The Limits of HIT and the Potential Role of HIT in National Health Reform

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What in the health care system needs reform?

- Costs
- Financing
- Quality
- Access for the uninsured
- Evidence for appropriate decision making
- Absence of an IT infrastructure
- Organization / delivery of care
- Malpractice system
- Health care workforce
- Racial disparities
- Public health / biosurveillance

Usual targets of reform efforts

- 45 million (and increasing) uninsured
- Quality and safety of care is not what it should be[1, 2]
- Costs increasing 2-3x faster than inflation
- ***How to finance care for all in a way that will control costs and preserve quality***

1-McGlynn, *NEJM*, 2003
2-IOM reports 1999, 2001

Root causes of the problems

- Uninsured
  - Employer and means-testing for insurance[1]
- Potential causes of rising costs[2]
  - Aging / increased life expectancy? Likely no
  - Absence of spending caps? Probably not
  - Administrative costs? High costs, not rising
  - Increases in technologies? Likely yes
  - Due to provider market power? Likely yes
  - Absence of a free market? TBD

1-Moran, *Health Affairs*, 2005
2-Bodenheimer, *Ann Int Med*, 2005

Root causes of the problems

- Not exactly clear why quality is poor[1,2]
  - Providers may not know what is recommended
  - May disagree w/ what is recommended
  - Support systems to comply may be absent
  - Financial systems may be misaligned

1-Shojania, *Health Affairs,* 2005
2-McGlynn, *NEJM,* 2003

Approaches to reform
Incremental and sweeping

- Access-oriented
  - Medicare / Medicaid
  - State plans
- Cost-oriented
  - Managed competition
  - Consumer directed care / health savings accounts
- Quality-oriented
  - Pay for performance (+/- information technology)
  - Organizational / delivery improvement (disease / case management)
  - CQI (e.g., IHI)
  - Regulatory (CMS/JCAHO)
- Sweeping
  - Mandates / single payer / vouchers

Fuchs, *Health Affairs,* Nov 2005

Obstacles to sweeping reform

- Satisfaction w/ status quo
- Single issue groups
- Political system that resists radical change
- Genuine differences of opinion re: what to do
- Possible precipitators of sweeping reform:
  - Galvanized opinion of business leaders and / or citizenry, economic depression, large scale civil unrest, pandemic, war

Fuchs, *Health Affairs,* Nov 2005

Consumer-directed health care

- Health savings account with high deductible
  - Consumer retains control
  - May be employer-financed
  - Unspent funds can be accrued
  - More covered by HSA than by usual insurance
- Puts onus on consumer to control costs
  - May change their spending behavior
  - May change their health behaviors

Robinson, *NEJM* 2005

Consumer directed care -- Caveats

- Assumes discretion about whether and where to receive care
  - Only true sometimes
- Assumes sufficient cost and quality information for decisions
  - Aggregated / analyzed / digestible
- Assumes consumers will act on information
- Requires consumer to consider tradeoffs of various options
  - Complex decisions with important consequences
  - May cause decrease in use of effective services
- Requires competitive environment
  - Less true after mergers and acquisitions
- May be no incentives after deductible reached
  - 70% of costs incurred by 10% of population

Robinson, *JAMA,* 2004

Do consumers use data?

- Pennsylvania *Consumer Guide to CABG Surgery*[1]
  - Started in 1992, provided risk-adjusted mortality ratings of cardiac surgeons and hospitals
  - In 1996, only 12% of patients aware of the report
    - <1% knew ratings / said it impact their selection
  - "…unlikely to succeed without a tailored and intensive program for dissemination and patient education"
- NY CABG report card[2]
  - Past results accurately predicted future performance
    - MDs and hospitals
  - No evidence of change in market share
    - MDs or hospitals
  - Did cause poor performers to leave practice

1-Schneider, *JAMA* 1998
2-Jha, *Health Affairs*, 2006

What's the role of HIT in reform?

- Primarily talking about electronic health records (EHRs) / clinical information systems
  - Used by providers in minute-to-minute care of patients
- Potentially relevant in cost- and quality-oriented approaches to reform

What do EHRs do?

- Change how clinicians work
  - Reviewing data for making decisions
  - Documenting orders
    - Downstream management of orders
  - Documenting clinical encounter (notes)
  - Communication (patients, other providers)
- Brings decision support to point of care
  - Guide physicians' decision making
- Capture data for analysis

Potential benefits of EHRs

- Direct cost and quality benefits
  - Increased reliability, fewer mistakes
- Enabler of transparency and consumer-directed care
  - Increase amount of data available
- Enabler of disease management
  - Via coordination of care, increased efficiency, improved communication

Studies of benefits from EHRs

- Reduction in serious medication errors
  - Bates *JAMA*, 1997
- Increased compliance w/ simple inpatient guidelines
  - Overhage, *JAMIA*, 1997
- Improved patient outcomes from an antibiotic advisor
  - Evans, *NEJM*, 1998
- Improved compliance w/ dosing guidelines from CPOE
  - Chertow *JAMA* 2000, Peterson, *Arch Int Med,* 2005, Teich, *Arch Int Med*, 2000
- Reduced inpatient costs with CPOE
  - Tierney, *JAMA*, 1993
- Improved compliance w/ outpatient guidelines by reminders
  - Shea, *JAMIA*, 1996
- Reduced incidence of DVTs by identification of high risk patients
  - Kucher, *NEJM*, 2005
- Improved response to critical laboratory results with alerts
  - Kuperman, *JAMIA*, 1999

Several models of HIT benefit

- Adoption of interoperable EHR systems could produce efficiency / safety savings of $142-$371B[1]
- Adoption of advanced ambulatory ordering systems could save $44B annually[2]
- Interoperability could save $78B annually from increased efficiencies[3]

1-Hillestad, *Health Affairs*, 2005
2-Center for IT Leadership, 2003
3-Walker, *Health Affairs*, 2003

Benefits of EHRs -- Caveats

- Available literature raises questions about generalizability and impact on costs[1, 2]
  - Most literature from a few institutions with internally developed systems
  - Quality and efficiency benefits may be limited to just a few areas
  - Minimal / mixed evidence of impact on costs
    - Certainly not enough for meaningful reform
  - Little evidence from commercial systems

1-Chaudhry, *Ann Int Med,* 2006
2-Sidorov, *Health Affairs,* 2006

Benefits of EHRs -- Caveats

- Systems are complex and may have unintended consequences unless managed well[1]
  - It's not just the technology
  - Workflow analysis / change management are critical to success
  - Right workforce, leadership, project mgmt.
- Support for chronic disease will be complex[2]
  - Inpatient, outpatient, multiple providers, etc.

1- Koppel, *JAMA* 2005, Wears, *JAMA*, 2005
2-Maviglia, *JAMIA*, 2003

Benefits of EHRs -- Caveats

- Many modeled benefits dependent on clinical decision support systems (CDSS)
  - Often must be hand built[1]
  - Not all organizations can do this
  - Effects of CDSS understudied, inconsistent[2]
- Many models assume interoperability
  - Interoperability still is evolving
  - Key standards still absent
    - E.g., orderable medications

1-Zielstorff, *JAMIA*, 1998
2-Garg, *JAMA,* 2005

Benefits of EHRs -- Caveats

- Costly[1]
  - $156B over 5 years, $48B / year ongoing
  - Poor alignment between who pays and who benefits
- Little research to date about physician experience with automated documentation
  - Important source of data

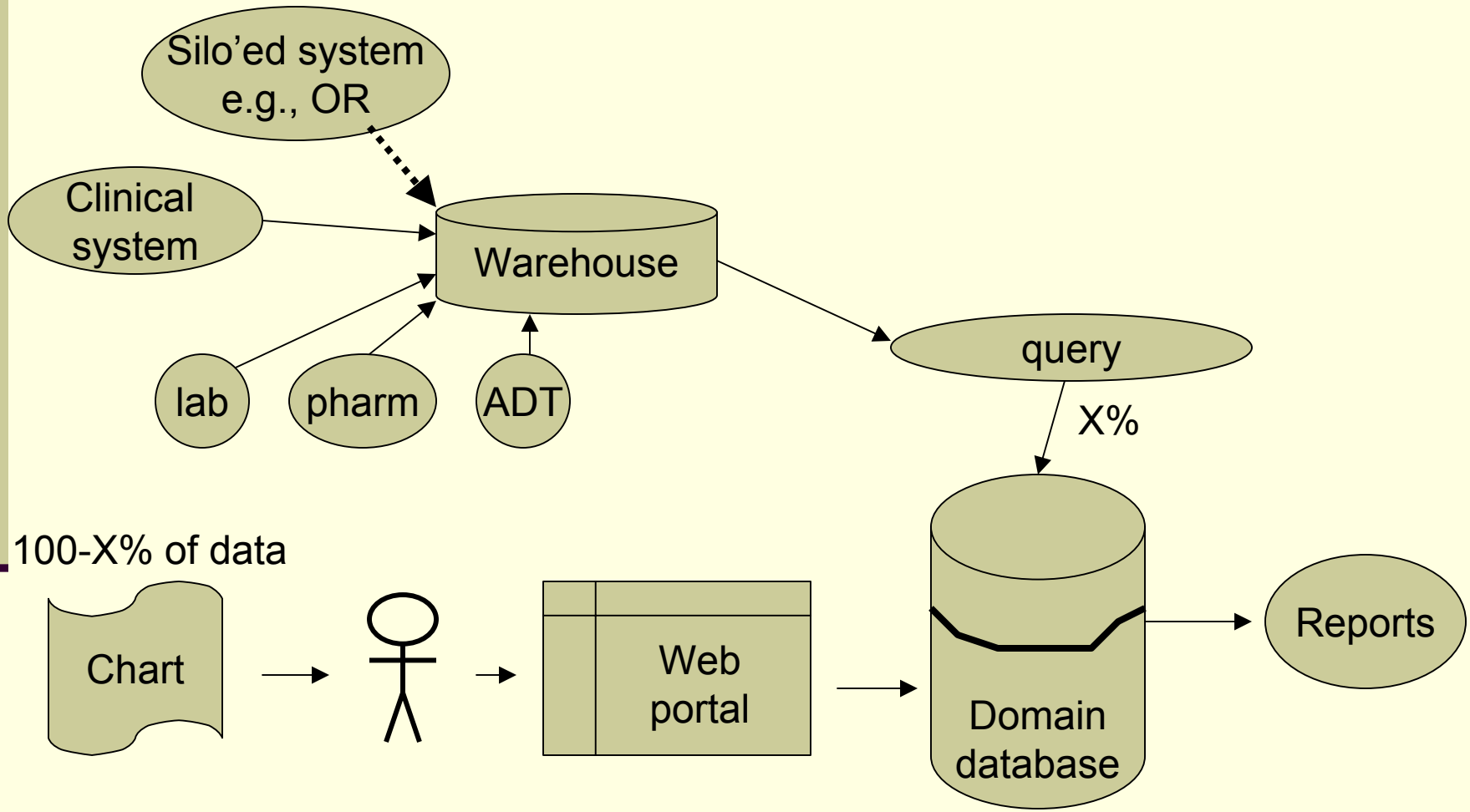
1-Kaushal, *Ann Int Med*, 2005

What about transparency?

- Can EHRs provide data to let us know “how we are doing?”
- Example: Data-oriented quality improvement program for vascular surgery
  - First, identify performance measures
  - Then, identify relevant data elements
  - Goal: Get as much of the data as possible from electronic systems
  - Domain: carotid surgery

Vision

Capture as much data as possible automatically



Analysis of vascular indicators
Required ~130 data elements

1. Registration
2. Hospitalization, admission
3. Discharge info
4. Mortality
5. 30-day status
6. Adm. & d/c meds
7. History, risk factors
8. Clinical indication
9. Baseline angiography
10. Carotid anatomy
11. Procedure
12. Intra-procedural complications
13. Post-op outcomes
14. Follow-up

#s 1, 2, 3, 4, 6 – have largely in automated form
#s 7, 8, 13 – could aim to get via clinical notes
#s 9, 10, 11, 12 – would need to brainstorm how best to get
14 – longer term (integrate inpatient and outpatient)

Pay for performance

- Many different models
- Some issues similar to transparency
  - I.e., can we measure how we're doing
- Other models pay for structure or innovative organizational models that IT can support

Summary

- Health care reform is complex
  - Incremental reform looks like the path for now
- As of now, no evidence that HIT by itself can provide sufficient cost savings for substantive health reform
- HIT is a complex technology
  - More to learn about how to use it / what are benefits
  - Can support transparency, P4P, but some hurdles
- Some benefits will come when HIT more widespread
  - Innovative delivery models / improved communication
  - Need interoperability, align payment with benefit
- HIT likely will be important in any reform effort