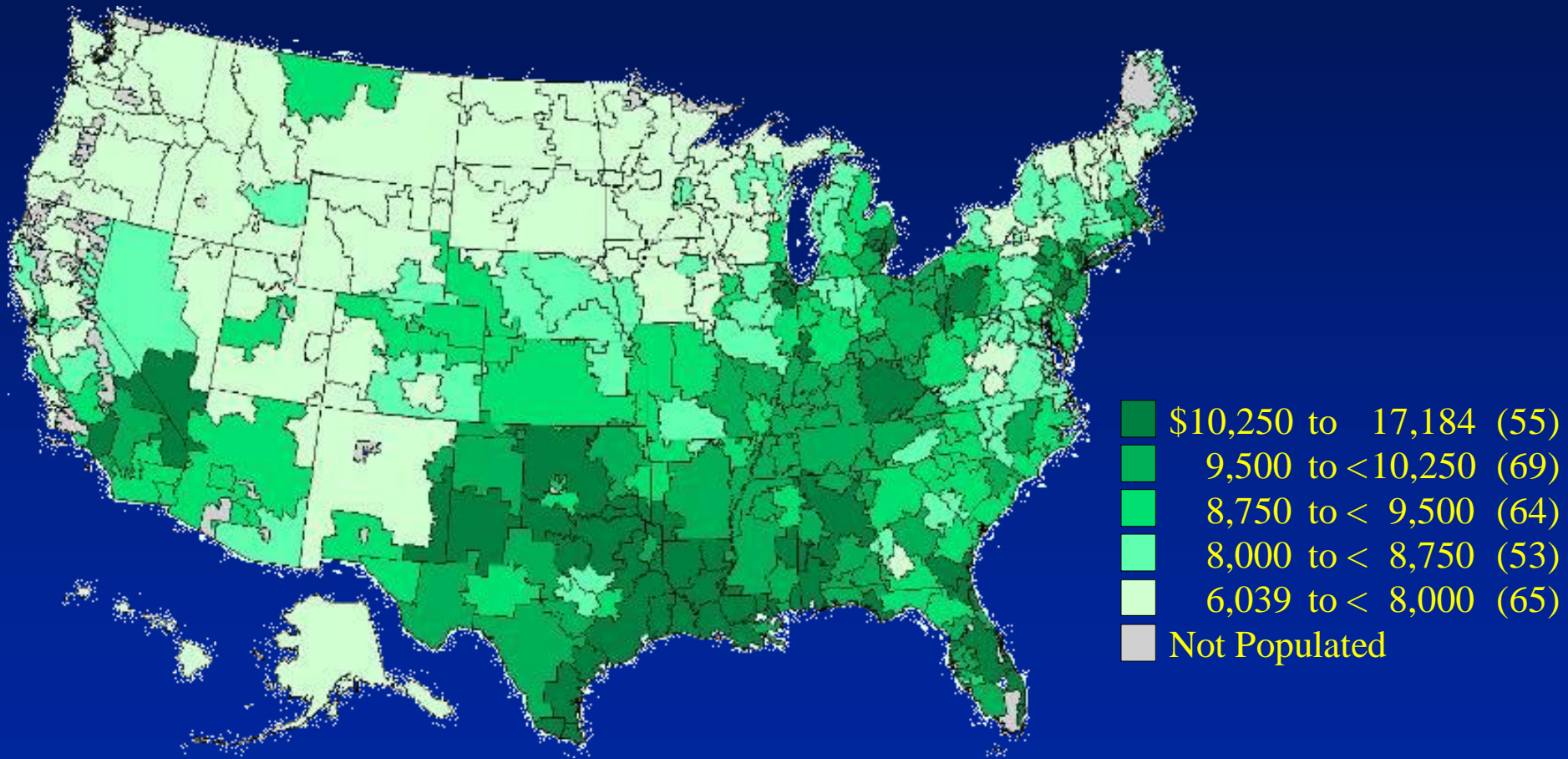
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# The Dartmouth Atlas

## Regional Variation in Medicare Spending *per Capita*

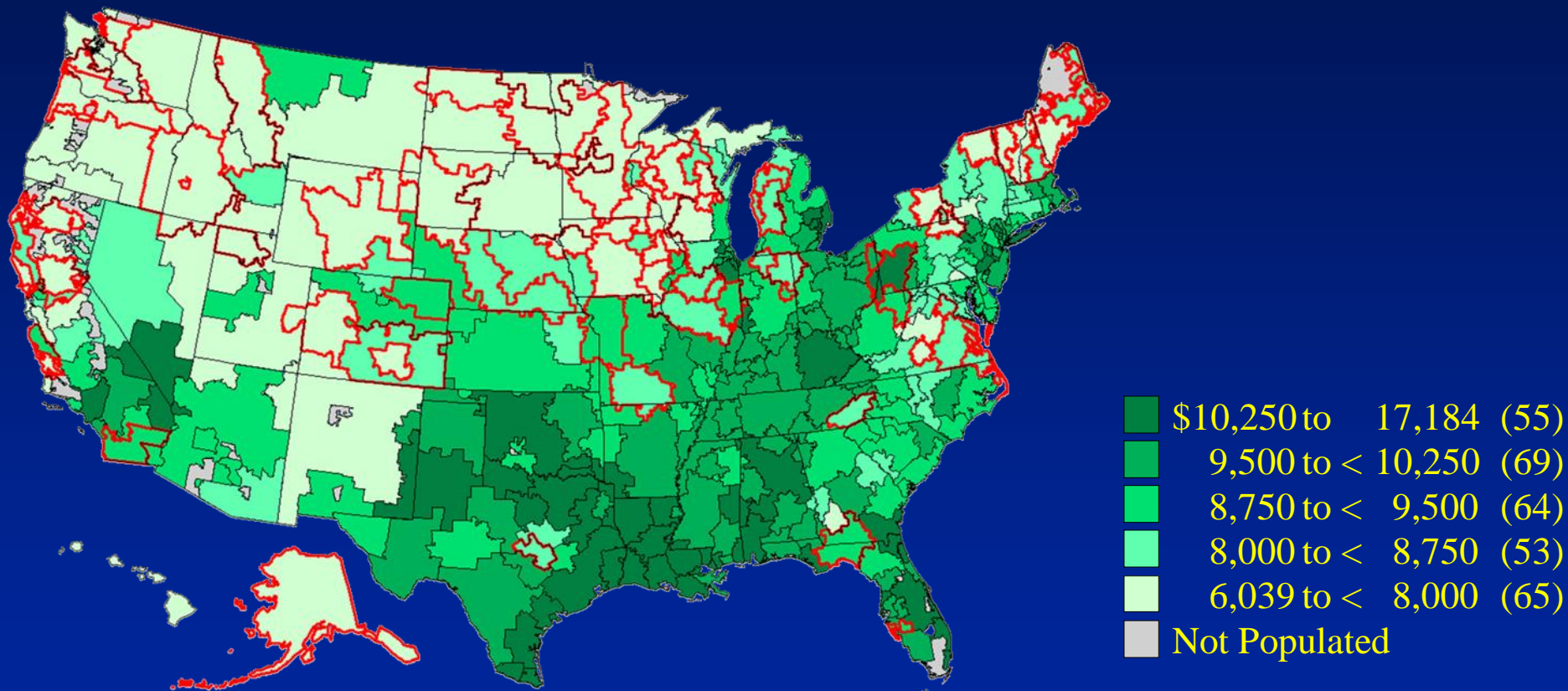
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Source: Elliott Fisher and the Dartmouth Atlas Project

# 74 High Quality, Low Cost HRRs

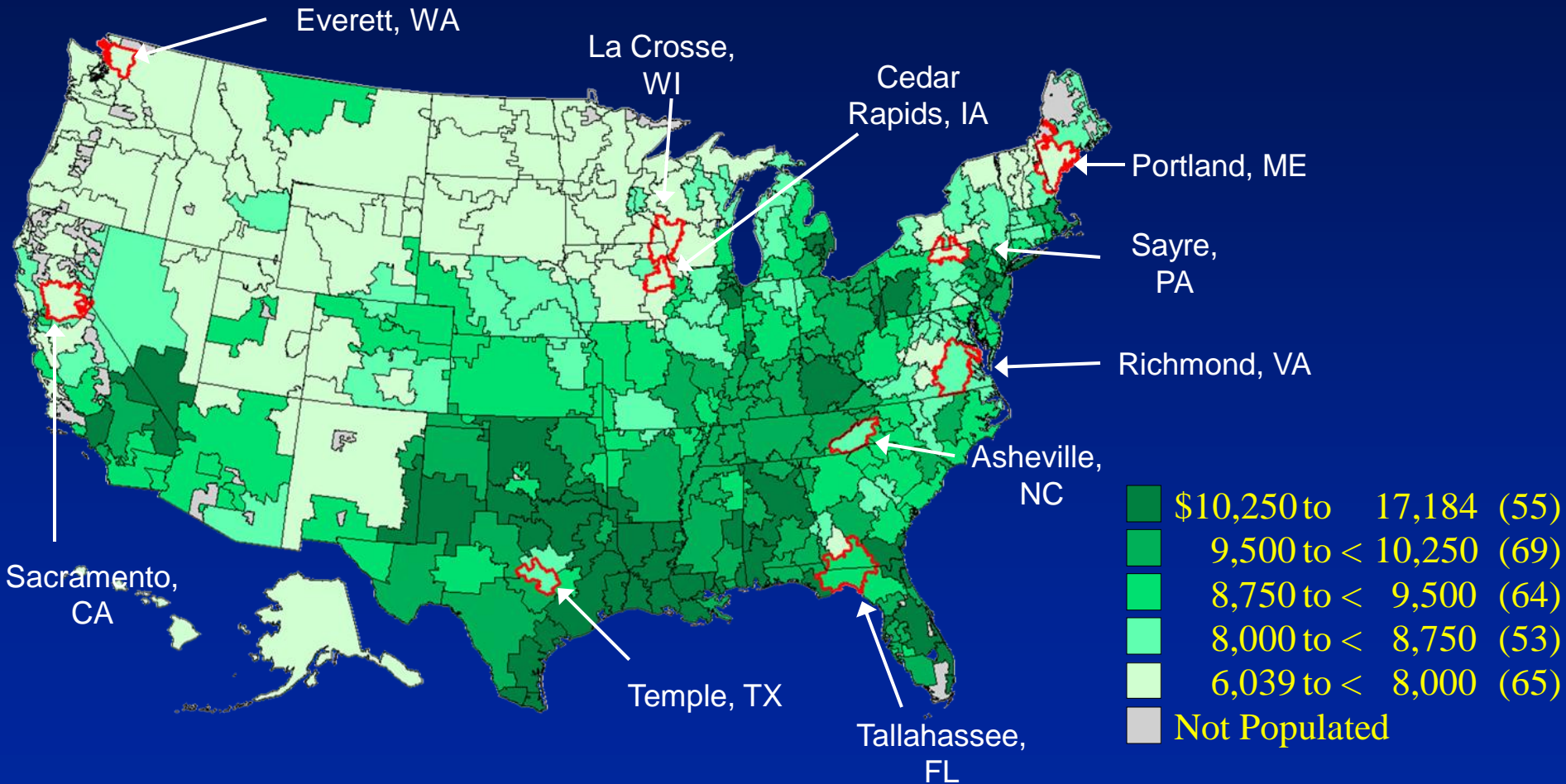
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Source: Elliott Fisher and the Dartmouth Atlas Project

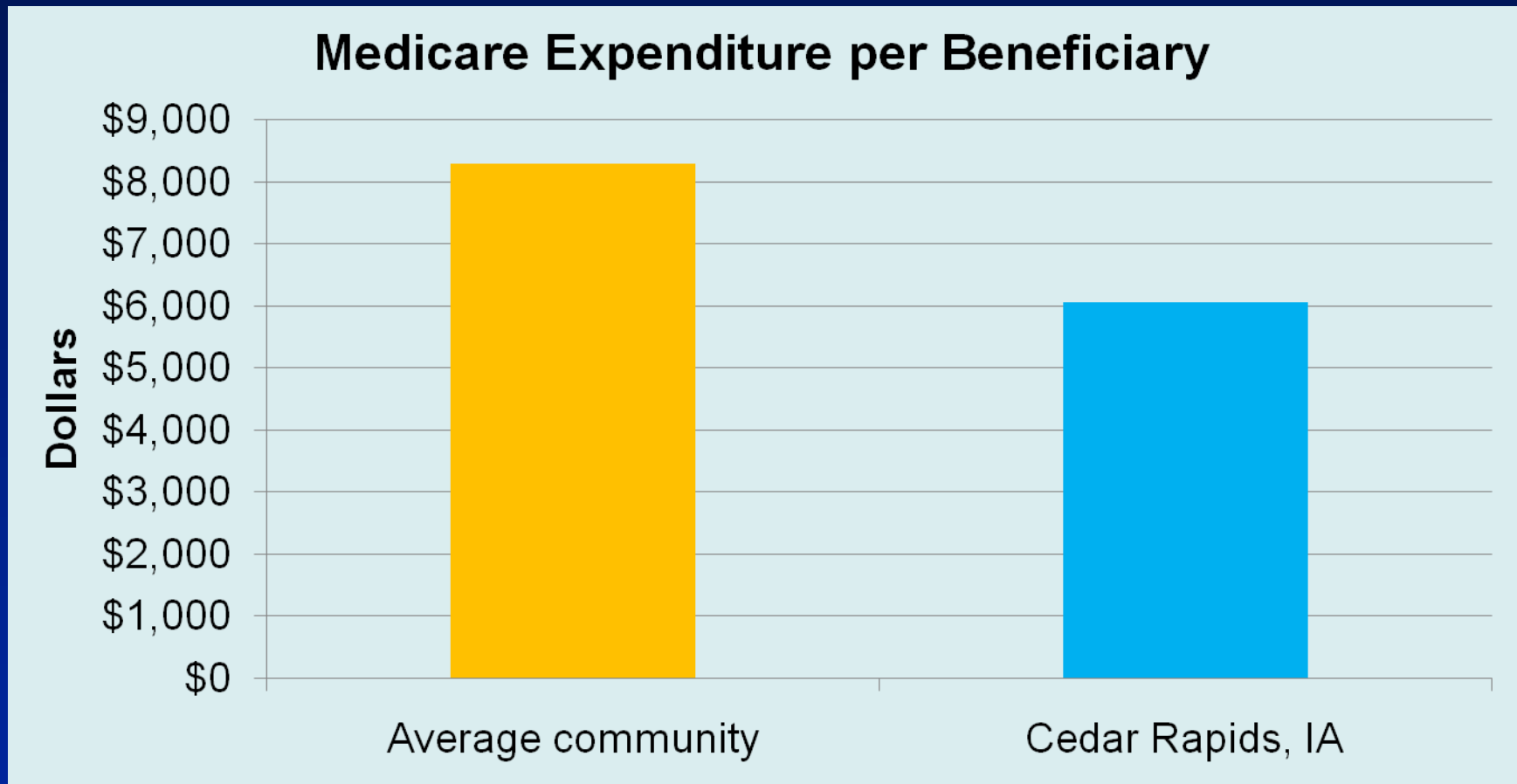
# 10 HRRs We Studied

Price-Adjusted *per Capita* Medicare spending



Source: Elliott Fisher and the Dartmouth Atlas Project

# Cedar Rapids Spends 27% Less than the Average Community



# What Are They Doing?

They reduce the frequency of visits, specialist referrals and imaging, and they rely to a much greater extent on primary care physicians.

	Primary Care Visits <sup>1</sup>	Medical Specialist Visits <sup>1</sup>	Spending on Imaging (last 2 yrs of life) <sup>2</sup>	Primary Care to Specialist visits Ratio <sup>3</sup>
<b>Ten High-Performing HRRs</b>	5.3	2.9	\$633	1.41
<b>232 Other HRRs</b>	5.8	4.3	\$843	1.05
<b>Potential Savings</b>	7 to 10%	27 to 36%	18 to 21%	--

Notes:

1. Per beneficiary per year, among all FFS beneficiaries 65 and over
2. Among beneficiaries in their last two years of life with serious chronic illness
3. Ratio of visits in last two years of life, beneficiaries with serious chronic illness

# What Are They Doing?

The High-Performing HRR's *per capita* Spending – and Spending Growth – Are Lower.

	Price Adjusted Spending 2006	Increase in Spending 1992 – 2006	Annual Growth Rate
Ten High-Performing HRRs	\$7,924	\$2,297	3.0%
232 Other HRRs	\$9,695	\$3,376	3.6%

**Potential Annual Savings: 12.7% - 16.2%**

# What Successful Communities May Have in Common

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- Cooperation and a Platform for Conversation
- Shared Aims for the Community – “The Glue”
- Positive Public Framing
- Daylight – Data in Use
- Restraint - “We don’t measure our success by income.”
- Physician - Hospital Relationships
- Stringency and Constraint (“The Mother of Invention”?)
  - CON, Utility Model, Medicare Payment
- System Views (e.g. Shared Services – Process Focus – Lean)
- Strong Primary Care Base (“Coordinated Care Providers”)
- Technology to Pull Us Together
- **Uncertain:** When Competition Helps/Hurts
- **Uncertain:** How Much Environmental Change Is Necessary?



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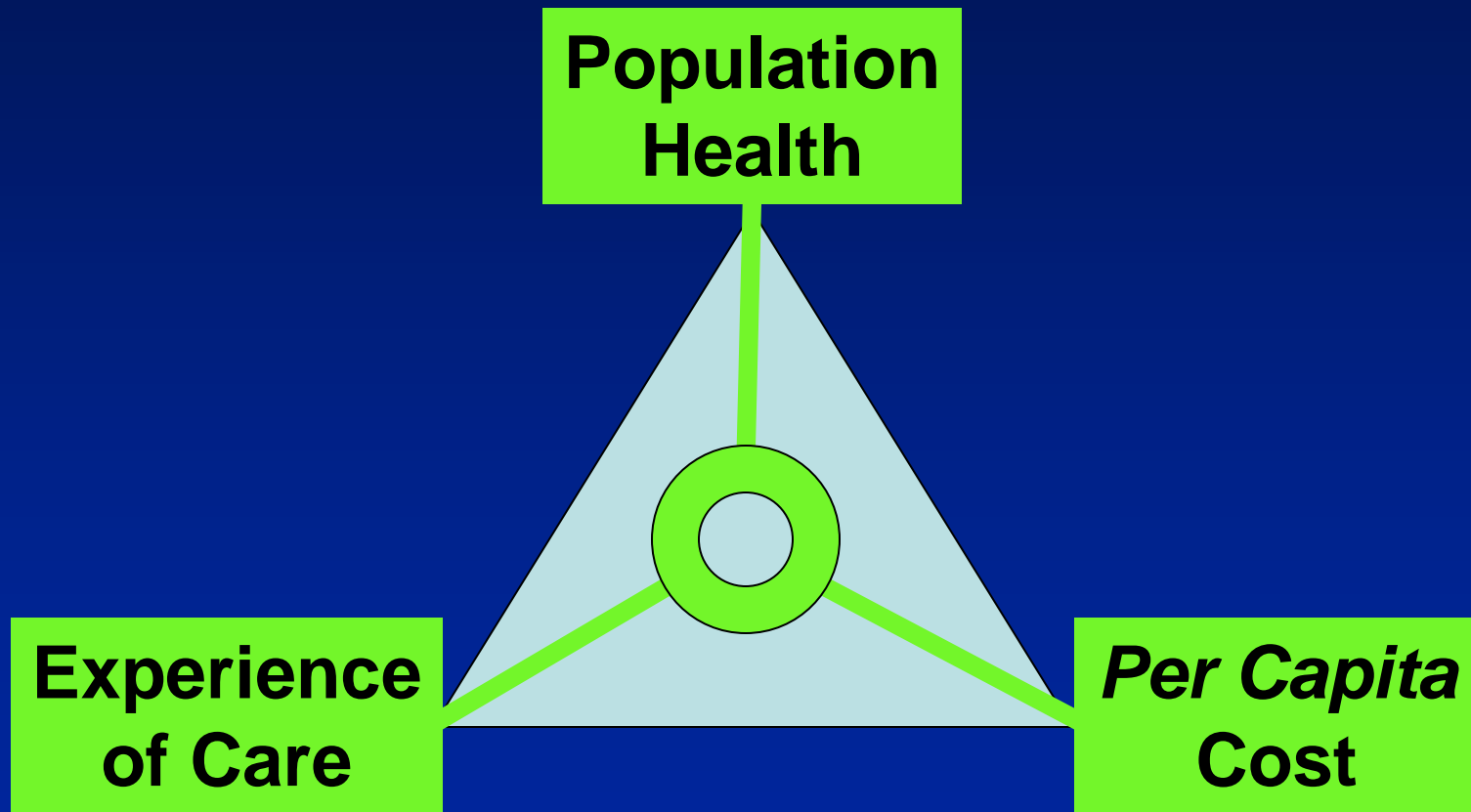
HOW DO THEY DO THAT?

***“HDTDT”***

***An IHI R&D Project***

# The “Triple Aim”

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# “The Tragedy of The Commons”

Garrett Hardin. *Science* 1968; 162:1243-8.

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## The Tragedy of the Commons

The population problem has no technical solution;  
it requires a fundamental extension in morality.

Garrett Hardin

At the end of a thoughtful article on the future of nuclear war, Wiesner and York (1) concluded that: “Both sides in the arms race are . . . confronted by the . . . sional judgment. . . .” Whether they were right or not is not the concern of the present article. Rather, the concern here is with the important concept of a finite



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# The Tragedy of the Commons

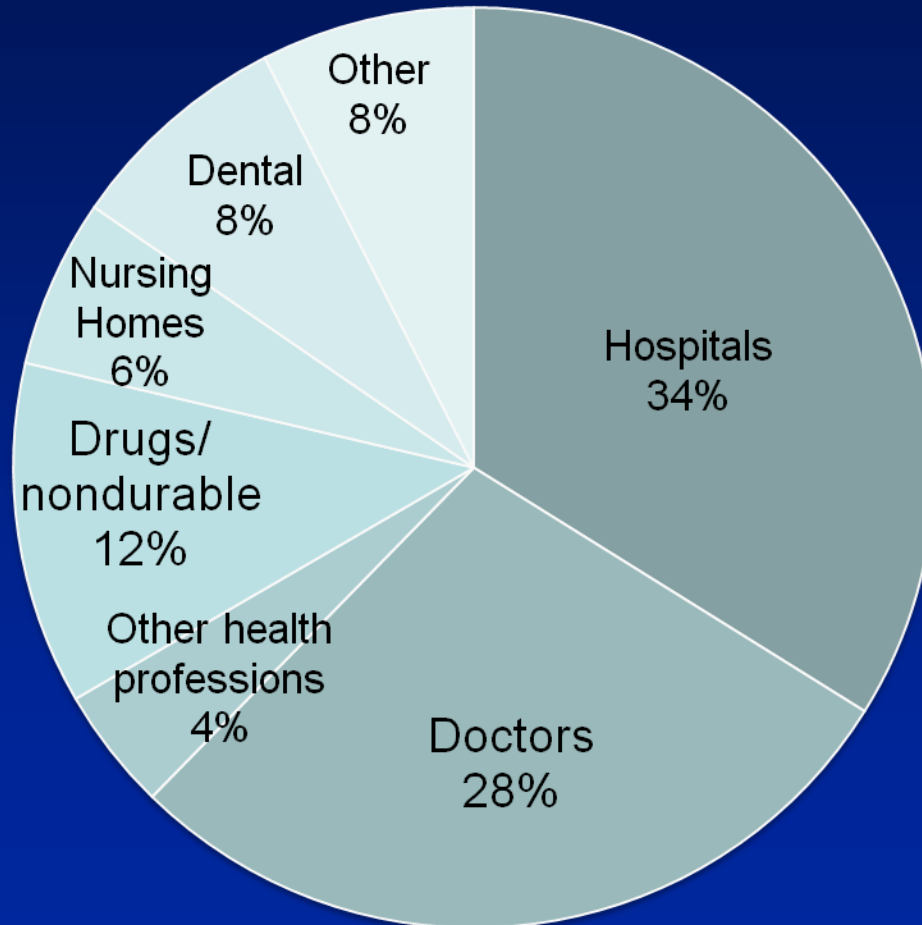
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“Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination toward which all men rush...”

# Two Views of “The Commons”

## #1: All Resources Available for Health Care

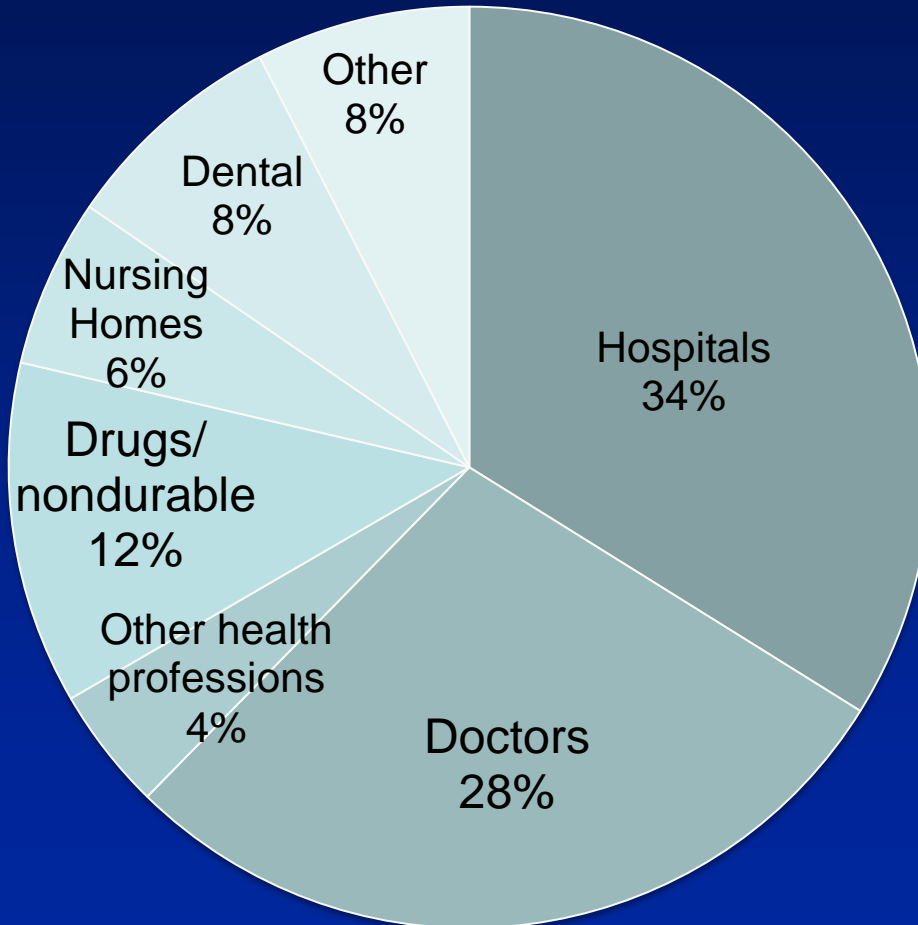
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# Two Views of “The Commons”

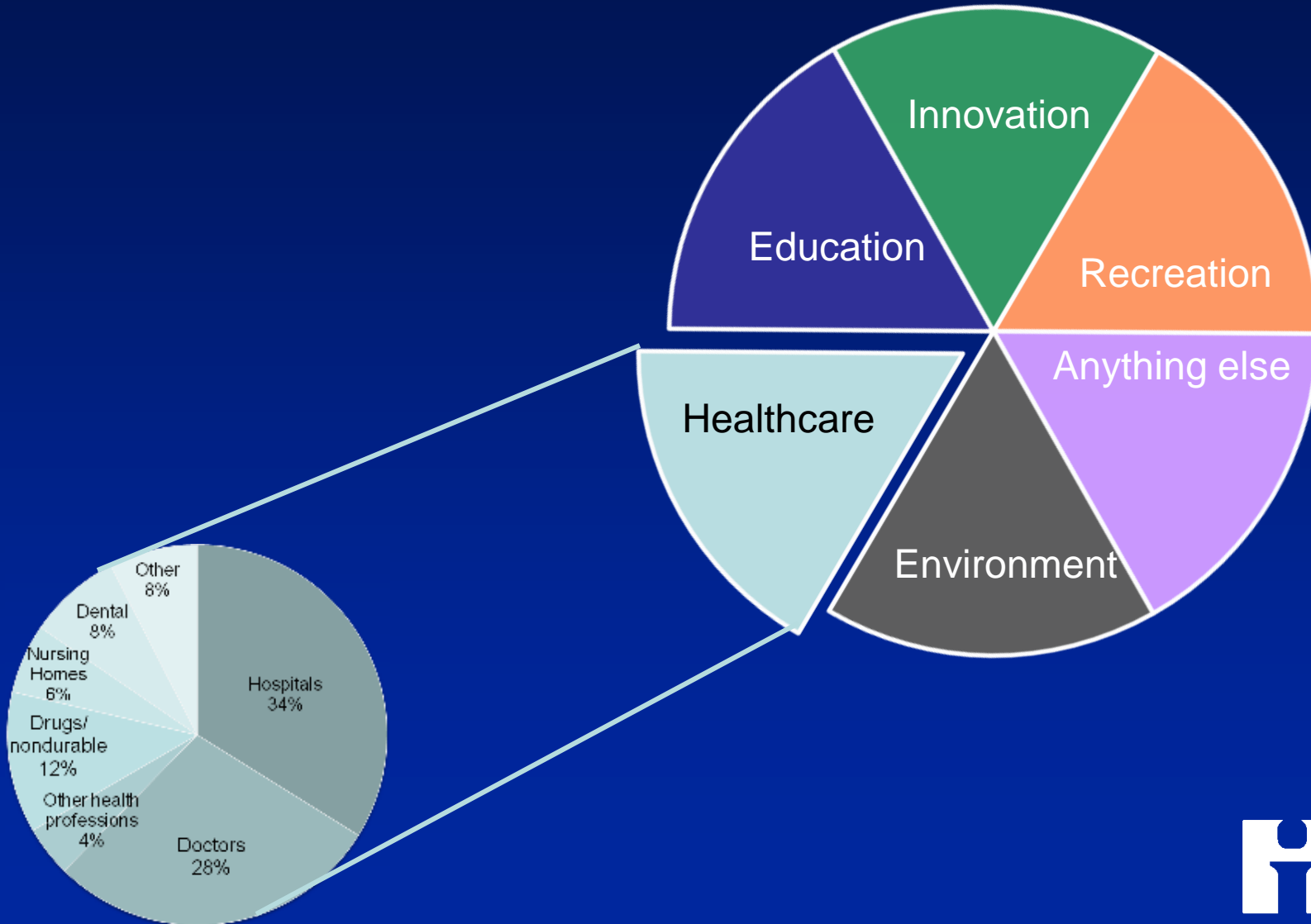
## #2: All Social Resources from Which Health Care Draws Its Share

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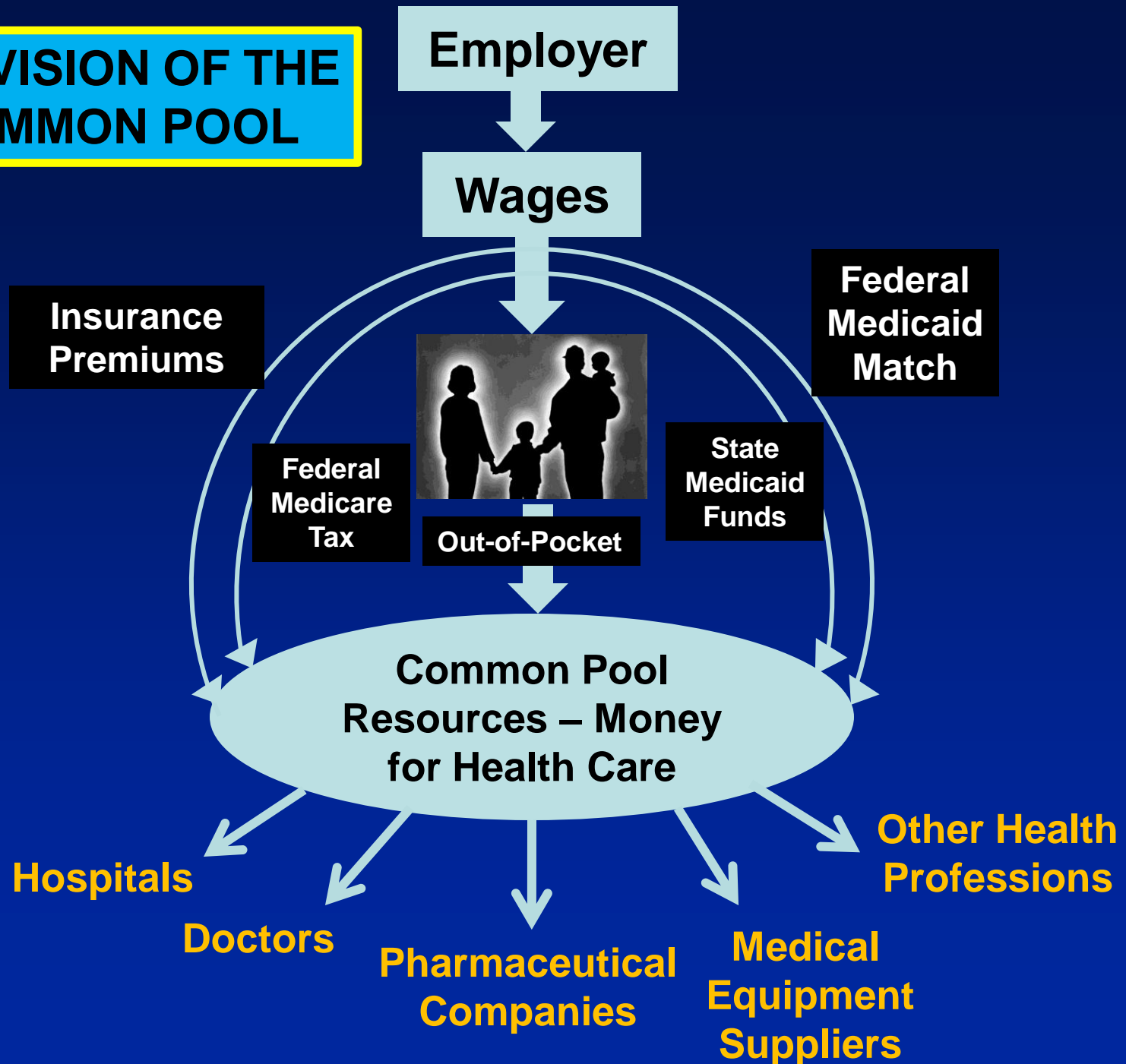


# Two Views of “The Commons”

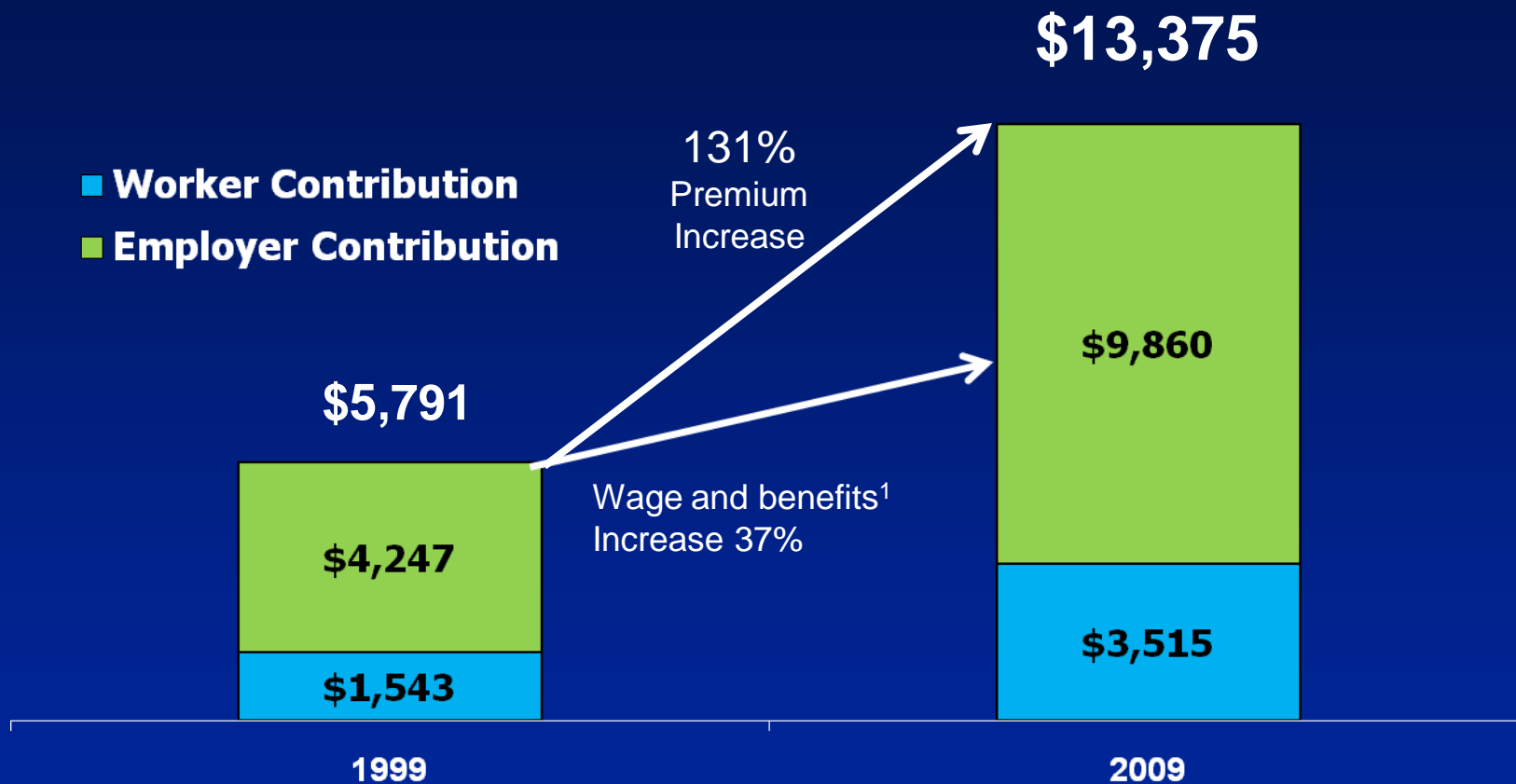
## #2: All Social Resources from Which Health Care Draws Its Share



**PROVISION OF THE  
COMMON POOL**



# Average Health Insurance Premiums and Worker Contributions for Family Coverage, 1999-2009



Note: The average worker contribution and the average employer contribution may not add to the average total premium due to rounding.

Source: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2009.

1. Bureau of Labor Statistics Employment Cost Index

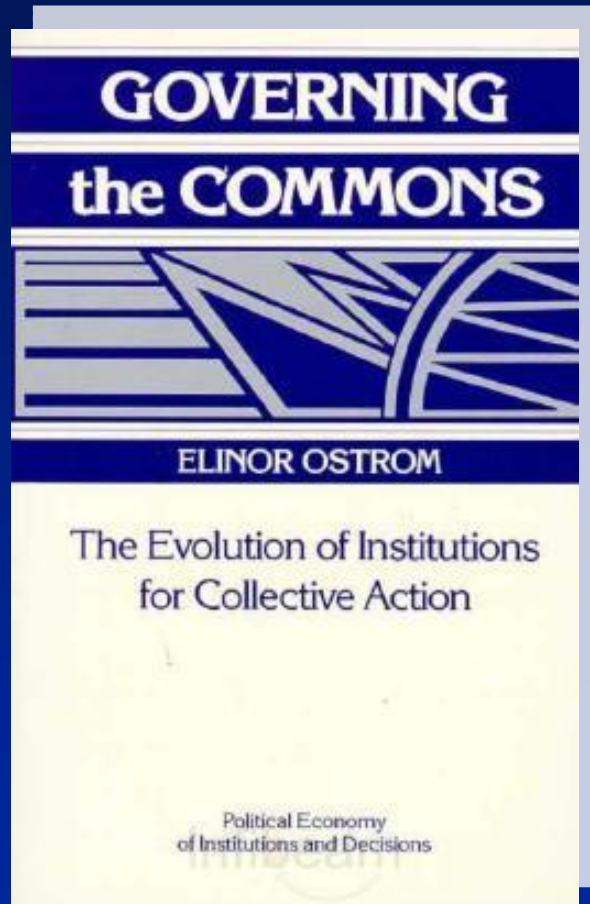


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It's Our Money.

# Professor Elinor Ostrom

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# Design Principles for “Governing the Commons”

1. Individuals know the boundaries and limits
  - Of the resource (“Common Pool Resource”)
  - Of the community of users (“Appropriators”)
2. Rules are locally made and adapted to context
3. Decisions are made together
4. Active measurement and monitoring
5. Effective sanctions
6. Mechanisms for conflict resolution
7. Appropriate “Nesting” of systems
8. Latitude from higher authorities to act locally

# Governing Your Commons

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## 1. Define your health care Commons

- What is limited?
- Who can draw upon it?

# Governing Your Commons

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1. Define your health care Commons
2. Set aims: Reduce total resource consumption 10% over three years

# Governing Your Commons

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5. Create consequences for rule-breaking

# Governing Your Commons

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1. Define your health care Commons
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5. Create consequences for rule-breaking
6. Identify and address conflicts early

# Governing Your Commons

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1. Define your health care Commons
2. Set aims: Reduce total resource consumption 10% over three years
3. Develop your institutional structures for local rule-making
4. Develop monitors of use of the Commons
5. Create consequences for rule-breaking
6. Identify and address conflicts early
7. Offer and expect civility

# The Key Leadership Concept

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- Someone has to “own” the Triple Aim for a population...

“The Integrator”

# A Case: Total Hip Replacement

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- Patient returns home on Day 4 Post-Op on warfarin with two instructions:
  - 1. “Restart 81 mg of aspirin per day”
  - 2. “Do not restart aspirin”

There is no one specified to call for an answer.

**Missing: The “Micro-Integrator”**

# A Case: Total Hip Replacement

---

- Patient's orthopedist orders radiation to the hip on Day 3 post-op, an unorthodox intervention without evidence, to “prevent bone overgrowth”

There is no one specified to raise the question of the need for an evidence-base for this procedure.

**Missing: The “Macro-Integrator”**

# The “Micro-Integrator’s” Tasks

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- Pursue individual patient’s goals at lowest cost
- Maximize access to and use of all existing and potential patient and family capacities
- Manage flows, interfaces, and interactions in individual patient’s value-added care

# The “Macro-Integrator’s” Tasks

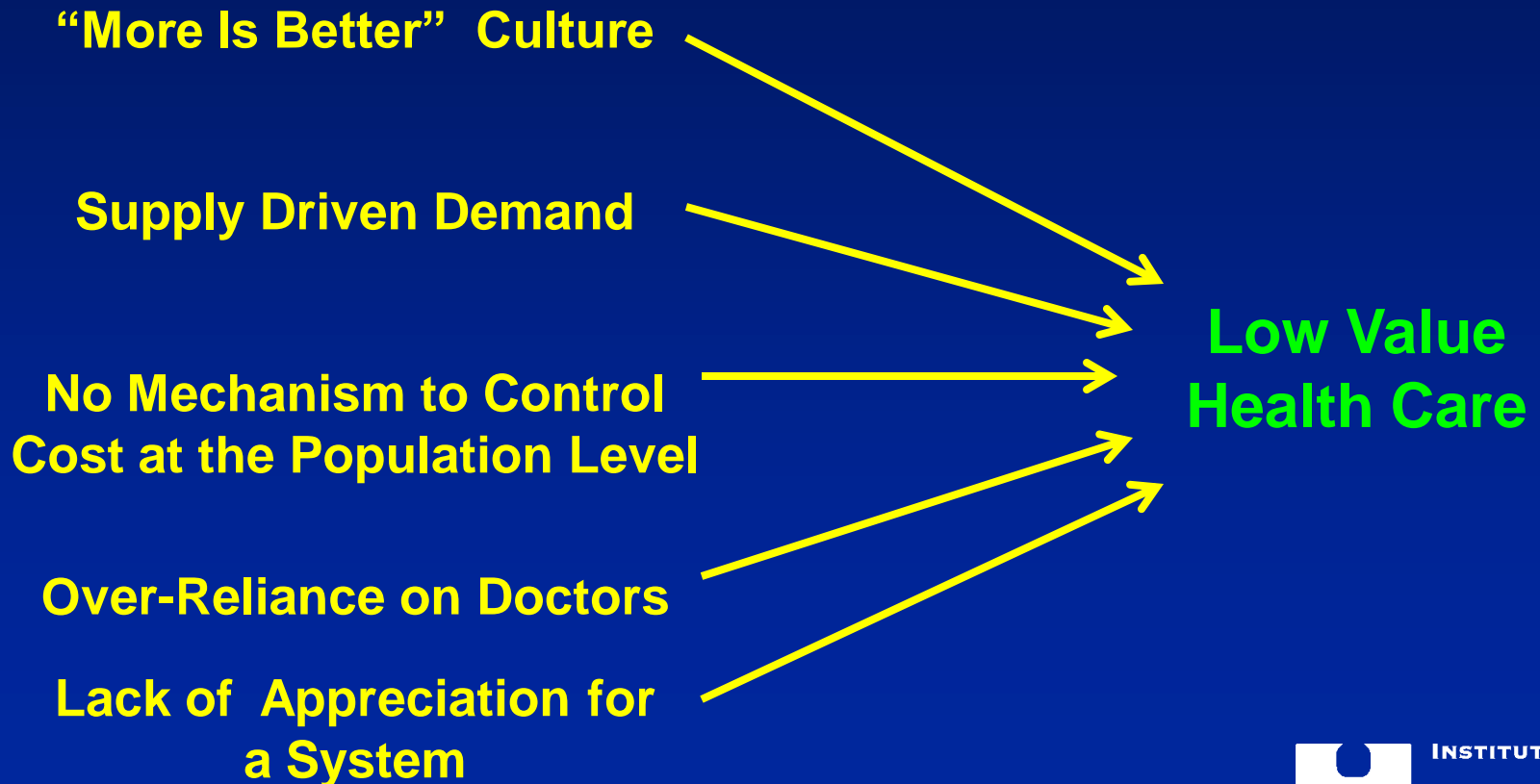
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- **Design:**
  - Care and Finance Models
  - Ways to Engage the Population
- **Establish Essential Business Relationships:**
  - Specialty Care and High-Tech Care
  - Community-Based Services
- **Measure Performance in New Ways:**
  - Track People over Time
  - Measure Costs
- **Test and Analyze to Learn What Works**
  - A Learning Community
  - Managed Experiments
- **Develop and Deploy Information Technology**
  - To Integrate Across Boundaries
  - To Give Patients Knowledge and Control

# Drivers of Low Value Health Care

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## Primary Drivers



# Designing for a High-Value Regional Health Care System

## Design Concepts

### 1. Primary Care: redefined, higher capacity

- General medical practice connected to other resources
- Self-care designed by “lead patients and families”

### 2. Reverse the cost-flow gradient

- GP - specialist compacts
- Make the expensive places the bottlenecks

### 3. Reclaim wasted hospital capacity

- Flow optimization
- Chronic disease care

### 4. Patient goals at least total cost

- Patient reported outcomes
- Decision aids and peer to peer support

### 5. Focused segment: High cost, socially or medically complex

### 6. Integration of regional resources

- Negotiate fair arrangements
- Ostrom’s design concepts

## Primary Drivers

### “More Is Better” Culture

Mitigated by: 1, 2, 4

### Supply Driven Demand

Mitigated by: 2, 3, 6

### No Mechanism to Control Cost at the Population Level

Mitigated by: 3, 5, 6

### Over-Reliance on Doctors

Mitigated by: 1, 4, 5

### Lack of Appreciation for a System

Mitigated by: 1, 2, 6

High  
~~Low~~  
Value  
Health  
Care

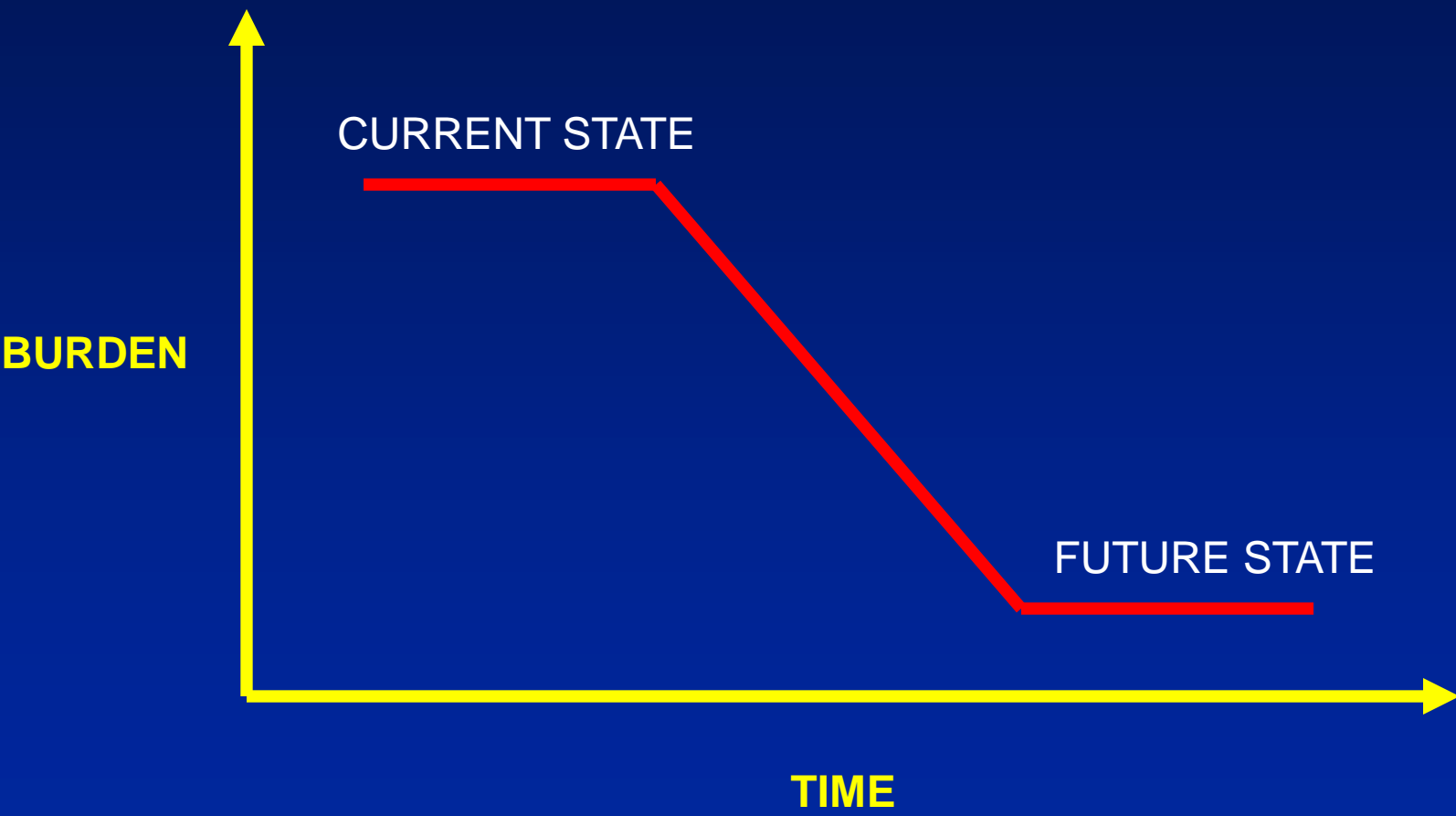
# Design Concepts for High Value

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1. Primary care: redefined, higher capacity
2. Reverse the cost-flow gradient
3. Reclaim wasted hospital capacity
4. Patient goals at least total cost
5. Focused segment: high cost, socially or medically complex
6. Integration of regional resources

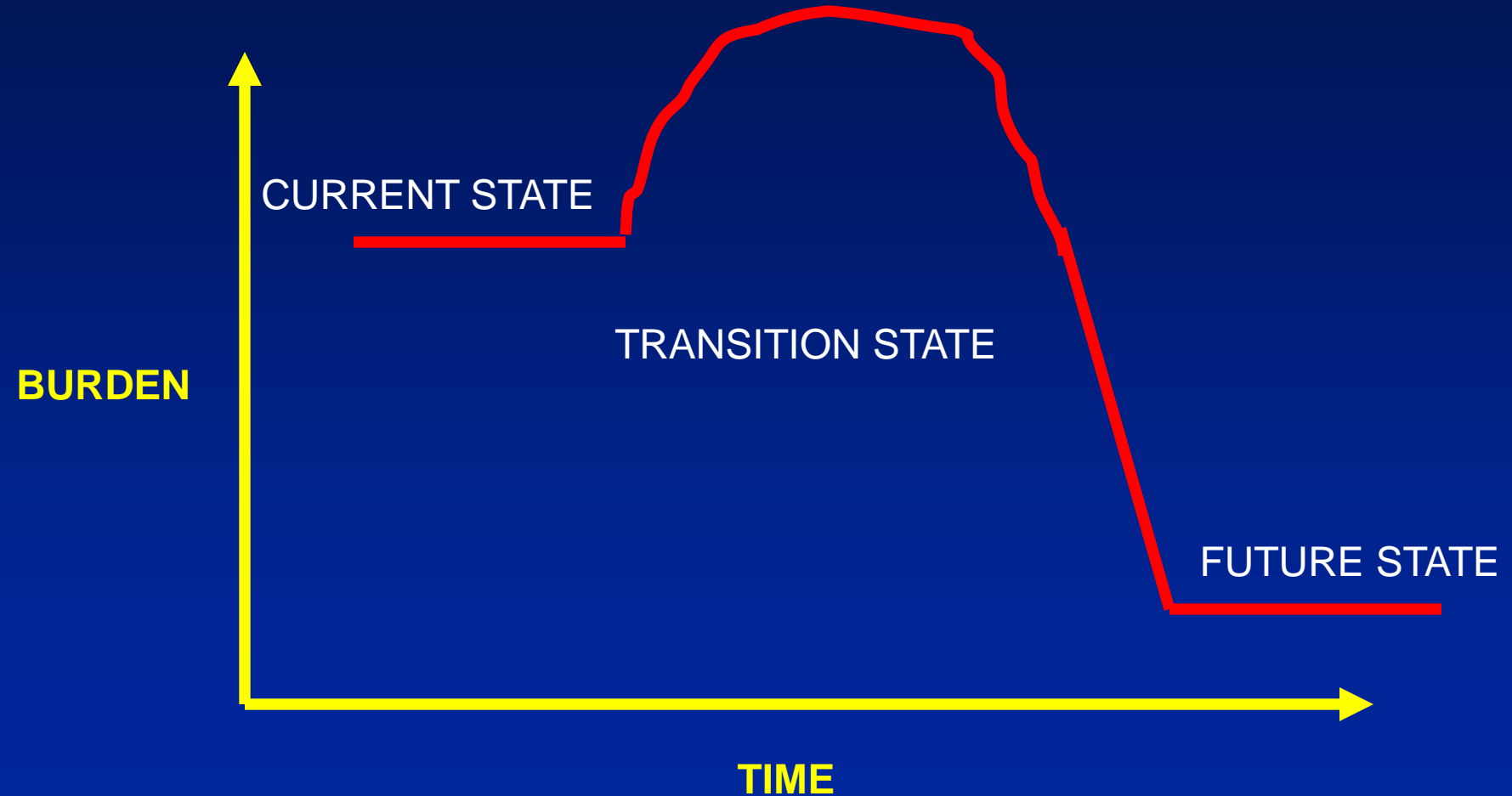
# The Future State – Most Can Be Winners

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# The Transition State – Hard for All

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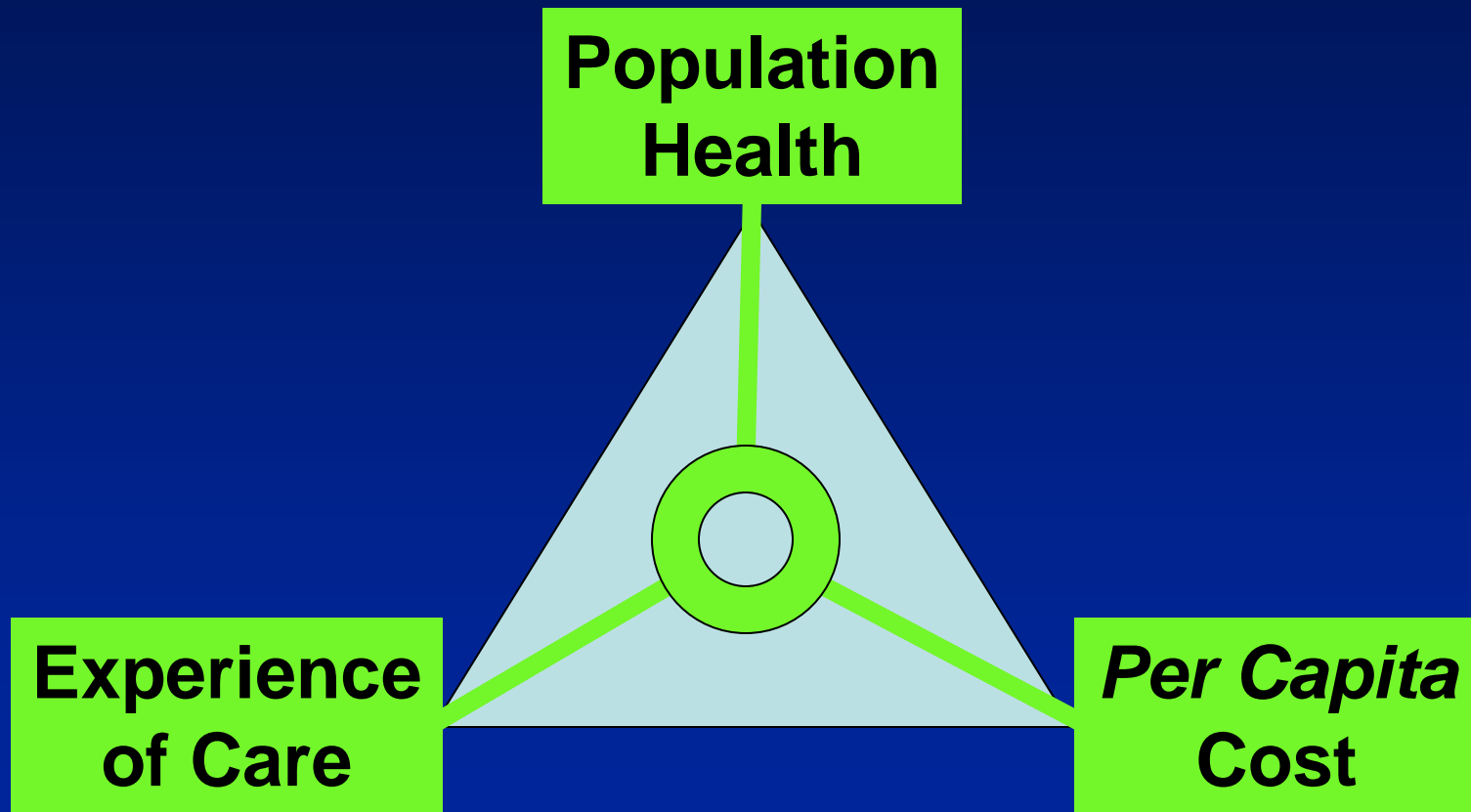
# Conditions for Pursuing the “Triple Aim”

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- Population budget
- Discipline of a cap on total budget
- Population view of health status and care needs
- Measurement capacity
- Capacity to integrate care experience through time and space
- Capacity for proactivity
- “Memory” of the person
- Capacity for system redesign and execution
- Leverage to mold the environment

# Will American Health Care Pursue the Triple Aim?

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## ▶ Considering what Dr. Berwick just said:

- Business Question: What is the business opportunity in your market?
- Influence Question: How should ACHP members (as a group) influence regional delivery system reform?