

## **Health Information Technology and the Health-Care Revolution**

Tuesday, April 28, 2009  
8:00 a.m. - 9:15 a.m.

**George Blumenthal**  
President and CEO  
Park Avenue Medical Data Systems

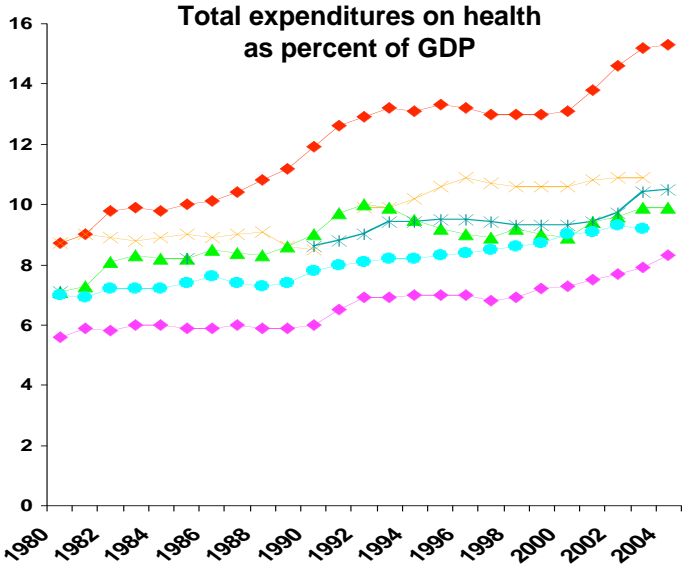
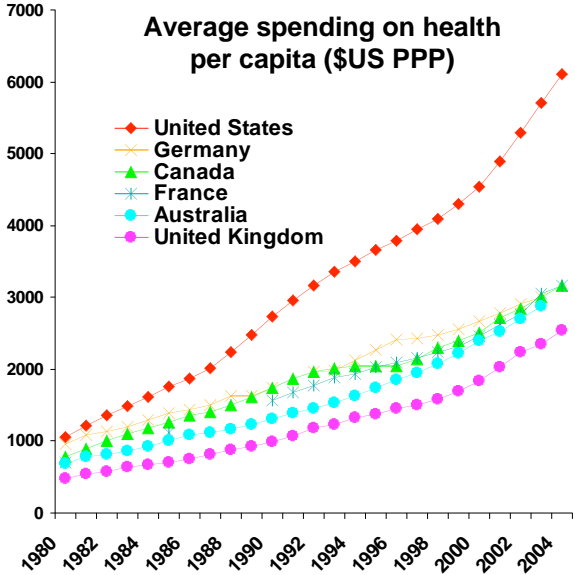
## THE PROBLEM

	USA	Germany	Japan	China
<b>Health Care Costs</b>	<b>\$ 8,000</b>	<b>\$ 3,500</b>	<b>\$ 2,700</b>	<b>\$ 100</b>
<b>% GDP</b>	<b>17%</b>	<b>10%</b>	<b>8%</b>	<b>4%</b>
<b>Life Expectancy</b>	<b>78</b>	<b>80</b>	<b>83</b>	<b>73</b>
<b>Smokers</b>	<b>20%</b>	<b>32%</b>	<b>30%</b>	<b>32%</b>

Source: World Health Organization.

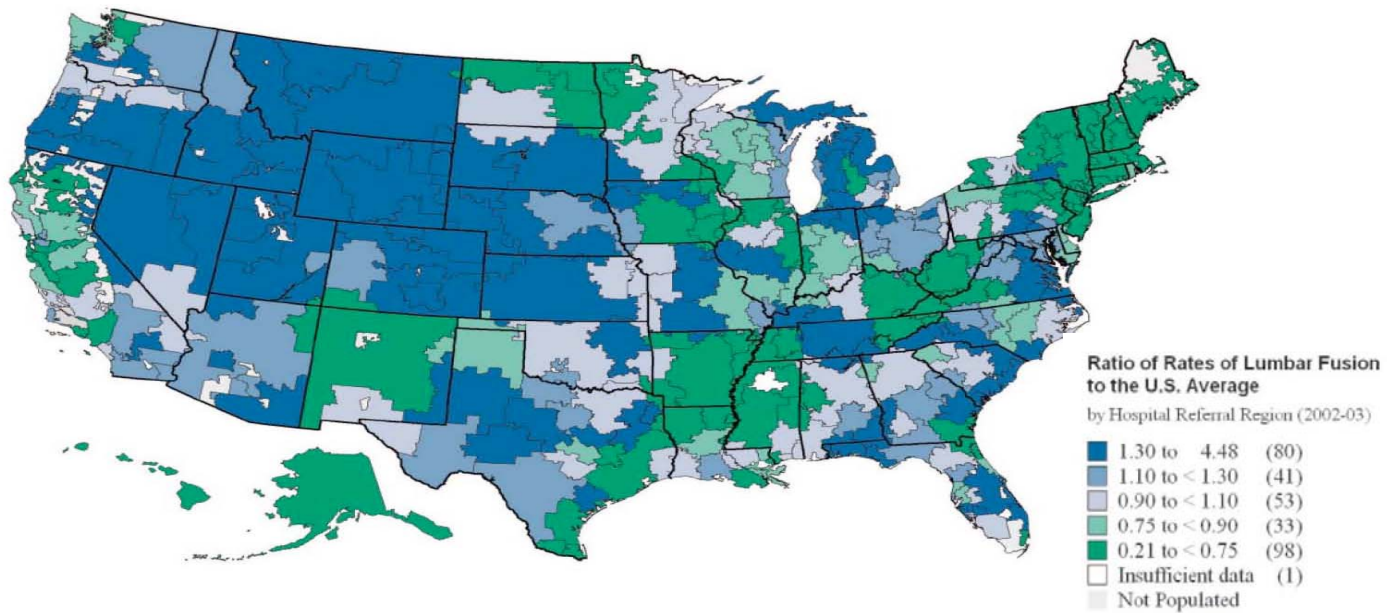
# EFFICIENCY

## International Comparison of Spending on Health, 1980–2004



Data: OECD Health Data 2005 and 2006.  
 Source: Commonwealth Fund National Scorecard on U.S. Health System Performance, 2006

# Lumbar Fusion and Medicare Enrollees



Source: Weinstein JN, et al. Spine 2006;31:2707-2714.

## GUIDELINES

NY HHC Hospitals achieved a **90%** reduction in the rate of ventilator-associated pneumonia (VAP) infections

South Carolina hospitals could save **\$40M** monitoring infections

Kaiser pilot results in reduction of heart attack deaths by **73%**

## ARRA Health Tech Funding \$35 to \$40 Billion by 2016

### States

#### Health IT

\$1.7 billion for loans & grants:

- EHR State Loan Fund
- Workforce Training Grants
- Regional Extension Centers

#### Interoperability

\$300 million for HIEs

Health Information Exchanges

#### Broadband and Telehealth

\$4.3 billion for broadband

\$2.5 billion for distance learning/ Telehealth

### Medicare and Medicaid

#### Providers and Hospitals

\$20 billion for Medicare

\$14 billion for Medicaid

#### Community Health Centers

\$1.5 billion in grants

- Construction, equipment
- Health Information Technology

#### Other

\$250 Million Dept. of Labor

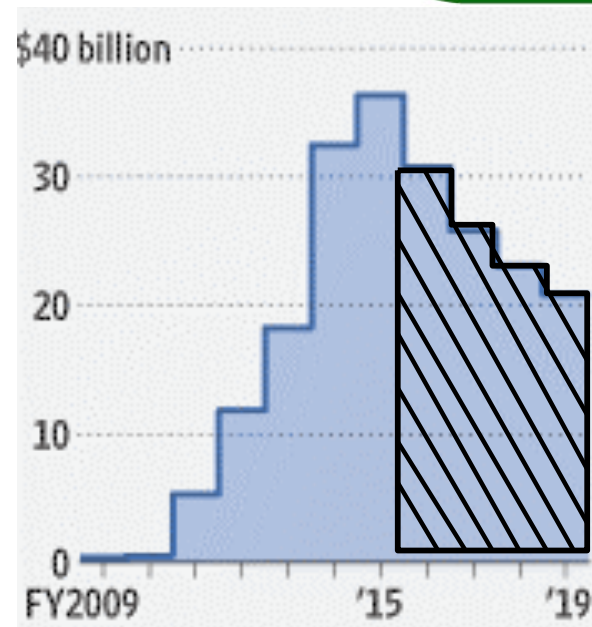
\$85 Million Indian Health Srv.

\$40 Million Social Security

## ARRA CUMULATIVE SPENDING FOR HIT

Note: Fiscal year ends Sept. 30,  
assumes revenue offsets.

Source: Congressional Budget Office.



Source: The Wall Street Journal; April 21, 2009.



## MEANINGFUL USE

### 1. E-PRESCRIBING

- "TO ERR IS HUMAN" – INSTITUTE OF MEDICINE - 1998
- 100,000 DEATHS PER YEAR DUE TO MEDICAL ERROR
- A 747 CRASHES EACH DAY

### 2. QUALITY REPORTING

- "THE QUALITY OF HEALTH CARE DELIVERED - NEJM-2002
- PEOPLE RECEIVE 55% OF RECOMMENDED CARE
- AN ATM THAT PAYS \$.55 / \$1 DEBITED

### 3. INTEROPERABILITY

- HEALTH INFORMATION EXCHANGES
- IMPROVE QUALITY AND CONTINUITY OF CARE
- RAILROADS WITH DIFFERENT TRACK WIDTHS

**Stephen Lieber**

President and CEO, Healthcare Information and  
Management Systems Society (HIMSS)

## HIT: Federal Government Changes the Game

- HIMSS

- Over 20,000 HIT professionals, physicians, nurses, other healthcare executive members
- Primary source of education, professional development, tools and resources
- Recognizes best practices, leading hospitals and physician practices for adoption and use of HIT
- More at [www.himss.org](http://www.himss.org)

## What and Why?

- **Federal Government:**

- Has established funding incentives
- Will set HIT standards
- Will link incentives to HIT product certification and demonstrated use
- Will establish minimum requirements for functionality, interoperability

- **Purpose:**

- Increase EHR use to drive quality up and costs down

## Financial Incentives for HIT Use

- Beginning FY11, Medicare incentives offered for hospitals who demonstrate “meaningful use” of EHR technology
- Beginning in FY15, hospitals who cannot demonstrate “meaningful use” will see a Medicare payment reduction
- Medicaid incentive for non-hospital providers w/Medicaid patient volume at 20-30%+
- Children’s Hospitals and acute hospitals w/Medicaid patient volume 10%+
- Medicare amount will likely total \$35B+ over 5 years

## Standards, Certification

- Adopt initial set of standards by December 31, 2009
- The National Coordinator shall recognize a program or programs for the voluntary certification of health IT
- Federally funded programs for Standards Harmonization and Certification already exist—likely ones to be recognized

## What HIT will be necessary?

- E-prescribing
- CPOE
- Clinical documentation
- Clinical decision support

## What will be meaningful use?

- Quantifiable use
- Change in outcomes
- Data exchange
- Quality reporting
- Definition will change over time (bar will be raised)



## What will be the outcome?

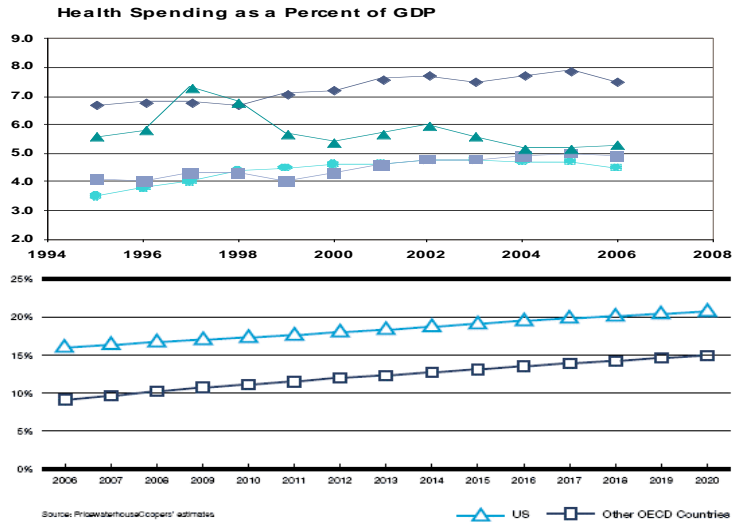
- Reduced utilization (Reduce rate of growth)
  - Eliminate unnecessary medical procedures
  - Reduction in errors = reduction in use (< complications)
- Reduced overhead
  - Operational efficiencies
- Watch for linkage to healthcare reform and payment reform

**David Levy, M.D.,**  
Principal  
PriceWaterhouseCoopers LLP

## Global pressures

### The demand for health services

Despite economic downturn, the global health industry is expected to grow. Several key trends point to an increase in demand for health services.



- Increase in chronic disease due to aging and lifestyle
- Revolution in technology
- Greater expectations from patients
- Higher chance of natural and manmade disasters
- New public health challenges
- Increased development and rehabilitation of health systems in emerging markets

## Key global health issues

### Revolution in Care

- New models of care, technological innovations, and a more engaged consumer are revolutionizing the way health care is traditionally delivered
- Connectivity and new care / disease management models (driven by aging, rise of chronic illness, possibly mobile health) are disruptive to mature health systems and will play an important role in developing health systems
- Telemedicine is becoming a more accepted model of care and may revolutionize access to care, particularly in rural regions
- Consumer engagement, Health 2.0 models, and EHRs have driven new health information and information exchange paradigms, changing the role of care delivery organizations and professionals
- New private sector entrants like Google and Microsoft into the market may introduce disruptive innovations

## Key global health issues

### Health Systems Creation and Reform

Emerging markets health systems are in evolution – seeking sustainable provider, payer, and other stakeholder models

- Rising middle classes
- Consumer expectations
- Increasing prevalence of chronic diseases
- Infrastructure and technology requirements
- New medical science
- Research and development in the biosciences as sound economic diversification
- Capital requirements

Developed economies with mature health systems are seeking sustainability

- Unrealizable promises to aging and chronically ill populations
- Policy and reform
- Public – private sector balance in funding models and accountability
- Measuring and delivering on value

## Key global health issues

### Personalized Medicine

- The human genome project has led to significant scientific advances enabling personalized medicine – a health ecosystem that is predictive, participatory, preventive, and personalized
- Collapsing technology costs in genomics and proteomics leading to revolutionary new diagnostics and therapeutics
- Increased process speed, storage, and bandwidth capacity enabling IT therapeutic design
- Ubiquitous connectivity and abundance of clinical data produced from electronic health records will improve clinical effectiveness, cost effectiveness, and value
- Pay-for-performance, evidence-based, consumer-directed healthcare will alter the standard of care from generic to specific
- New business model requirements from all stakeholders

## Building a sustainable health system



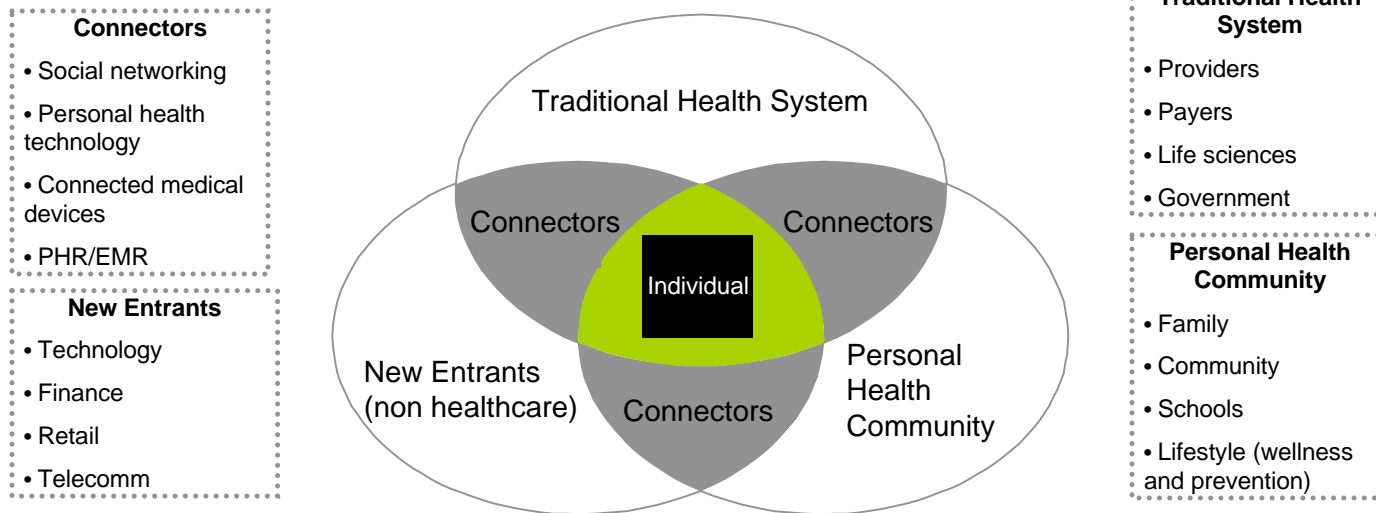
PricewaterhouseCoopers LLP

# 7

## Features of Sustainability

# New Health System is Emerging

New entrants from outside of traditional healthcare are emerging while connectors are now desegregating the whole system. The focus is shifting from the traditional acute care model to the promise of prevention and wellness through personal health communities.





**Yitzhak Peterburg**  
M.D., Dr.PH., MSc

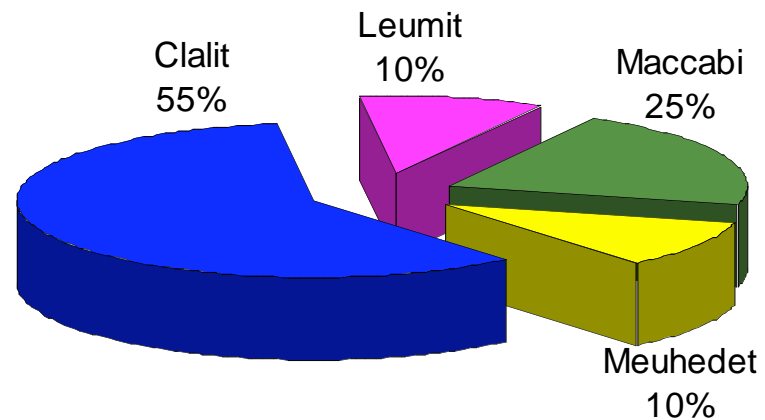
Senior Visiting Fellow, Milken Institute  
Former CEO, Clalit Health Services

# The Israeli Health Care System

## *Basic features, structure and financing mechanisms*

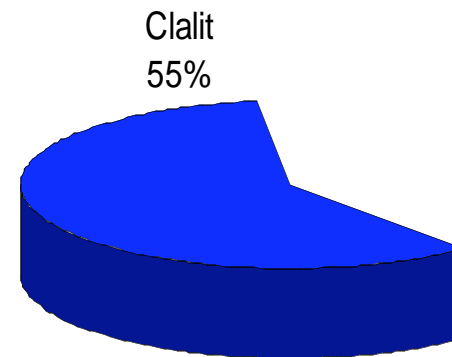


- **Universal coverage**  
National Health Bill 1995
- **Based on public funding**  
payroll tax and general tax
- **Enhanced by private spending**  
Extra coverage, private services
- **Structure**  
Four Competing  
Not-for-Profit Health Funds



## Clalit: The 2<sup>nd</sup> largest HMO in the world

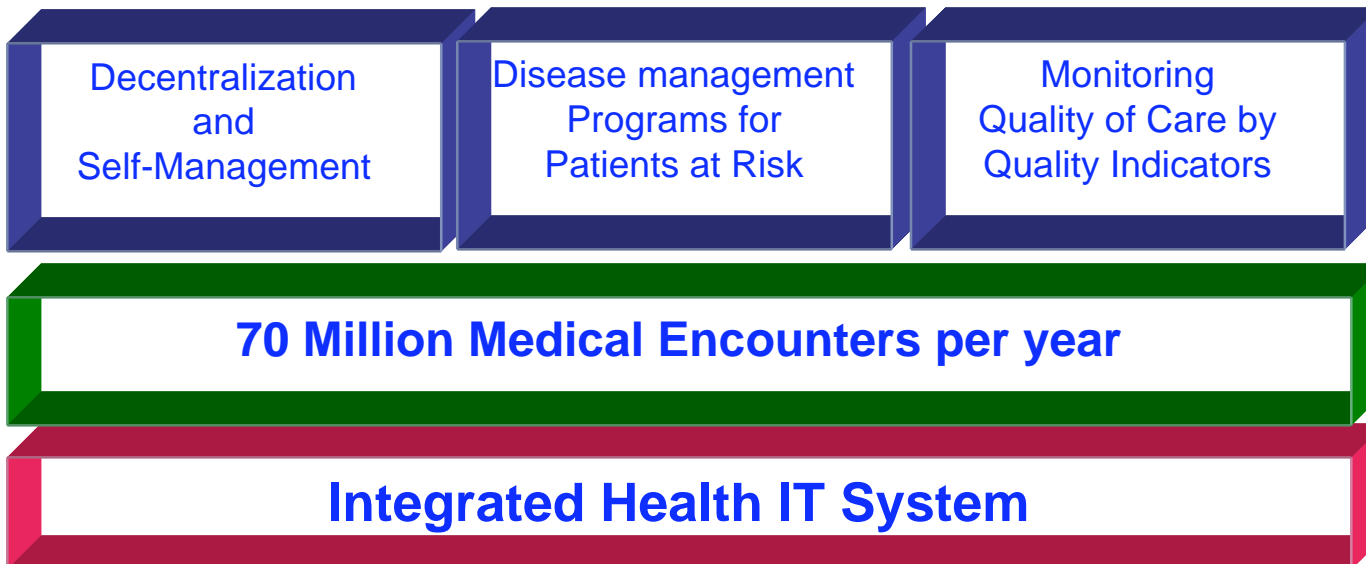
- US \$4 billion annual budget
- Controls 55% of the market
- 3,800,000 insured clients/patients
- 34,000 employees (8,500 Physicals)
- National coverage by 1300 Clinics
- 14 hospitals (30% of acute beds)
- 9 subsidiaries
- 430 pharmacies



## Clalit: Challenges and problems, 1997

- Uncontrolled deficit (hundreds of millions US\$)
- Competition based on quality of medical service and customer care (price is regulated)
- Ex-post management due to lack of information and standards
- Lack of quality control and performance measurement tools

## Clalit: New management strategy



## First step: Decentralization

- Giving **decision making power** and **responsibility** to those who interact with the clients
- Setting budgetary and quality **goals** and **objectives**
- Providing **real time information, data** and **management tools** to support employees' and management decision making

## Second Step: Monitoring Quality of Care



### Developed 71 Medical Quality Indicators for:

#### **Disease management**

- Diabetes
- CHF
- Hyperlipidemia
- Hypertension

#### **Preventive Medicine**

- Influenza immunization
- Mammography
- Occult Blood
- Hypertension tests

#### **Health Promotion**

- Child obesity
- Infant Hgb
- Smoking

#### **Utilization Management**

- Re-hospitalizations
- Drugs of choice
- Efficient use of Lab tests

## **Clalit HIT solutions:** *The Electronic Medical Record level*

### **Content of a Record**

- 1. Cumulative Patient Visit Data**  
Diagnoses, Markers,  
Prescriptions, Lab results, ...
- 2. Decision Support tools**  
Patients Lists, Good Medical  
Practice, Drug Interaction, ...

### **Benefits**

1. Relevant data available in a centralized Data Warehouse
2. Creation of Chronic Disease Registries (>180)
3. Implementation of case-mix applications
4. Advanced data-mining processes
5. Enabling cutting-edge research and international collaborations
6. Enabling management/economic tools



## Clalit HIT solutions: *Health Information Exchange (HIE) Level*

- Creating a continuum of care among **different service providers**
- Creating a continuum of care **regardless of geographic location**
- Medical information sharing became an organizational norm
- Avoiding redundancies and unnecessary testing, hospitalizations, etc
- Enabling “business as usual” management during crisis (summer 2006)
  - **1 million people** fled their homes in the north of Israel during 2006 war
  - Most left without their medications or prescriptions.
  - **Use of Ofek (HIE) rose sevenfold** as physicians consulted Ofek to get medication information for the displaced citizens

## Clalit : Results (1)

*What the second largest HMO in the world have done*

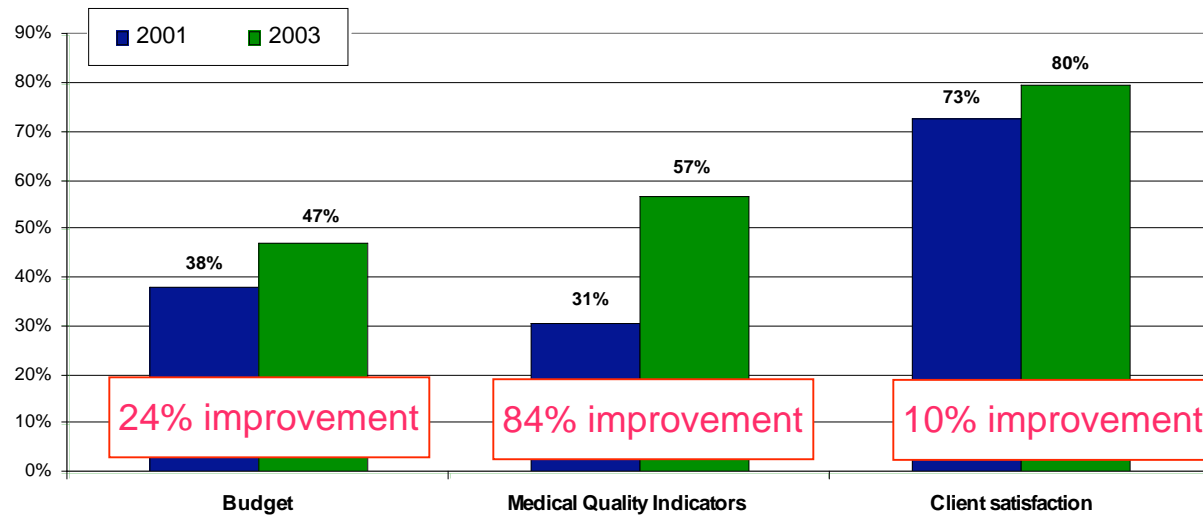
- Digitalized 3.8 million people (100%)
- Created a *continuum of care* by Connecting all services
- Created centralized Data-Warehouse
- Computerized physicians order entry (CPOE) >95%
- Implemented case-mix applications
- Enabled data-mining for research and treatment purposes
- Provide strong tools for senior management
- **Cost about 2% of total expenditures**



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## Clalit: immediate results

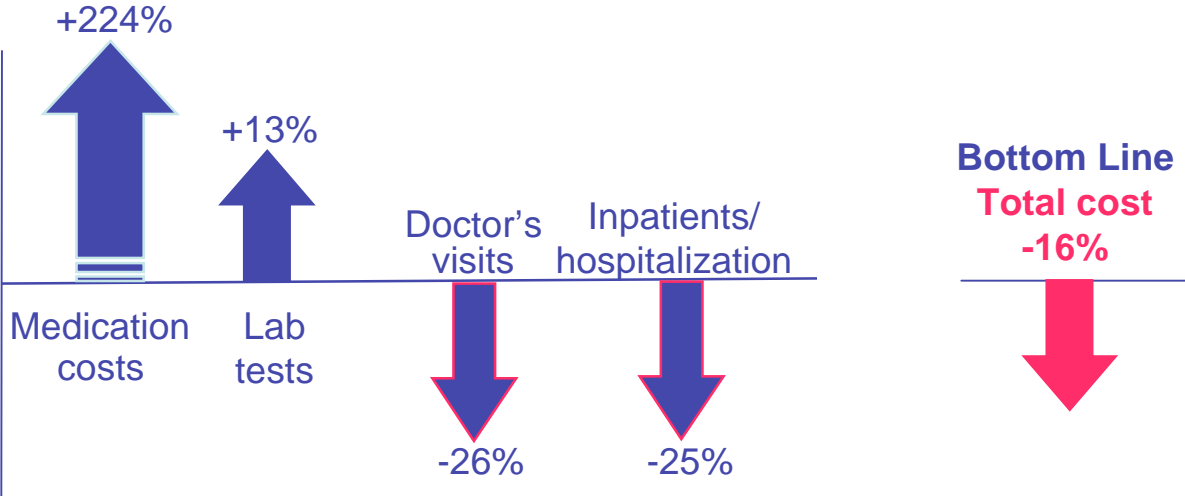
*Percentage of clinics that met their goals 2001 vs. 2003*





### Clalit: Results (2)

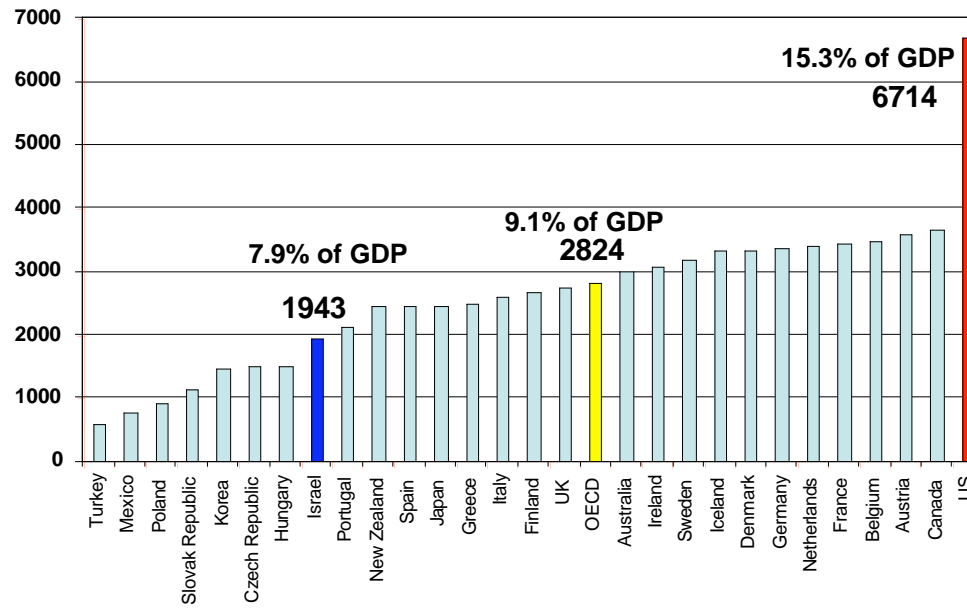
*CHF: Change of medical services usage in the first year*



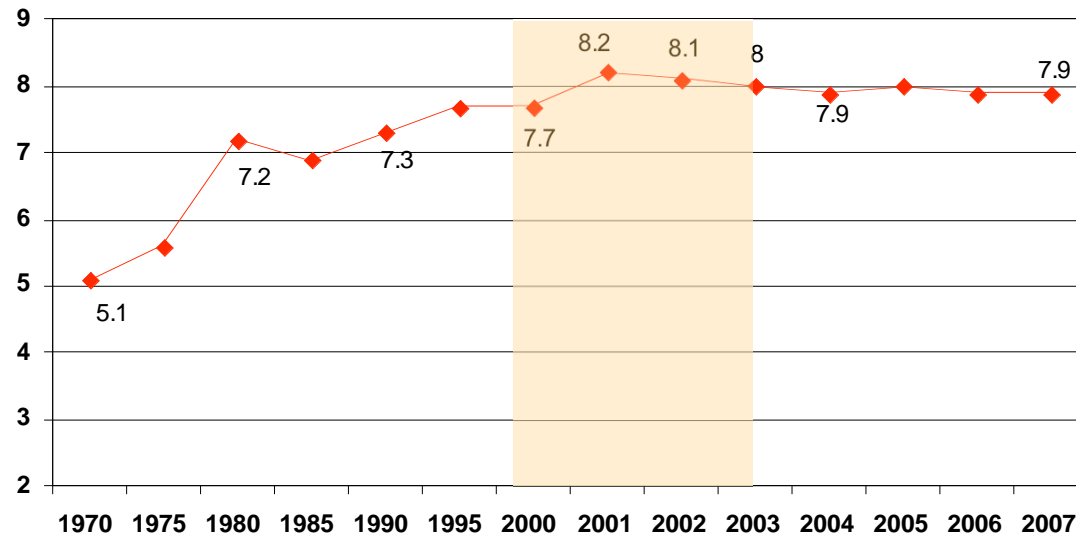
**Minimal Savings per patient in the first year: US\$1,000**

# International Comparisons

2006 Total Expenditure on Health Per Capita, \$US Purchasing Power Parity



## Israel's National Expenditure on Health *as a Percentage of GDP*



## Comparative Statistics

*Common indicators of a country's Quality of life*

	Israel	USA
Life expectancy at birth (years) female	82	80
Life expectancy at birth (years) male	79	75
Infant mortality rate (per 1,000 live births) both sexes, 2006	4	7

Source: [www.who.int](http://www.who.int) (accessed March 23, 2009).

## Building on Clalit's successful experience:



- **Health IT is the stepping stone** for expense control and better medicine
- **Pass the record level to the integrated level** – health information exchange changes your game
- **Insist on ROI and getting the systems that you really need.** Don't waste money on unnecessary IT
- **Make it to the “tipping point”** – manage your IT and manage the change. You must have enough people using the system and enough records on the system to enjoy interoperability
- In the end it's a culture change
- People! People! People!
- Align incentives



**Margaret Anderson**

Chief Operating Officer,

FasterCures / The Center for Accelerating Medical Solutions

## Build Health IT Right to Accelerate Research

- Health IT infrastructure needs to consider:
  - improving healthcare delivery
  - **enabling medical research**
  - **accelerating cures**
- Health information exchange, to be of most value, should be
  - interoperable
  - ensure highest privacy standards
  - **equipped with a strong research capacity**

“ While the focus of most Health IT efforts has been on improving care by limiting costs and medical errors, the real savings will come from curing disease and from limiting its damage. ”

## Research and Health IT

- Pursue a “Connecting for Clinical Research” program.
- Develop a post-marketing surveillance capability.
- Develop strategies for conducting broad-based population health surveillance using EHR data.
- Create an effort that uses EHRs to improve subject recruitment and enrollment into clinical studies.

Source: “Ensuring Inclusion of Clinical Research in the Nationwide Health Information Network,” Meeting Report May 2006, *FasterCures/TheCenter for Accelerating Medical Solutions*.

## Potential Benefits of a Research-Inclusive HIT System

- Speed clinical trials by quickly identifying potential enrollees;
- Enhance the monitoring and identification of adverse drug reactions, in effect creating “virtual clinical trials” of thousands of patients to study the impact of approved drugs;
- Provide the research community access to a broader and more diverse patient population;
- Detect patterns of health and illness in a given population; and
- Help researchers form hypotheses about disease initiation and progression.

Source: “How Can Using Electronic Health Records Accelerate Research?” *FasterCures/The Center for Accelerating Medical Solutions*.

## **EHR Clinical Research Value Case Workgroup (*FasterCures* is a member)**



- *tasked to make the case for harmonizing health IT and clinical research information systems*
- *recommended standardizing common data elements between EHR and clinical research systems.*
- *will address other priorities for clinical research, including identifying research participants, determining eligibility for studies, safety reporting, pharmacogenomics, and compliance reporting.*



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**Frank Moss**  
Director,  
MIT Media Lab

**Ordinary people, empowered by technology, are transforming every facet of society...**

**Sooner or later this *must* happen with health...**

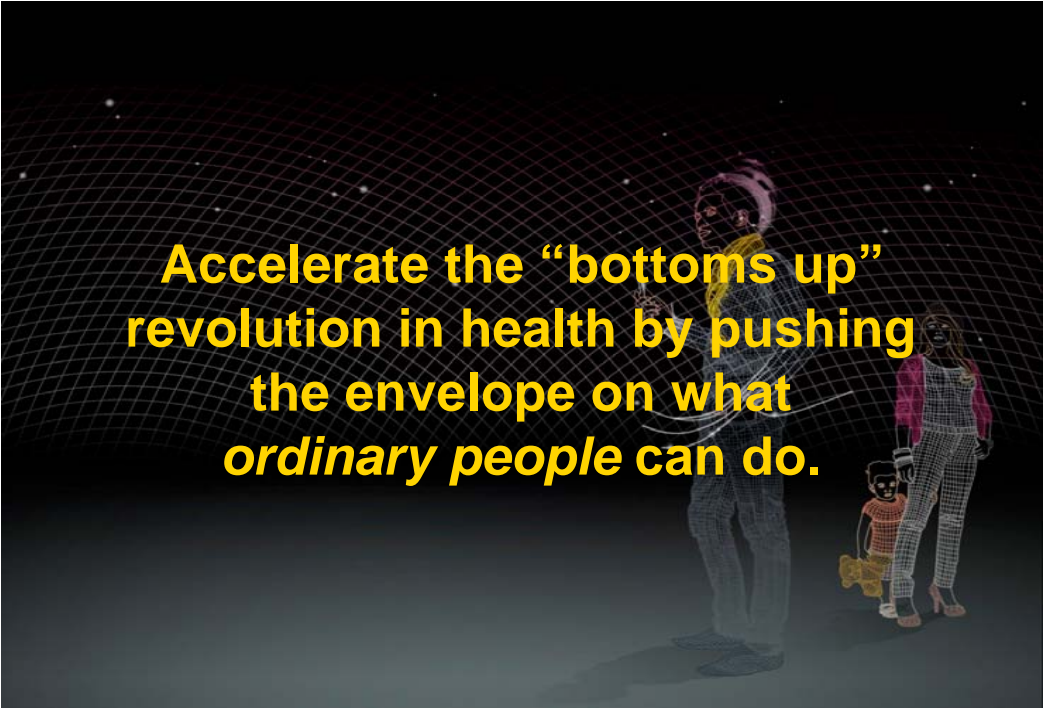
**But when?**



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**Accelerate the “bottoms up”  
revolution in health by pushing  
the envelope on what  
*ordinary people can do.***





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 next  
billion  
network



## New Media Medicine