

# Quality Care Update & Prospects: IOM plus a few personal perspectives

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## Conflicts of Interest

- University of Virginia
- Institute of Medicine
- Boards
  - MedBiquitous
  - Corporation for National Research Initiatives
- Consultant
  - American College of Surgeons
  - CS Placement, LLC
- Advisor
  - CTSA National Advisory Group: U Minnesota
  - Dept. Biomedical Informatics: U Washington



## 1990 IOM Definition of Quality

Quality is: “The degree to which health services for individuals & populations increase the likelihood of desired health outcomes & are consistent with current professional knowledge.”

- Lohr K.N. Ed. 1990 Medicare: A Strategy for Quality Assurance. Washington D.C.: National Academy Press.



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1991-2000

## Health Policy Vision for Quality

- Dick, Steen, Detmer: *The Computer-based Health Record: A Essential Technology for Health Care* (1991, 1997)
- Sheehan, Clayton: *For the Record: Protecting Electronic Health Information* (1997)
- Kohn, Corrigan, Donaldson: *To Err is Human* (1999)
- Comm. on Quality of Health Care: *Crossing the Quality Chasm* (2000)

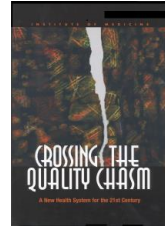
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## Crossing the Quality Chasm Quality STEEP Criteria

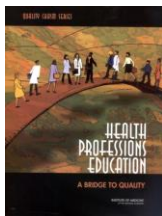


- Safe
  - Timely
  - Efficient
  - Effective
  - Equitable
  - Patient-centered
- (using Informatics & HICT Infrastructure)



## 2003 Health Policy Vision for Quality

### Core Competencies for Future Health Professionals\*



- patient-centered care
- interdisciplinary teams
- evidence-based practice
- continuous quality improvement
  - informatics

\*Greiner, Knebel: *Health Professions Education: A Bridge to Quality*





## 2006-2012 Health Policy Vision

- Grossmann, Goolsby, Olsen, & McGinnis; *The Learning Healthcare System* (2006)\*
- Stead & Lin: *Computational Technology for Effective Health Care* (2009)
- National Research Council: *Toward Precision Medicine* (2011)
- Smith et al: *Best Care at Lower Cost* (2012)

All National Academy Reports downloadable for free at National Academy Press see <http://nap.edu>



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## Best Care at Lower Cost The Path to Continuously Learning Health Care in America



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## Why now?

- **Quality shortfalls**
- **Unsustainable costs and waste**
- **Increasing complexity**



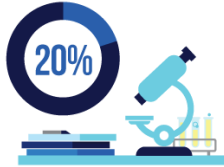
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# Quality

## USE INFORMATION TECHNOLOGY MORE EFFECTIVELY

Clinicians and patients should have real-time access to medical records and use technology to streamline administrative tasks.

### IN HEALTH CARE...



of patients reported that test results or medical records were not transferred from one place to another in time for an appointment.



of patients said their health care provider has had to re-order tests to have accurate information for diagnosis.

### IN OTHER INDUSTRIES...



### ONLINE BANKING

allows customers to view their entire financial history and conduct transactions in seconds.

# Quality

## PARTNER WITH PATIENTS

Clinicians should fully incorporate the needs and preferences of patients into care decisions.

### IN HEALTH CARE...



### LESS THAN HALF

of patients receive clear information on the benefits and trade-offs of treatments for their conditions.



### LESS THAN HALF

of patients are satisfied with their level of control in medical decision making.

### IN OTHER INDUSTRIES...



### GENERAL CONTRACTORS

work with customers to build homes tailored to fit their needs and meet their specifications.

## Why now?

- Quality shortfalls
- **Unsustainable costs and waste**
- Increasing complexity

## Costs

- **Health care costs overall** – \$2.6 trillion (2009)
- **Comparing to Economy** – 18% GDP; has grown faster than the economy for 31 of the last 40 years.
- **Comparing health care to wages** – 76% increase health costs in past 10 years, overwhelming the 30% gain in personal income
- **Conclusion** - This is not sustainable, e.g., potentially capable of sinking both the US & the world economy.

## Cost Comparisons

If other prices had grown as quickly as healthcare costs since 1945...



a dozen eggs  
would cost  
**\$55**



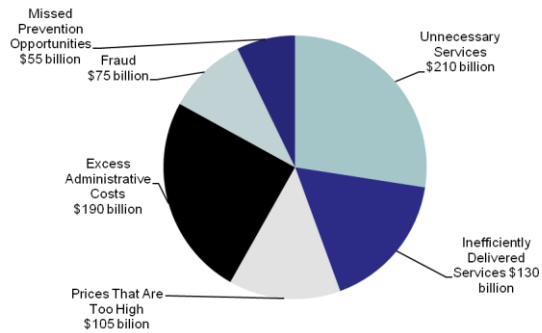
a gallon of milk  
would cost  
**\$48**



a dozen oranges  
would cost  
**\$134**

## Waste

Wasted expenditures – \$750 billion (2009)





## Opportunity Costs

- Waste could pay the entire Department of Defense budget in 2009 and have \$100 billion left.
- Waste could pay salaries of all first response personnel for 12 years
- Waste could pay the entire nation's infrastructure costs for 1.5 years—roads, railroads, water, telecom, airlines...
- Waste could pay the health insurance premiums (employee and employer contributions) for 150 million workers
- Waste could pay the tuition and fees for every 18-24 year old to get 2 years of college.

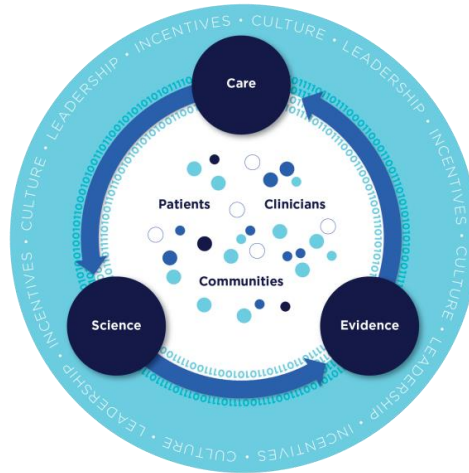


## Opportunities from Technology & Other Fields

- **Computing power**
  - Decision support technologies, analyzing health records for research, managing populations of patients
- **Connectivity**
  - Connecting patients and providers, allow for patients to access health information when and where needed
- **Improvements in organizational capabilities**
  - Systems engineering, patient flow management, modeling and simulation, supply chain management
- **Collaboration among patient-clinician teams**
  - Recognizing the need for teams to deliver care and having the patient be part of that team



## The Vision



## Recommendations

- **The digital infrastructure**  
Improve the capacity to capture clinical, delivery process, and financial data for better care, system improvement, and creating new knowledge.
- **The data utility**  
Streamline and revise research regulations to improve care, promote the capture of clinical data, and generate knowledge.
- **Clinical decision support**  
Accelerate integration of the best clinical knowledge into care decisions.

## Recommendations

- **Financial incentives**  
Structure payment to reward continuous learning & improvement in the provision of better care at lower cost.
- **Performance transparency**  
Increase transparency on health system performance.
- **Broad leadership**  
Expand commitment to the goals of a continuously learning health care system.



## Recommendations

- **Patient-centered care**  
Involve patients & families in decisions regarding health & health care, tailored to fit individual preference.
- **Community links**  
Promote community-clinical partnerships & services aimed at managing & improving health at the community level.
- **Care continuity**  
Improve coordination & communication within & across organizations.
- **Optimized operations**  
Continuously improve health care operations to reduce waste, streamline care delivery, & focus on activities that improve patient health.



## 2014-2020 Health Policy Vision

- Continuous Learning Healthcare System\*
  - Active Citizens, Patients, & Communities
  - Precision / Personalized Medicine
    - Patient & Population-centric via Genomics & Proteomics  
(Translational Bioinformatics, Clinical & Public Health Informatics )
- \* includes Social Determinants of Health



## Sustainable, Continuously Learning Health Care System



**Rec. 1 : Digital Infrastructure.** Improve the capacity to capture clinical, care delivery process, & financial data for better care, system improvement, & *generation of new knowledge.*

- Best Care at Lower Cost, 2012





## “Big Data” within a Data Ecosystem is essential



### Robust Clinical Data Capture in a Data Ecosystem for

- **Safe, Quality Care**
- **Value-based Payment**
- **Professional Accountability & Credentialing**
- **Translational Bioinformatics for**
  - **Diagnostics**
  - **Drug Development**
  - **Comparative Effectiveness of Available Drugs**
- *Strategies and Priorities for Information Technology at the Centers for Medicare & Medicaid Services (NRC 2012) (see nap.edu)*
- *Health IT & Patient Safety: Building Safer Systems for Better Care (IOM 2012) (see nap.edu)*



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## Quality Data Ecosystem: EHRs, Registries, & Big Data

High Value Clinical Quality/Safety/Payment Electronic Health Records with automated evolving high fidelity Data Capture of Information from EHRs; MedBiquitous can create these Standards.

- *Payment Record* Payment with fraud & abuse protections
- *Clinical Care Record* for Patient, Population, & Public Health Care
- *Clinical Research Record* for Research, System Analytics & Data Mining
- *Clinician/System Performance Record* (Clinician/System Performance Records) for Professional Education & System Accountability

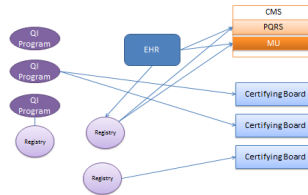


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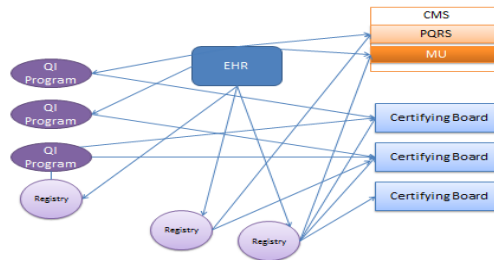


## Quality Improvement Data Ecosystem

From this:



To this:



## Health Information Policy & Research : Improve Data Utility

**Rec. 2 : Data Utility.** Streamline & revise research regulations to improve care, promote the capture of clinical data, & generate knowledge.

- Best Care at Lower Cost, 2012

- US Data Liquidity & Validity must improve
  - Unique Patient Identifiers for Research
  - National use of identified personal health data for approved research with no questions asked ‘opt-out’
    - Share to Care & Cure Initiative - S2C&C
  - Multistate experiment needed ASAP



Today, US privacy law, regulatory structure, & federal system behavior restrict flow of health data needed for a Learning Health Care System, e.g., continuous data use.\*

Multiple studies show all levels of health related quality improvement & research are significantly limited by current structure & practice, e.g., public health, genetics, health services. Costly & quietly relentless



IOM:  
Beyond the  
HIPAA Privacy  
Rule (2009)  
<http://nap.edu>

Also, PCAST 2010

All at <http://nap.edu>

\* Penfield, Anderson, Edmund, Belanger: Toward Health Information Liquidity: Realization of Better, More Efficient Care From the Free Flow of Health Information  
[http://www.fah.org/fahCMS/Documents/On%20The%20Record/Research/2009/Booz\\_Allen\\_Toward\\_Hlth\\_Info\\_Liquidity.pdf](http://www.fah.org/fahCMS/Documents/On%20The%20Record/Research/2009/Booz_Allen_Toward_Hlth_Info_Liquidity.pdf)



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## REPORT TO THE PRESIDENT

### Transformation and Opportunity: The Future of the U.S. Research Enterprise

NOVEMBER 2012

Executive Office of the President  
President's Council of  
Advisors on Science and Technology

**Action #2.1. The Federal Government should identify and achieve regulatory policy reforms, particularly relating to the regulatory burdens on research universities.**



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The Past is not Dead.  
It isn't even past.

- William Faulkner



Data Mining for New Hope:  
EHRs, Cancer Genome Atlas, PubChem, NIH  
LINCS, ENCode, NHANES (CDC)



Nick Volker

Atul Butte, Stanford -

- Diagnostics (disease markers)
- New Drug development
- Comparative Effectiveness of Drugs on Market



• Take home messages:

- Open access to & curation of datasets are critical.
- Access to longitudinal identifiable personal health data offers the greatest hope.





## 2013 The Age of Precision Medicine is at hand.

- Prevention & Cures are within reach.
- Today, as never before we need cures.
- Half-way technologies just will not get it done.
- It is time to walk the talk with respect to outdated governmental regulations & old thinking.



## Learn more at...

- [iom.edu/bestcare](http://iom.edu/bestcare)

Thank you for your  
attention and best  
wishes with your  
important work.

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