International Comparison of Spending on Health, 1980–2005

Average spending on health per capita ($US PPP*)

Total expenditures on health as percent of GDP


Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008
Difficulty Getting Care on Nights, Weekends, Holidays Without Going to the Emergency Room, Among Sicker Adults

Percent of adults who sought care reporting “very” or “somewhat” difficult

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>61</td>
<td>73</td>
</tr>
<tr>
<td>NETH</td>
<td>48</td>
<td>49</td>
</tr>
<tr>
<td>NZ</td>
<td>50</td>
<td>61</td>
</tr>
<tr>
<td>GER</td>
<td>61</td>
<td>68</td>
</tr>
<tr>
<td>UK</td>
<td>68</td>
<td>69</td>
</tr>
</tbody>
</table>

International Comparison

AUS=Australia; CAN=Canada; GER=Germany; NETH=Netherlands; NZ=New Zealand; UK=United Kingdom.


Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008
Deaths per 100,000 population*

* 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).

Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008
Infant Mortality Rate
(Infant deaths per 1,000 live births)

National Average and State Distribution

International Comparison, 2004

^ Denotes baseline year.

Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2008
Variations in Spending Across Regions (Elliott Fisher)


$8,580 to $14,360 (61)
$7,820 to < $8,580 (62)
$7,190 to < $7,820 (60)
$6,620 to < $7,190 (62)
$5,280 to < $6,620 (61)
Not Populated
What Do Highest Quintile Cost Regions Get for an $3000 Extra *per Capita* per Year?

**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
Scores: Dimensions of a High Performance Health System

Long, Healthy & Productive Lives: 69
Quality: 71
Access: 67
Efficiency: 51
Equity: 71
Overall Score: 66

What Should We Aim for?

- No Needless Deaths
- No Needless Pain or Suffering
- No Unwanted Waits
- No Helplessness
- No Waste

......For Anyone
Aims

- Safety
- Effectiveness
- Patient-centeredness
- Timeliness
- Efficiency
- Equity
Preventing Central Line Infections

- 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

Prototype

Innovation

Dissemination
The “100,000 Lives Campaign”

SOME IS NOT A NUMBER. SOON IS NOT A TIME.
The Campaign “Planks” -- Six Changes That Save Lives

1. Deployment of Rapid Response Teams
2. Delivery of Reliable, Evidence-Based Care for Acute Myocardial Infarction
3. Medication Reconciliation
4. Prevention of Central Line Infections
5. Prevention of Surgical Site Infections
6. Prevention of Ventilator-Associated Pneumonias
Rapid Response Results: Benedictine Hospital

Benedictine Hospital
Average Number of Codes Per Month

- 43% Reduction
Ascension Health Mortality Reduction

CareScience Observed minus Expected Mortality Rate per 100 Discharges
Ascension Health System

Baseline
1,038 Mortalities Avoided (Year 2)
374 Mortalities Avoided (9 mos. of Year 3)
1,412 Mortalities Avoided Since Baseline Period

Actual Monthly Difference  p-bar (Center Line for Difference)  LCL  UCL
An International Movement of Movements?
The Campaign “Planks” – Six Changes That Save Lives

1. Deployment of Rapid Response Teams
2. Delivery of Reliable, Evidence-Based Care for Acute Myocardial Infarction
3. Medication Reconciliation
4. Prevention of Central Line Infections
5. Prevention of Surgical Site Infections
6. Prevention of Ventilator-Associated Pneumonias
Six Additional Planks

7. Prevent Pressure Ulcers
8. Reduce Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Infection
9. Prevent Harm from High-Alert Medications
10. Reduce Surgical Complications (the Surgical Care Improvement Project (SCIP))
11. Deliver Reliable, Evidence-Based Care for Congestive Heart Failure
12. Get Boards on Board
Significant Overlaps

• NQF-NPP National Priorities and Goals
  – Engage patients and families
  – Improve the health of the population
  – Improve safety and reliability
  – Ensure patients receive well-coordinated care
  – Guarantee appropriate and compassionate end-of-life care
  – Eliminate overuse

• CMS – QIO 9th Scope of Work
  – Pressure Ulcers
  – MRSA
  – SCIP
  – Drug Safety
  – Challenged providers…
Medicare “No Pay” Hazards

- Object left in patient during surgery
- Air embolism
- Blood incompatibility
- Catheter-associated urinary tract infections
- Vascular-catheter-associated infections
- Pressure ulcers
- Mediastinitis after coronary-artery bypass grafting
- Falls from bed
What is Possible

- 150 New Jersey organizations reduced pressure ulcers by 70%
- More than 65 Campaign hospitals report going more than a year without a ventilator-associated pneumonia
- More than 35 report going a year without a central line infection
- Looking elsewhere…Drops in adverse event rates of 51%-75% in four Safer Patients Initiative hospitals
What is Possible

It’s no longer possible to say it’s not possible…

…and that’s our first job.
Does Improving Safety Save Money?

SERIOUS PREVENTABLE INFECTIONS
(“PURPLE BUGS”)

<table>
<thead>
<tr>
<th>BUG</th>
<th>CASES PER YR</th>
<th>DEATHS PER YR</th>
<th>LOS</th>
<th>COST PER CASE</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRSA</td>
<td>126,000</td>
<td>5,000</td>
<td>+9.1 DAYS</td>
<td>$32,000</td>
<td>+$4 BILLION</td>
</tr>
<tr>
<td>C. DIFFICILE</td>
<td>211,000</td>
<td>6,000</td>
<td>+ 3 DAYS</td>
<td>$3,500</td>
<td>+$1 BILLION</td>
</tr>
<tr>
<td>VRE</td>
<td>21,000</td>
<td>1,000</td>
<td></td>
<td>$12,700</td>
<td>+$268 MILLION</td>
</tr>
</tbody>
</table>

MRSA, C. difficile, and VRE combined annually infect at least 350,000 people, cause at least 12,000 deaths, and increase care costs by at least $5 billion.
# Does Improving Safety Save Money?

## HENRY FORD HEALTH SYSTEM

<table>
<thead>
<tr>
<th>IMPROVEMENT</th>
<th>COST</th>
<th>SAVINGS</th>
<th>NET</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SURGICAL INFECTIONS</strong></td>
<td>($110,000)</td>
<td>$540,000</td>
<td>$430,000</td>
</tr>
<tr>
<td><strong>BLOODSTREAM INFECTIONS</strong></td>
<td>($22,500)</td>
<td>$4,780,000</td>
<td>$4,757,500</td>
</tr>
<tr>
<td><strong>VENTILATOR PNEUMONIAS</strong></td>
<td>($1,268,500) (Reduced Revenue)</td>
<td>$1,166,400</td>
<td>($102,100)</td>
</tr>
<tr>
<td><strong>RAPID RESPONSE TEAMS</strong></td>
<td>($390,000)</td>
<td>?</td>
<td>($390,000)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>($1,791,000)</td>
<td>$5,320,000</td>
<td>$4,695,400</td>
</tr>
</tbody>
</table>
Drivers of a Low-Value System

Low Value

High Cost
- New Drugs and Tech ≠ Outcomes
- No Mechanism to Control Cost at the Population Level
- Supply-Driven Demand

Low Quality
- Over-Reliance on Doctors
- No Foreign Competition
- Under-Valuing System Knowledge
Health Care Costs Are Concentrated in Sick Few—The Sickest 10% Account for 64% of Expenses

Distribution of Health Expenditures for the U.S. Population, by Magnitude of Expenditure, 2003

<table>
<thead>
<tr>
<th>Expenditure Threshold (2003 dollars)</th>
<th>97%</th>
<th>64%</th>
<th>49%</th>
<th>24%</th>
<th>10%</th>
<th>5%</th>
<th>1%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>$715</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>$6,992</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>$12,046</td>
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<td>$36,280</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

U.S. Population

Health Expenditures

ProvenCare℠: Coronary Artery Bypass

A Provider-Driven, Acute Episodic Care “Pay-for-Performance” Initiative:
A Case Study at Geisinger

Improve Cardiovascular Surgery

- Anaesthesia
  - Medications
  - Ventilator Management
- Technical Surgery
  - SSI Prophylaxis
  - Supplies
  - Teamwork
- Medication Use
  - Sedatives
  - Blood Products
  - Myocardial Protection
ProvenCare™: Coronary Artery Bypass

- Hired performance improvement clinician
- Documented current processes
- Engaged remaining stakeholders
- Confirmed “ProvenCare CABG” processes & accountabilities

% of patients who receive all components of care
Improving a *Population-Based* System

Preserve **Myocardial Health in the Population**

Tier 1: Big Dot

- **Tier 1: Big Dot**
  - Preserve Myocardial Health in the Population
  - Improve Ischemia Outcomes
  - Reduce Adult Risk Factors
  - Change Childhood Behaviors

Tier 2: Portfolio

- **Tier 2: Portfolio**
  - Tier 1: Big Dot
  - Preserving Myocardial Health in the Population

Tier 3: Projects

- **Tier 3: Projects**
  - Tier 2: Portfolio
  - Projects related to tier 1 actions

-Institute for Healthcare Improvement-
The “Triple Aim”

Population Health

Experience of Care

Per Capita Cost
A New Improvement Agenda That Matches the Societal Need

Care Now

Population Health

Experience of Care

Per Capita Cost
The “Triple Aim”

• Improve Individual Experience
• Improve Population Health
• Control Inflation of Per Capita Costs

The root of the problem in health care is that the business models of almost all US health care organizations depend on keeping these three aims separate. Society on the other hand needs these three aims optimized (given appropriate weightings on the components) simultaneously.

--- (Tom Nolan, PhD)
Some System Components to Accomplish the Triple Aim

• Focus on Individuals and Families
• Strong “Primary Care” Services and Structures
• Population Health Management
• Cost Control Platform
• System Integration

AND an “Integrator”
The “Integrator’s” Tasks

• **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
Current Triple Aim Sites

• **Hospital-Based Systems**
  - Cape Fear Valley (NC)
  - Bellin Health (WI)*
  - Cincinnati Children’s Hospital Medical Center (OH)*
  - Genesys Health (MI) (Ascension)*
  - ThedaCare (WI)

• **Health Plans**
  - Blue Cross Blue Shield of Michigan (MI)
  - CareOregon (OR)*
  - Eastern Carolina Community Plan (NC)
  - New York-Presbyterian System SelectHealth, LLC (NY)*
  - UPMC Health Plan (PA)
  - Independent Health (NY)
  - Wellmark (IA)

• **Integrated Health Systems**
  - Group Health (WA)*
  - HealthPartners (MN)*
  - Kaiser Permanente, Colorado Region (CO)
  - Kaiser Permanente, Mid-Atlantic Region (MD)
  - Martin’s Point Health Care (ME)
  - Presbyterian Healthcare (NM)
  - Southcentral Foundation and Alaska Native Medical Center (AK)
  - Veterans Health System:
    - VISN 10—Cincinnati VAMC (OH)
    - VISN 20—Portland VAMC (OR)
    - VISN 23—Nebraska, Western Iowa VAMC (NE)

• **Public Health Department**
  - King County Department of Public Health (WA)

• **State Initiative**
  - Vermont Blueprint for Health (VT)*

• **Safety Net**
  - Colorado Access (CO)
  - Contra Costa Health Services (CA)*
  - North Colorado Health Alliance (CO)*
  - Primary Care Coalition Montgomery County (MD)*
  - Queens Health Network (NY)*

• **Employers/Businesses**
  - QuadGraphics/QuadMed (WI)*

• **International**
  - Blackburn With Darwen Primary Care Trust (England)
  - Bolton Primary Care Trust (England)*
  - Central East Local Health Integration Network (Canada)
  - East Lancashire Teaching Primary Care Trust (England)
  - Eastern and Coastal Kent Primary Care Trust (England)
  - Forth Valley (Scotland)
  - Herefordshire Primary Care Trust (England)
  - IMPACT BC (Canada)
  - Jonkoping (Sweden)*
  - Tayside (Scotland)

• **Social Services**
  - Common Ground (NY)

* Sites that participated in the first phase of Triple Aim Prototyping.

Updated: December 5, 2008
Conditions for Pursuing the Triple Aim

• 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
Some Early Experimentation…

- Vermont! (Blueprint for Health)
- HealthPartners (reduced cost for imaging by using evidenced based prompts in EMR)
- Bellin Health (Primary Care Access Platform)
The Future State – Most Can Be Winners

BURDEN

CURRENT STATE

FUTURE STATE

TIME
The Transition State – Hard for All

CURRENT STATE

TRANSITION STATE

FUTURE STATE

BURDEN

TIME
Key Question for Health Care Systems

Do you intend to solve these problems, and produce a truly high-value care system?

• For the Sick?
• For Populations?
“The Tragedy of the Commons"

“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…”

- Garrett Hardin