

Think Globally, Act Locally: The National Health Information Infrastructure (NHII)

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Overview

- A review of some old news – quality, safety, and IT
- Emerging national consensus – IT is part of the solution
- The National Health Information Infrastructure – definitions, motivations
- Think globally, act locally – the NHII in your community

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The rationale for IT in health care

- Quality
- Safety
- Cost
- How IT can help
- Impediments to use of IT

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Quality

- There are many studies to choose from...
- McGlynn, NEJM, 2003
 - Sample of nearly 7,000 adults in 12 US metro areas assessed for 30 conditions
 - On average, only 54.9% of care was consistent with known quality
- NCOA, 2004
 - Gaps result in about 42,000-79,000 premature deaths, \$9 billion in lost productivity, and \$2 billion in extra hospital costs annually

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Safety

- The IOM "Errors" report: As many as 98,000 Americans die each year due to medical errors, mostly medication errors (Kohn, 2000)
 - Some have argued that the numbers are too high or too low, but none argue with the concept
- Lost in the discussion: Most errors are the result of faulty systems; the solution is not in making people smarter or punishing them, but building better "systems" to track and prevent errors (Berwick, 2003)

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Cost

- Health care costs continue to rise and outpace inflation
 - Another double-digit increase in insurance premiums last year (Kaiser Family Foundation, 2004)
- As many as 20% of all tests and 1 in 7 hospital admissions may be result of inadequate access to information (David Brailer, unpublished data)
- A "perfect storm" may be brewing
 - Baby boomer demographic bubble
 - Federal budget deficit
 - Increased health care costs and premiums
 - Companies renegeing on pension plans and health insurance

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Bipartisan consensus about digitization of health care

- George W. Bush, State of the Union, 1/20/04
 - *Computerizing health records to reduce costs, improve care, and lower the risk of medical mistakes.*
- Newt Gingrich and Patrick Kennedy, NY Times Magazine, 5/3/04
 - *While the two of us have been on opposite sides of most [health care policy] battles, we both believe that America's health care delivery system must be transformed ... The archaic information systems of our hospitals and clinics directly affect the quality of care we receive.*
- Bill Frist and Hillary Clinton, Washington Post, 8/29/04
 - *By using advances in information technology, we can put the right information in the hands of doctors and patients at the right time. We can empower patients, health care providers and health care purchasers to make better choices.*

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Perhaps even more amazing, there is action

- Appointment of Dr. David Brailer as first National Coordinator for Health Information Technology
 - <http://www.hhs.gov/healthit/bios.html>
- Release of 10-year plan to build a national health information infrastructure (Brailer, 2004)
 - The Decade of Health Information Technology: Delivering Consumer-centric and Information-Rich Health Care
 - <http://www.hhs.gov/healthit/documents/hitframework.pdf>

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Action (cont.)

- Some legislation
 - Now that the election is over, progress is likely
- Funding has been modest
 - AHRQ Transforming Healthcare Quality through Information Technology (THQIT) awarded \$60 million through 139 grants in 2004
 - <http://www.ahrq.gov/research/hitfact.htm>
 - ONCHIT office not funded in FY 2005
 - Legislation has been proposed for up to \$125 million, which would fund demonstration projects, standards development, etc.

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Who can lead the way on solutions? Those who pay

- Government
 - Has considerable leverage as payor of Medicare
 - Considering revision of Medicare reimbursement to provide incentive for quality or for data to determine quality
- Private sector
 - Leapfrog Group (www.leapfroggroup.org) advocates health care purchasers demand of providers and systems
 - Computerized physician order entry (CPOE)
 - Procedures in high-volume centers
 - Adequate staffing of intensive care units
 - Adoption of practices advocated by National Quality Forum (NQF, www.qualityforum.org)

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Part of the solution: the Electronic Health Record (EHR)

- Increasing evidence documenting the benefits of the EHR with decision support
 - Reducing medication errors – Bates, 2003
 - Reducing costs – Teich, 2000
 - Reminders of corollary orders, preventive measures – Overhage, 1997
- Well-designed systems do not take more physician time (Overhage, 2001)
- Return on investment (ROI) in inpatient (Schmitt, 2002) and outpatient (Wang, 2003) settings

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Why have EHRs not been readily adopted?

- Among others: Hersh, 2004
- A variety of impediments and barriers, including
 - Cost
 - Technical challenges
 - Interoperability
 - Concerns about privacy and confidentiality

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Cost barriers

- Even though there is overall ROI, benefit does not accrue to those who pay (Johnston, Center for Information Technology Leadership, CITL, 2003)
 - Physicians only see 11% of ROI
 - Most goes to insurance companies and laboratories
 - But they are usually asked to pay the cost of EHRs
 - The business case is not there except for highly motivated practices with the technical expertise

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Technical challenges

- While underlying technology (e.g., networks, relational database systems) is well-established, other technical issues remain, such as
 - Implementing systems, especially in office settings (Hartley, 2005)
 - Matching systems to workflow

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Need for interoperability

- (Brailer, 2005)
- Clinical data is trapped in “silos,” not easily moved from one system to another
 - Vendors have not quickly adopted standards for business reasons, although this is likely to change
- Adage: relationship between vendor and clinical system purchaser is like a “marriage”
 - Long commitment and expensive to end

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Concerns about privacy and confidentiality

- (Gostin, 2002)
- VERY real, but
 - Security technologies are well-known and proven effective
 - Paper-based records are at least as insecure as EHRs and probably more so
 - Human curiosity will trump even best methods, so we need to consider benefits vs. risks

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But we must go beyond the EHR of a single organization

- Patients are “mobile” in many ways
 - Not infrequently switch plans, often at behest of their employer
 - Develop medical problems away from their local physician’s office or hospital
- Also greater need in public health sphere with growing threats of emerging diseases and bioterrorism

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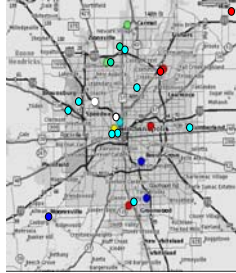
Beyond the EHR: health information exchange (HIE)

- “Anytime, anywhere access to clinical information for the care of patients”
- Requires that information seamlessly flow across business boundaries
 - Challenges are not only technical, but also financial, legal, etc.
- But there are other successful examples of information exchange, most notably your ATM card

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Example of HIE: Indiana Health Information Exchange

- www.ihie.org
- Access to clinical information in real time by
 - Most hospital emergency departments
 - Many hospital-based clinicians
 - 85 primary care providers in 20 locations
 - Homeless care network
 - Public school clinics
 - County Health Department
 - Indiana State Health Department



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Does HIE make financial sense? (Pan, CITL, 2004)

Level	Description	Benefit
1	Non-electronic data, e.g., mail and phone	Baseline
2	Machine-transportable data, e.g., fax and email	\$141B in 10 years, \$22B annually thereafter
3	Machine-organizable data, e.g., proprietary file formats	-\$34.2B in 10 years, \$24B thereafter
4	Machine-interpretable data, e.g., standard data elements	\$337B in 10 years, \$77B thereafter

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CITL financial analysis

- Most benefit at level of machine-interpretable data, consisting of
 - Common format, messaging, and content standards
 - Syntactic and semantic interoperability
 - Eliminates need for customized interfaces across different systems
- Limitations
 - Analysis based on models and individual data points, which could be wrong
 - Does not account for secondary clinical benefits, which may make analysis even more favorable
 - One entity's "redundant test" is another's "revenue stream"

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National Health Information Infrastructure (NHII)

- "The set of technologies, standards, applications, systems, values, and laws that support all facets of individual health, health care, and public health"
 - Web: <http://aspe.hhs.gov/sp/nhii/>
 - Also: Detmer, 2003
- Anytime, anywhere access to clinical information with appropriate authorization and authentication
- Information as a "utility," not locked in silos
 - Systems must compete on other things besides IT

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How do we get there in our communities?

- "The road to the NHII leads through LHII's" (local health information infrastructures)
 - William Yasnoff, MD, PhD, Sr. Advisor, NHII
- Now called Regional Health Information Organizations (RHIOs)
 - Government does not have money to fund, but can serve as leader in other ways
 - Standardized practices and regulations
 - Funding demonstration projects
 - Providing incentives, e.g., via Medicare

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How to proceed?

- Think globally
 - Adhere to standards
- Act locally
 - Work with local providers, payors, purchasers, patients, etc. to achieve consensus on value and plan
- Maybe "it takes a village" to raise an EHR? ☺

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