

“21st Century Healthcare: *Executive IT Perspective”*

- August 22, 2006
- Harvard University Campus · Cambridge, MA

William M. Dwyer, MBA

Sr. Vice President

Cerner Corporation

I. MARKETPLACE CHALLENGES

II. IT INFLECTION POINT

III. ECONOMIC BENEFIT

IV. RELATIVE INDUSTRY VALUES

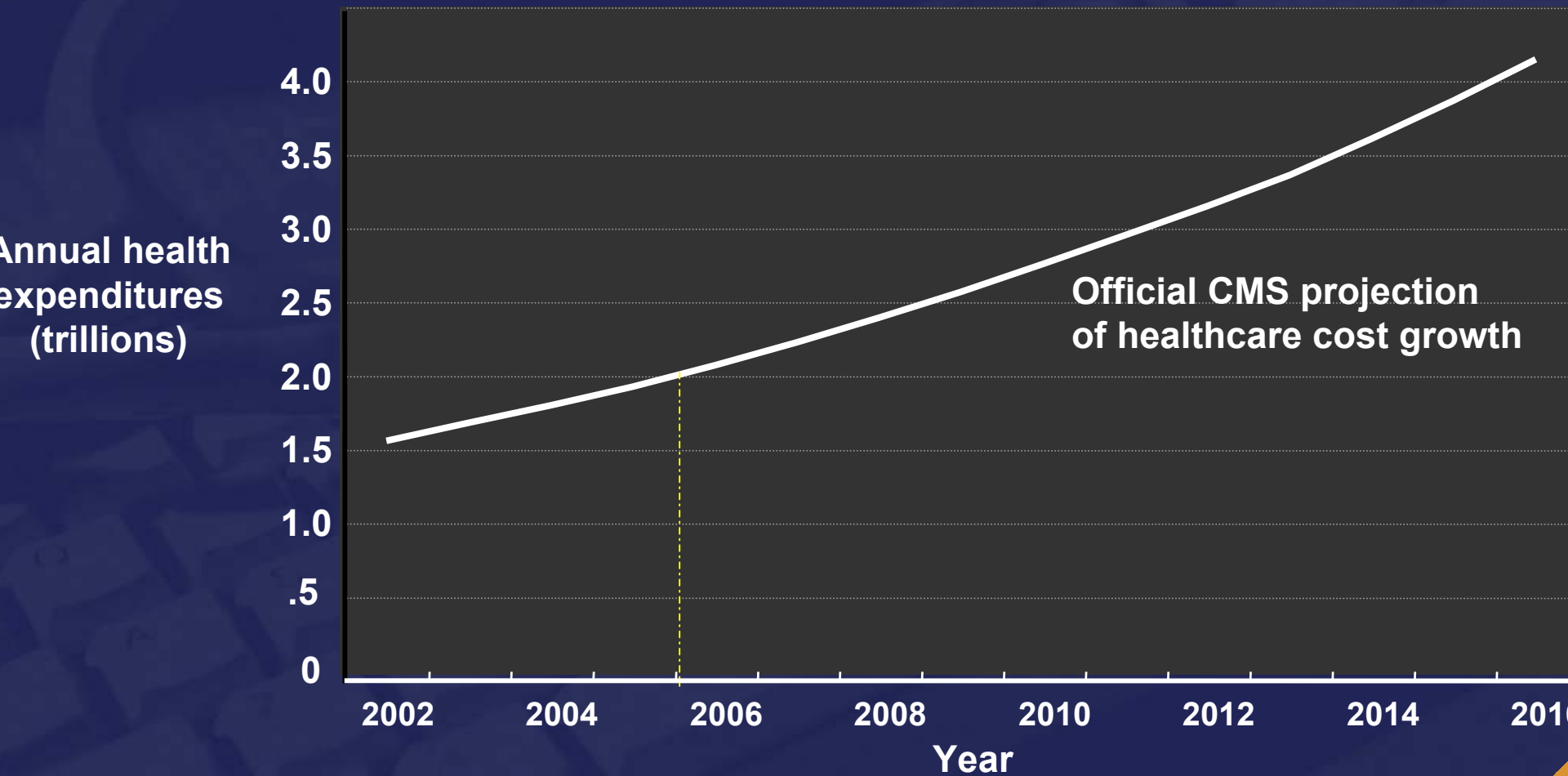




I. MARKETPLACE CHALLENGES

Large Projected Healthcare Growth

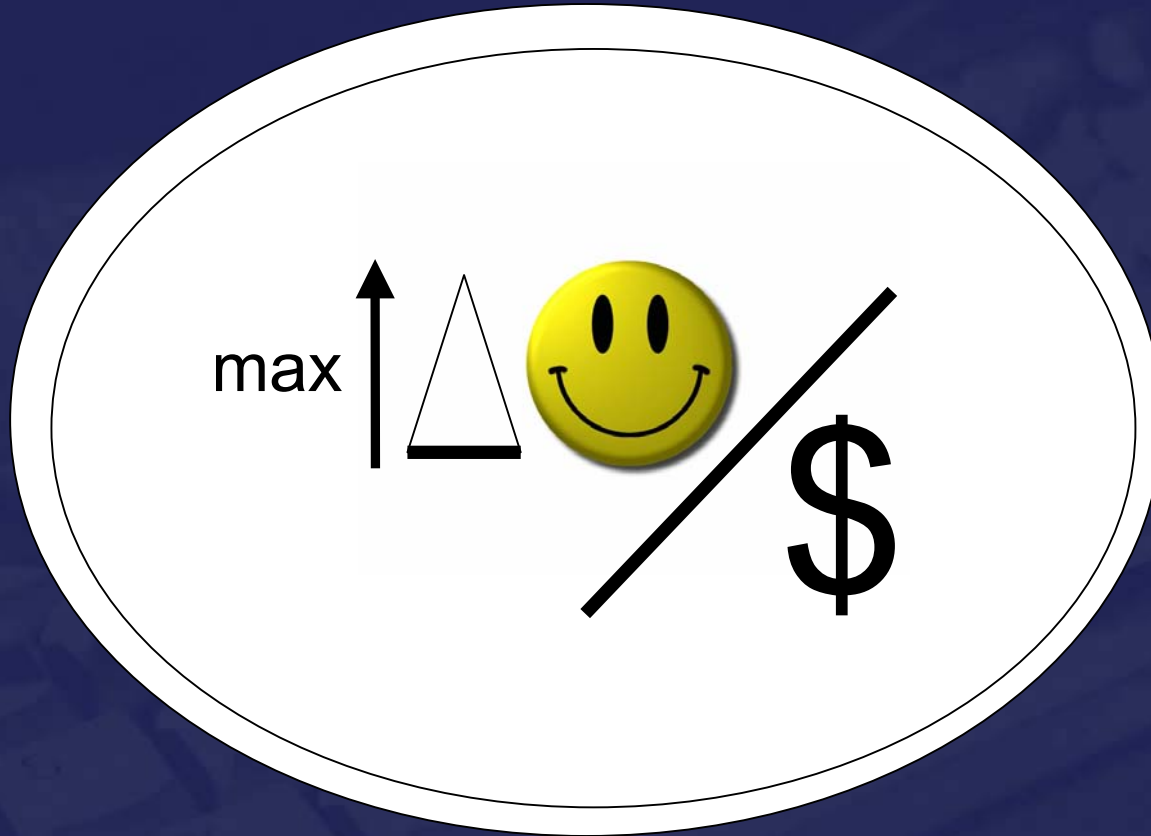
U.S. health care is a very large and inefficient information enterprise -- it still operates mostly with paper...



Source: Rand Corp. Sept. 2005

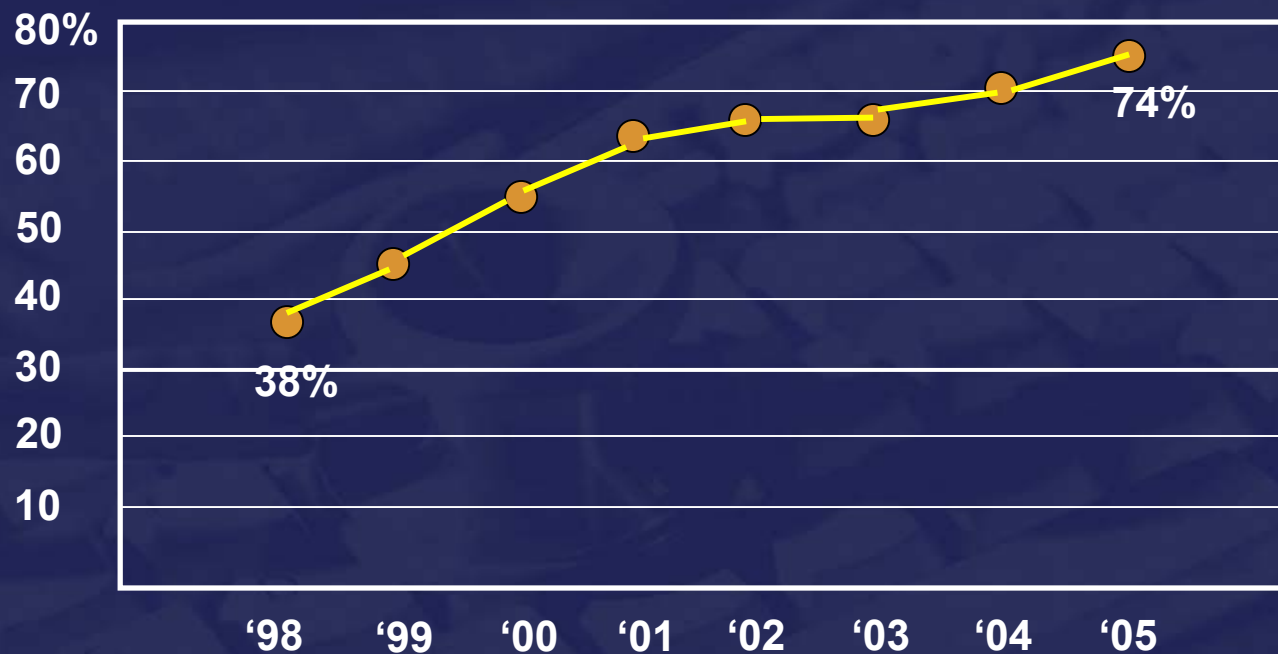
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A Happy & Healthier Community...



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- 117 Million adults seek health information online annually



Source: Harris Interactive Health Care News, Vol 5: Issue 8.

July 28, 2005

Market Externalities Drive IT Investment

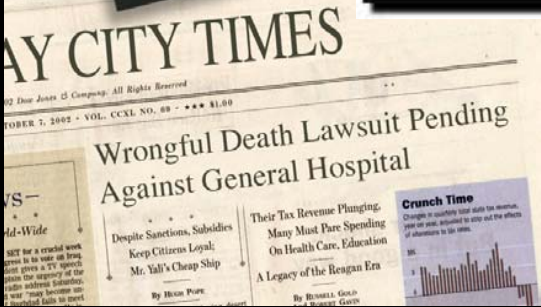
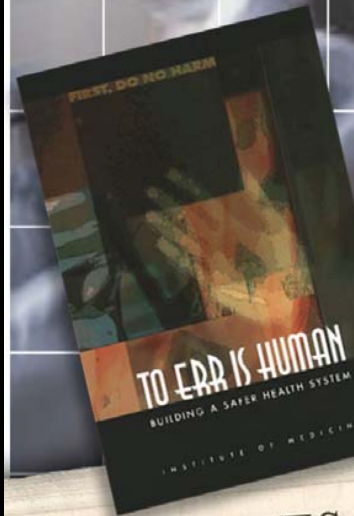
LEAPFROG PATIENT SAFETY STANDARDS

Economic Implications

June 2001



John D. Birkmeyer
Associate Editor
Christian M. Birkmeyer
Economist
Jonathan S. Skinner, PhD



...er and Birkmeyer,
Economic Implications, June 2001

Historical Focus & Leadership: The Four Horsemen



President George W. Bush



Mike Leavitt

Secretary, HHS



David Brailer, MD

HCIT Czar



Mark McClellan, MD

CMS

Congressional Frenzy...Stalled by Katrina?

- 20+ Health IT Bills Introduced in 2005*



“Health Technology to Enhance Quality Act”

S. 1262



- \$4.05 Billion proposed federal spending
Sen. Snowe (R-ME) & Sen Stabenow (D-MI)
from Medicare Part A

- Feature Standards, Interoperability,
Stark & Incentives

* As of Aug. 3rd

Global Pressure For US Government?



“Nationale Programme
For IT”

\$11.5B

\$193 ea.



“Canada Health
Infoway”

\$1.0B

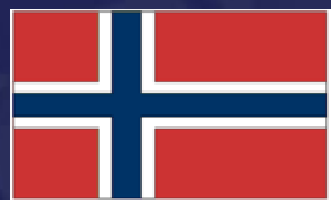
\$32 ea.



“Better IT for
Better Health”

\$1.8B

\$21 ea.



“More Health
For Each bIT”

\$52M

\$11 ea.



TBD

\$125M

\$0.43 ea.

Medical Tourism



<u>Price Range</u>	<u>US</u>	<u>to India</u>	<u>to France</u>
Heart Bypass	\$100k	\$7k	\$33k
Angioplasty	35k	4k	18k
TKA	35k	7k	17k

Source: Seattle Post-Intelligencer, J.Davidow "Cost Saving Lures Medical Tourists Abroad", July 24, 2006/ MedSolution.com

Global Crisis Needs IT Preparedness

- ➔ Wars & Rumors of War (Terrorism)
- ➔ Natural Disaster Recovery
- ➔ Unsustainable Cost & Quality Curves
- ➔ Pandemic: Avian Flu, etc.





II. IT INFLECTION POINT

Perennial Winners 7/7 Years

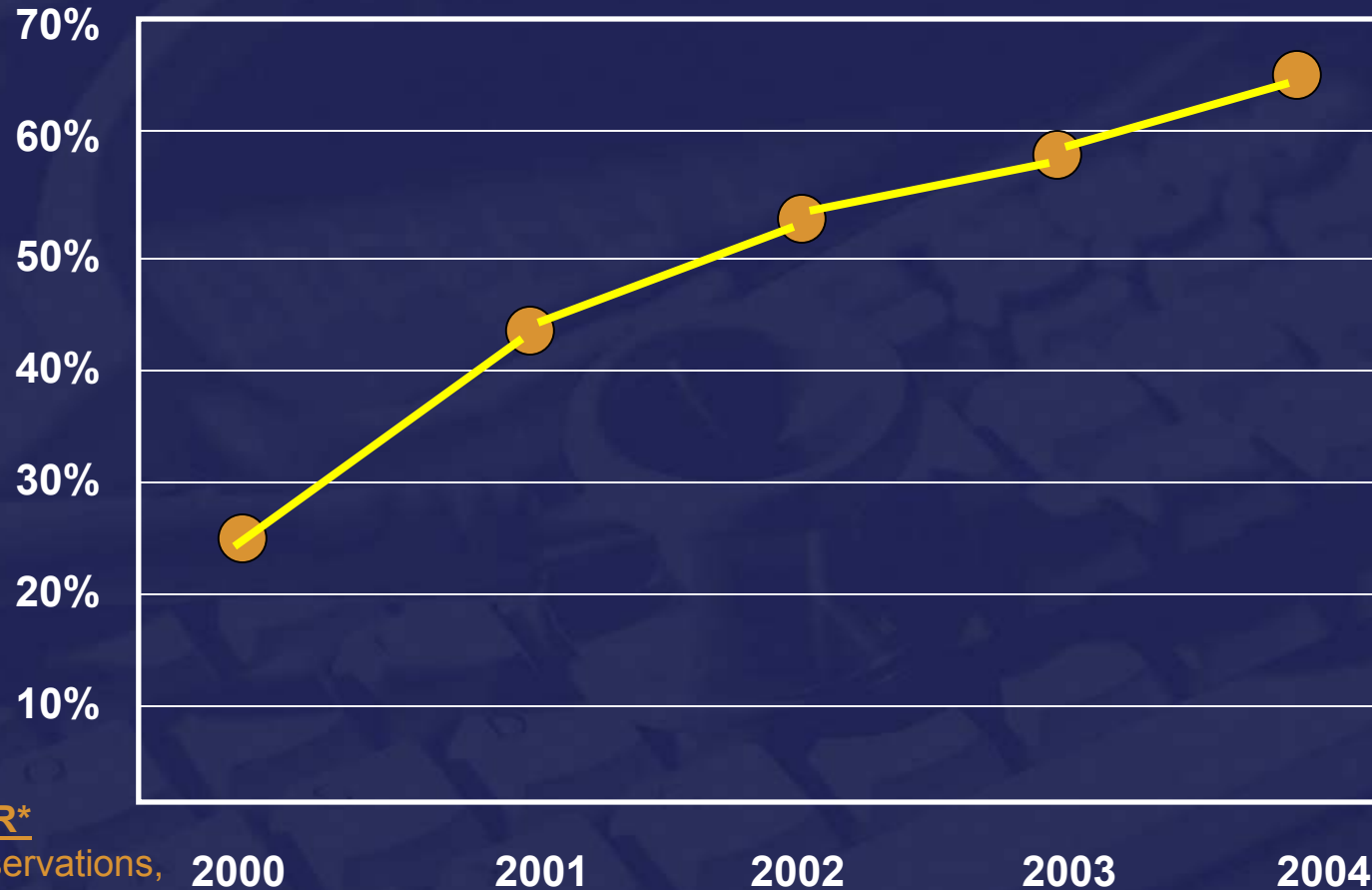
➔ Avera Health	Sioux Falls, SD
➔ Berkshire Health Systems	Pittsfield, MA
➔ Hackensack Univ Med Ctr	Hackensack, NJ
➔ MeritCare Health	Fargo, ND
➔ Partners Health Care	Boston, MA
➔ Rockford Health System	Rockford, IL
➔ Sharp Health Care	San Diego, CA
➔ University of Pittsburgh	Pittsburgh, PA
➔ Valley Health System	Ridgewood, NJ

Source: Hospitals & Health Networks, July/2005

Electronic Medical Record (EMR)

% Hospitals with Core EMR*

* 90.1%
Most Wired



IR*
Observations,
Leaders,
Progress Notes

Source: A. Solovy, "Lessons from the Nation's Best" Hospitals & Health Networks, July 26, 2004- San Diego.

IOM Concerned Call For Action (July, 2006)

- 1.5 MM Drug Error Injuries/Yr
- 1 Medication Error/Pt/Day
- By 2008, Have Plans for CPOE
- By 2010, Implement CPOE
- All Pharmacies with ePrescribing by 2010
- Errors Cause Additional \$6k Cost in Hospitals, & \$2k in Outpatients
- Patients Must Take More Active Role
- Improve Labels & Packages of Drugs

Source: IOM Report Brief, July, 2006

INSTITUTE OF MEDICINE

REPORT BRIEF • JULY 2006

PREVENTING MEDICATION ERRORS



Almost everyone in the modern world takes medication at one time or another. According to one estimate, in any given week four out of every five U.S. adults will use prescription medicines, over-the-counter drugs, or dietary supplements of some sort, and nearly one-third of adults will take five or more different medications.

Most of the time these medications are beneficial, or at least they cause no harm, but on occasion they do injure the person taking them. Some of these "adverse drug events [ADEs]" as injuries due to medication are generally called, are inevitable—the more powerful a drug is, the more likely it is to have harmful side effects, for instance—but sometimes the harm is caused by an error in prescribing or taking the medication, and these damages are not inevitable. They can be prevented.

Against this background, the Centers for Medicare and Medicaid Services requested that the Institute of Medicine study the prevalence of such medication errors and formulate a national agenda for reducing these errors. The resulting report, *Preventing Medication Errors*, finds that medication errors are surprisingly common and costly to the nation, and it outlines a comprehensive approach to decreasing the prevalence of these errors. This approach will require changes from doctors, nurses, pharmacists, and others in the health care industry, from the Food and Drug Administration (FDA) and other government agencies, from hospitals and other health-care organizations, and from patients.

THE UNACCEPTABLE COSTS OF MEDICATION ERRORS

In hospitals, errors are common during every step of the medication process—procuring the drug, prescribing it, dispensing it, administering it, and monitoring its impact—but they occur most frequently during the prescribing and administering stages. When all types of errors are taken into account, a hospital patient can expect on average to be subjected to more than one medication error each day. However, substantial variations in error rates are found across facilities.

An ADE arising from an error is considered preventable. It is difficult to get accurate measurements of how often preventable ADEs occur. One study estimated 380,000 preventable ADEs in hospitals each year, another estimated 450,000, and the committee believes that both are likely to be underestimates. The numbers are equally disturbing in other settings. One study calculates, for example, that 800,000 preventable ADEs occur each year in long-term care facilities. Another finds that among outpatient Medicare patients there occur 500,000 preventable ADEs each year. And the evidence suggests that both of these numbers are likely to be underestimates as well. Furthermore, none of these studies includes errors of omission—failures to prescribe medication in cases where it should be. Taking all of these numbers into account, the committee concludes that there are at least 1.5 million preventable ADEs that occur in the United States each year. The true number may be much higher.

When all types of errors are taken into account, a hospital patient can expect on average to be subjected to more than one medication error each day.

 INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES
Advising the Nation. Improving Health.

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III. ECONOMIC BENEFITS

Never...Never...Events

- ➔ Wrong Site Surgery
- ➔ Wrong Patient
- ➔ Wrong Procedure
- ➔ Retention of foreign object
- ➔ Death due to contaminated devices, drugs, biologics
- ➔ Infant discharged to wrong Mom
- ➔ Death from medication error
- ➔ Death due to incompatible blood
- ➔ Any care from impersonating nurse, doctor...
- ➔ Abduction of patient
- ➔ Death from physical assault

Source: National Quality Forum, "Serious Reportable Events in Healthcare", 2002.

Note: NQF Lists 27 such events in total.

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Public Transparency: 200+ Quality Indicators



BETTER

NEAR

WORSE

Audubon

Norton

Southwest

Suburban

Childrens

Kentucky

USA

Hospital Pressure
Ulcers % (AHRQ)

3.2

1.9

0.5

3.0

3.0

2.3

2.5

Missible IV Line
Infection %

.29

.63

.34

.16

.30

.17

.23

Source: Norton Healthcare® Quality Report; Aug. 11, 2005. www.nortonhealthcare.com

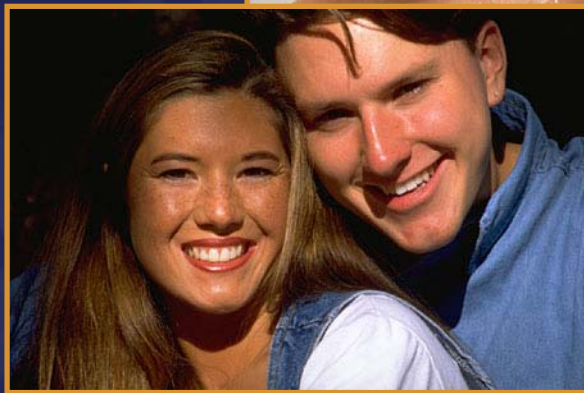
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Charges for Healthcare Services Jun_06

Service	Hospital	Physician	Total
Total Knee	\$24.5k	\$14.5k	\$39.0k
Gall Bladder-L	\$10.0k	\$6.7k	\$16.7k
CABG	\$43.3k	\$24.1k	\$67.4k
Normal Delivery	\$7.2k	\$5.0k	\$12.2k

Source: www.dhmc.org, 75 Average Charges for 75 Most Common Medical Services, Jun. 14, 2006

The Economic Value of Saving a Life



The Value of a Statistical Life

\$4.8 Million, Environmental Protection Agency
(Mean with a confidence interval of +/- \$3.2 Million),
1997

\$5 Million, Topel and Murphy, 2003

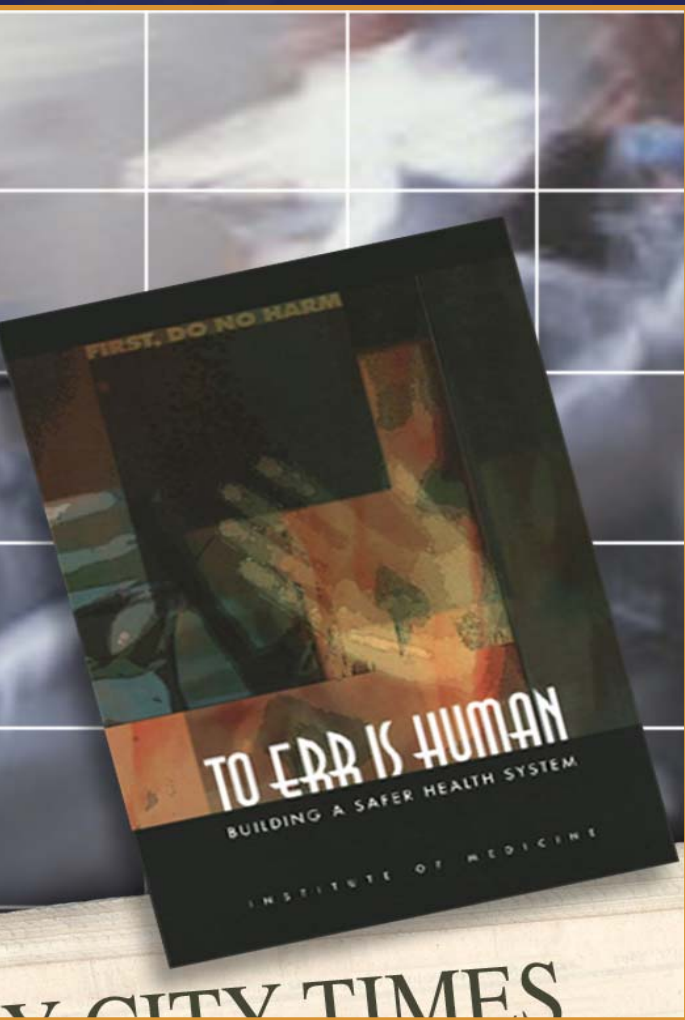
\$6 Million, Moore and Viscusi, 1988

Based upon a model of what people will pay to
save a life and how much wage is required to pay a
labor pool to risk one life

Kevin M. Murphy and Robert Topel, eds., *Measuring the Gains from
Medical Research: An Economic Approach*, Chicago: The University of
Chicago Press, 2003.

W. Kip Viscusi and Joseph E. Aldy. *The Journal of Risk and
Uncertainty*, 27:1; 76, 2003

High Rate of Medical Error Deaths



- ➔ Medication errors kill about 7,000 people/yr
- ➔ Estimated cost is \$17-\$29 billion annually
- ➔ Medical Errors kill between 44,000 and 98,000 people each year
- ➔ 35% of these errors are Drug Related, Tx or Dx Mishaps (Non-Procedural/Non-Surgical)

Hence, economic value of eliminating errors can be calculated at \$220 - \$490 Billion/yr

To Err Is Human: Building a Safer Health System, Linda Kohn, Janet Corrigan, and Molla Donaldson, *Editors*;
Committee on Quality of Health Care in America,
INSTITUTE OF MEDICINE; NATIONAL ACADEMY
PRESS
Washington, D.C. 1999

http://books.nap.edu/html/to_err_is_human

*(including the expense of additional care necessitated by the errors, lost income and household productivity, and disability)

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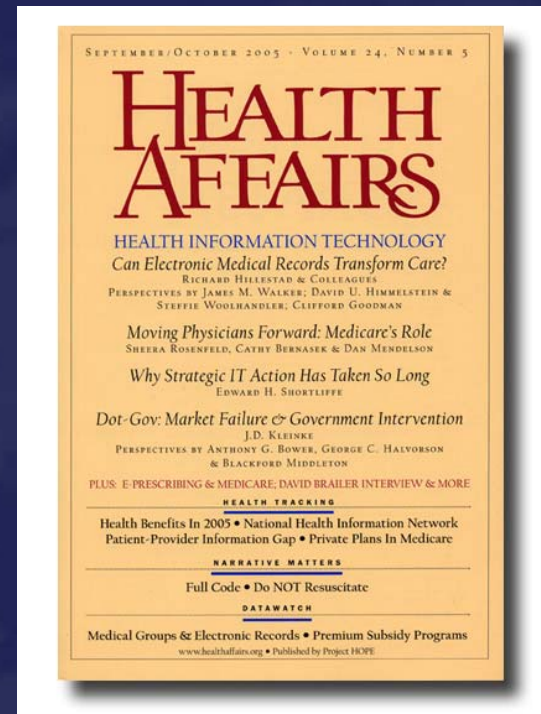
\$162 Billion Annual Savings From EMR*

“Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings And Costs”

Richard Hillestad, et al

Sept. 14, 2005

- **Avoiding Adverse Drug Events in Ambulatory & Hospital Settings**
- **Increasing Efficiency of Physician & Hospital Practices**
- **Improved Chronic Disease Management**



* Savings Range = \$142-\$371 Billion.



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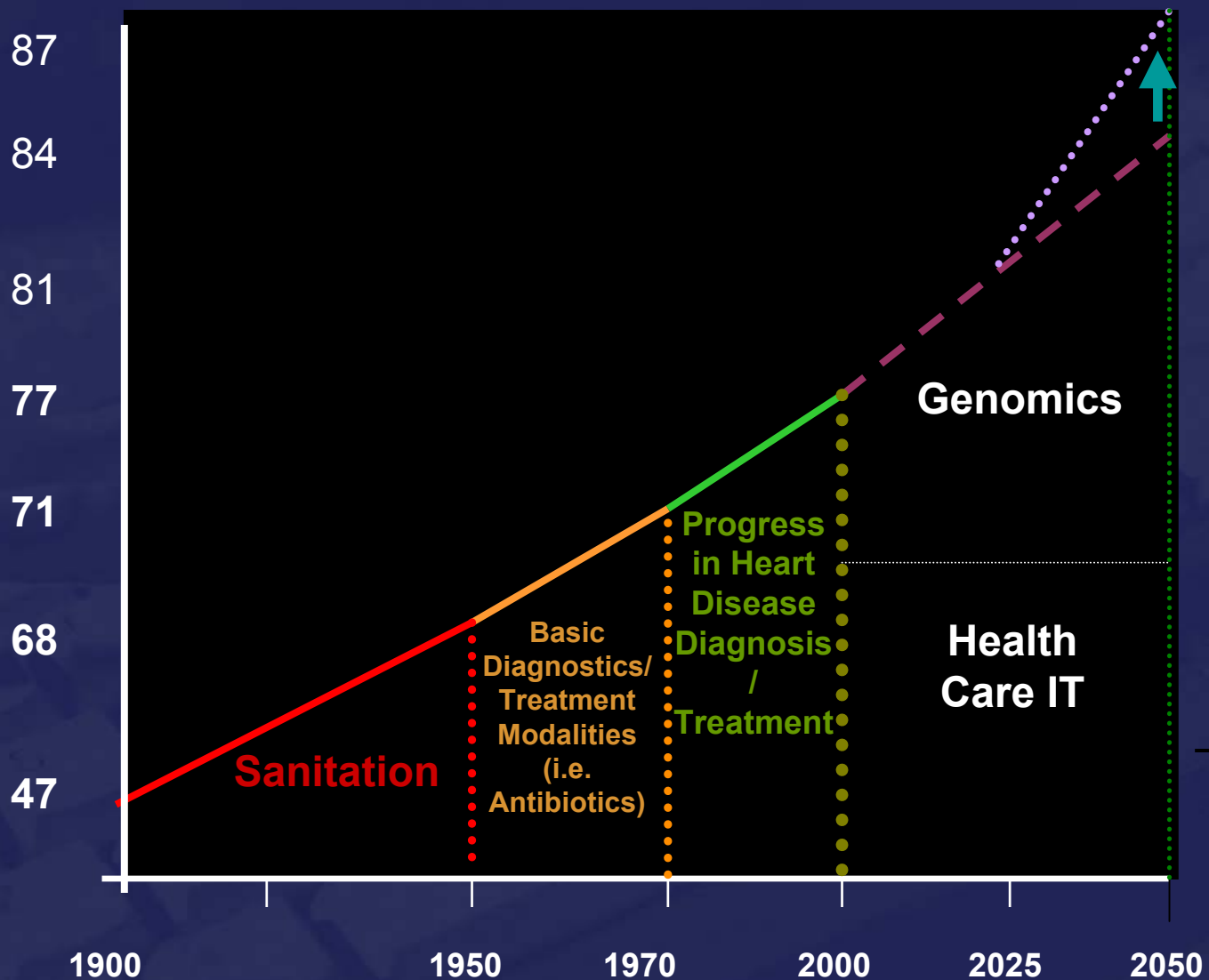


IV. RELATIVE INDUSTRY VALUES

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Health Care Improvements

Average Life Span in the US



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Value Comparison



Pharmaceutical Example

- R&D: \$800 Million
- Social Value of Decreasing Mortality:
 - *An innovation that reduced the cancer death rate by only 1% would generate about **\$430 billion (total NPV)***
 - *K. M. Murphy and R. Topel, 2002*
- Time to Bring Solution to Market:
 - *10-15 Years*
- Potential 10 Year Implementation Cost:
 - *Example: \$1000/yr*4 Million People * 10 years: \$40 Billion*

Health Care Information Technology

- R&D: \$1 Billion
- Social Value of Decreasing Mortality:
 - *Instituting patient safety, evidence based-knowledge driven EMR/CPO engines along with the required IT infrastructure could generate \$46.2 Billion/yr (Acute)+ \$171 Billion/yr (Ambulatory) = **\$217.2 Billion per Year***
- Time to Bring Solution to Market
 - *2-3 Years*
- Potential 10 Year Implementation Cost:
 - *Example: \$40 Billion (4000 sites*\$10 Million)*

- ➔ Future holds increasing marketplace challenges for even well-prepared hospital systems & physician organizations.
- ➔ Consumer involvement in healthcare purchasing will radically disrupt status quo, including an explosion in performance reporting initiatives.
- ➔ Strong market forces propel adoption of HCIT in hospital and clinic practices over next decade, as an enabler for solving complexity & fragmentation problems.
- ➔ HCIT creates social economic returns that far outweigh their development and implementation costs.

What's Our Hurry?

➔ **Our Children's' Children Need Us to Act Now!**



Bjorn William Anderson, Nov. 24, 2005

• THANK YOU!



Bill Dwyer

Senior Vice President



**Cerner Corporation
2800 Rockcreek Parkway
Kansas City, MO 64117
816-201-4267 bdwyer@cerner.com**

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