



Regional Health Information Systems

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The National Diagnosis

- ☐ The *status quo* is not sustainable
 - Demographics (e.g., government, big business)
 - Uninsured
 - Underinsured
- ☐ Health care is fragmented
- ☐ America is a “nomadic” culture where health care services are concerned
- ☐ Even if every “silo” does their job perfectly, long-term health care objectives cannot be met
- ☐ Some new relationships will be required
- ☐ These require new technologies, new legal agreements, new organizations, and new perspectives





- *It is not a matter of "can you afford to pay it or not," it is a matter of can you afford to be competitive in the world's economy today and pay those costs. **So effectively I conclude that healthcare is pricing itself out of business. And the way it prices itself out of business is just going to drive CEOs to make decisions to put resources elsewhere where the healthcare cost is much more affordable.***
- *If you look at the individual, the individual is really caught between a rock and a hard place. **The individual in this system has absolutely no purchasing power, no impact to change the system.** They can shop around for healthcare coverage but as an individual what they are doing is shopping in a system which really doesn't respond to them. The system tells them what the cost is and they either choose to pay it or not.*
- ***The other 80/20 rule is obviously that 80% of the transactions in the medical care industry don't take place in big hospitals or clinics; they take place in small offices.** So if you focus all of your attention on in fact digitizing or putting IT infrastructure into big hospitals you're still missing 80% of the transactions.*
- ***But my problem with debating is that debates produce very little action on the bottom line. And it does continue to hurt our competitiveness and if you are interested in U.S. competitiveness as I am, then you have to say that healthcare is the biggest boat anchor, the Achilles heal going forward. We need to do something***



- *Put plainly, my thesis this morning is, **"Enough with the grants, enough with the conferences, enough with new paradigms, enough with the pilot projects;** this is good stuff; how do we actually get health care professionals and organizations to use it?"*
- ***There are twenty thousand very smart and well educated people at this conference in New Orleans, but I'm concerned that we are mired in the "paradigm du jour" business; I can't remember whether it is Personal Health Records or RHIOs right at the moment. We've gotten ourselves in the complexity business, which is never good.***
- ***First, we have to alter the economics of health care. Any student who has finished Economics 101 in college can predict what will happen if an anonymous third party pays for incidents of service, not for results.***
- ***And second, we have to forge a system that is much more centered on the individual. My mother is 86, is in reasonable health for someone of that age, and has six separate doctors who not only communicate rarely but on occasion countermand each other.***
- ***Altering the economics and centering the system on the patient - defragmenting it. The reason that eHealth is so important is that you can't do these things without it. Organizing and communicating health information simply and to each part of the complex system of health care is an essential tool that our country needs in its toolbox to succeed.***



Principle one (build version 1.0 first)

- *First, we need to establish a set of simple standards that can serve as a toolbox. I want to use the internet as a model.*

Principle two (focus on one or only several key problems)

- *Second, we need to reduce the size of the landscape that we are working with; to concentrate on one area and work through the problems there. I want to suggest the management of prescription medications - and ePrescribing in particular, although there are certainly others.*

Principle three (real-world adoption)

- *Third, we need to require the integration of information technology into the basic day-to-day operation of the practice of medicine. The challenge is to move beyond early adopters and those willing to experiment and into the real mainstream.....what I really need though, is Family Practitioner Dr. Jones who is using paper records up in Goodlettsville to be a part, and there we're not even close yet. I'll suggest some ideas on how this might be jump-started.*



- An idea one guy had
- A placeholder for all of the ills in health care
- A set of technologies focused on the individual with the following characteristics
 - A means of presenting individual-focused data obtained across traditionally competing or separate areas of care
 - A set of capabilities that allow such information to be exchanged at the point of care?
 - A responsible organization that serves as a framework for governing the operations and use of the exchange
 - A set of technologies, policies, and principles that allow these new models to emerge
- RHIOs are a means of understanding health information exchange
- To be a “real” exchange, you have to have **operational** exchange



- ❑ eHI says 165 with 26 “fully operational”
- ❑ Texas Institute for Policy Research says 200
- ❑ AHIMA says over 200
- ❑ HIMSS says over 600 with 95 currently exchanging data; 145 are in the planning stages and around 150 are really HIT oversight
- ❑ CCHIT says there probably around 160 but that fewer than 30 have a “sustainable business model”
- ❑ I believe there are no more than 20 (probably far less) and the few if any are “sustainable” in isolation
- ❑ But? **Very little in our current health care system is “sustainable”**
- ❑ The technologies underlying HIE are simple “common sense” business and data practices fundamental to a rational market!



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BELL ET AL., Conceptual Framework for Electronic Prescribing

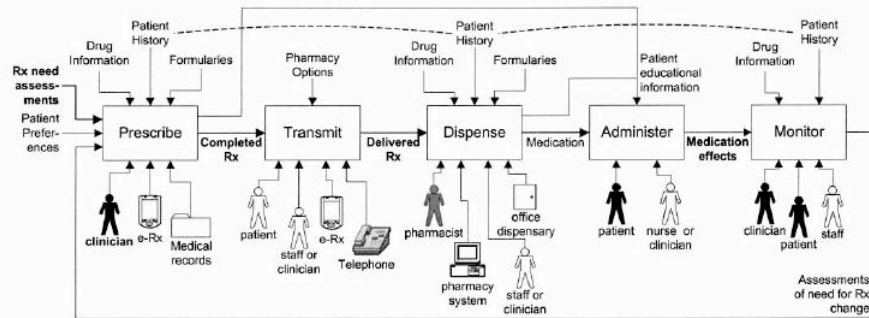
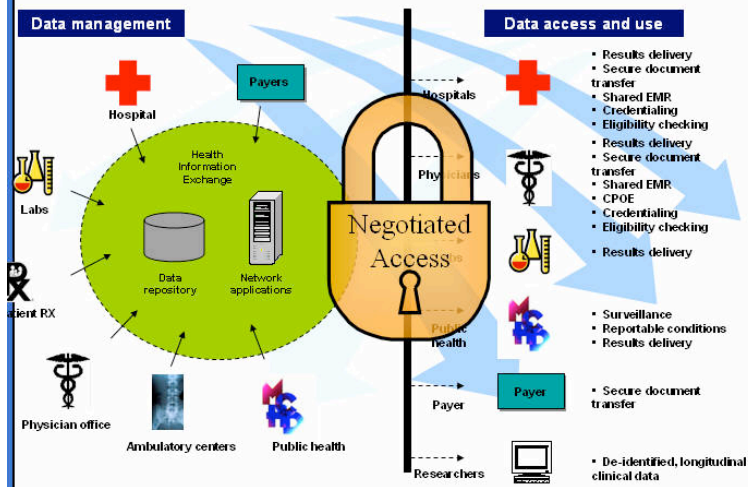


Figure 1. A function model of medication management. The major activities involved in medication management are shown as boxes. For each box, arrows on the left show the activity’s inputs, those on the right show its outputs, those above show information that may influence the activity’s performance, and those below show resources that the activity may occupy. This notation is based informally on the Integrated Definition for Functional Modeling (IDEF0).⁷⁹ In addition, the dashed lines indicate the potential unifying effects of system integration, making the same patient data available across activities. Black shading or bold lettering indicates an element that is mandatory for the particular activity. Gray shading indicates an element that is usually involved in the activity but is not mandatory. “e-Rx” is an abbreviation for electronic prescribing.

What's the Basic Concept?



Courtesy, Indiana Health Information Exchange

Consumers: Portability



- In 2002-03, 41 million Americans changed their residence; 21% of children age 4 or less moved during the same period
- Plan changes are far more frequent
- New roles for pharmacies, new ambulatory care models, new roles for intermediaries
- HSAs; defined contribution plans; no insurance
- We live in a "claims-based" economy; claims add complexity and are not the best way to describe health status and services.
- Claims are all we have for now - and only for the insured

Even if one lives in the same place, holds the same job, and tries to stick with a small set of providers, one's health care options will change



- ❑ Care for the truly needy, foster self-reliance.
- ❑ National standards, neighborhood solutions.
- ❑ Collaboration, not polarization.
- ❑ Solutions transcend political boundaries.
- ❑ Markets before mandates.
- ❑ Protect privacy.
- ❑ Science for facts, process for priorities.
- ❑ Reward results, not programs.
- ❑ Change a heart, change a nation.
- ❑ Value life.

<http://www.hhs.gov/500DayPlan/index.html#Principles>



Certification Commission Work Groups

Ambulatory

The Ambulatory EHR Work Group develops criteria and test scripts for certifying electronic health records (EHR) products used in physician offices - large and small - where most Americans get their care.

Inpatient

Tasked with prioritizing and developing criteria and testing for inpatient EHRs, the Inpatient EHR Work Group monitors the current need for health IT technology used in acute, hospital-based care.

Network

Interoperable EHRs require a structure for sharing information—a secure network. With the guidance of the Expert Panels, the Network Work Group is tasked with initiating the development of criteria and tests for these emerging health information exchanges.

Foundation

A core set of requirements underlie all EHR products and networks. The Foundation Work Group works with all other Certification Work Groups and Expert Panels, to propose the criteria and tests that belong to that core set.

Interoperability

Ensuring that EHR products and networks can share data compatibly is one of the primary goals of certification—and the public and private health IT communities. The Interoperability Expert Panel works with all OCHIT Work Groups to recommend criteria and testing that ensures data portability.

Security

Charged with advising on the security requirements for OCHIT Certified EHRs and networks, the Security Expert Panel remains up-to-date on security standards and best practices to recommend criteria and testing for all EHRs and their networks.

Child Health

The care of children spans physician specialty practices and care settings. It's the role of the Child Health Expert Panel to ensure that EHR products and networks address the health IT requirements of caring for this special population by developing criteria and test scripts to be added to other certification categories as an option for

Cardiovascular Medicine

The Cardiovascular Expert Panel has been tasked with recommending optional criteria and test scripts to other certification categories to address the unique needs of office-based cardiovascular physicians and practices with a goal of improving health IT adoption in that specialty medicine group.

Emergency Department

For this newly created certification category for a special care setting, the Emergency Department Work Group is charged with initiating the development of criteria and test scripts to certify EHR products used to support the treatment of Emergency Department patients.

OCHIT is hiring

Interested in working with the Certification Commission? Positions are currently open for a **Finance and Operations Director** and a **Certification Coordinator**. For more information or to apply, please [see the careers area](#).

Why Not Simplicity?



- ❑ Based on the information clinicians use - real notes, real clinical data
- ❑ Applicable to anyone - not just the insured
- ❑ Flexible enough for low entry to system
- ❑ Structured enough for ease of use
- ❑ Focusing on the care needs of individuals first
- ❑ Focusing on the measure of populations second
- ❑ Focusing on a new problem formulation third
- ❑ Solve the financial problem after we've asked the right questions about what care should be
- ❑ A system that supports a broader array of care and more direct financing
- ❑ A system focused ultimately on the individual and on health, not just medical care

A Memphis Exchange



Broad Participation

- ❑ Baptist Memorial Health Care Corp. (4 facilities)
- ❑ Christ Community Health (4 primary care clinics)
- ❑ Methodist Healthcare (7 facilities including Le Bonheur Children's Medical Center)
- ❑ The Regional Medical Center (The MED)
- ❑ Saint Francis Hospital & St. Francis Bartlett (Tenet Healthcare)
- ❑ St. Jude Children's Research Hospital
- ❑ Shelby County/Health Loop Clinics (11 primary care clinics)
- ❑ UT Medical Group (300+ clinicians)
- ❑ Memphis Managed Care/TLC (MCO)



- ☐ Legal / policy framework
- ☐ Public Health (Robert Wood Johnson grant)
- ☐ E-prescribing (AHRQ contract expansion)
- ☐ Quality (AHRQ contract expansion)
- ☐ Community Action (Robert Wood Johnson; Healthy Memphis Common Table)
- ☐ Understanding of emergency department use
- ☐ Extension to safety-net clinics to strengthen “medical homes”
- ☐ Technology – Tennessee Tech support for state-level MPI
- ☐ Public Health (CDC)
- ☐ Retail pharmacy (coming soon)
- ☐ Commercial vendors (coming soon)



- ☐ Total # of records: **989,629**
- ☐ Total # of patients: **810,000**
- ☐ Monthly Encounter Data: 110,000
- ☐ Monthly ICD-9 admission codes (Chief complaints): 34,000
- ☐ Monthly "Reason For Visit" messages in text: 110,000
- ☐ Monthly ICD-9 Discharge codes: 370,000
- ☐ Monthly labs: **2,400,000**
- ☐ Monthly white blood counts (9 hospitals): 51,975
- ☐ Monthly microbiology reports (May, 2007): 25,709
- ☐ Monthly chest x-ray reports: 34,996



- ▣ Records: 33,000 per day
- ▣ Encounter data: 3,700 per day
- ▣ ICD-9 admission chief complaints: 1,000 per day
- ▣ "Reason For Visit" text: 3,700 per day
- ▣ ICD-9 discharge codes: 12,000 per day
- ▣ Procedure codes: 200 per day
- ▣ White blood counts: 1,799 per day
- ▣ Microbiology reports: 850 per day
- ▣ Chest x-ray reports: 1,200 per day
- ▣ Laboratory values: 80,000 per day



Over 250 users

- ▣ ED Staff including clinicians, registrars, and unit secretaries
- ▣ Between 70 and 95 percent of registered users used the system last month
- ▣ Since May, 2006, 900,000 encounters; more than 80,000 lab tests per day

Our goal is 100% use

- ▣ Records are currently sought on about 40% of ED visitors
- ▣ For these visitors between 30 and 60% have information from other sites

Anecdotally, our system affects care

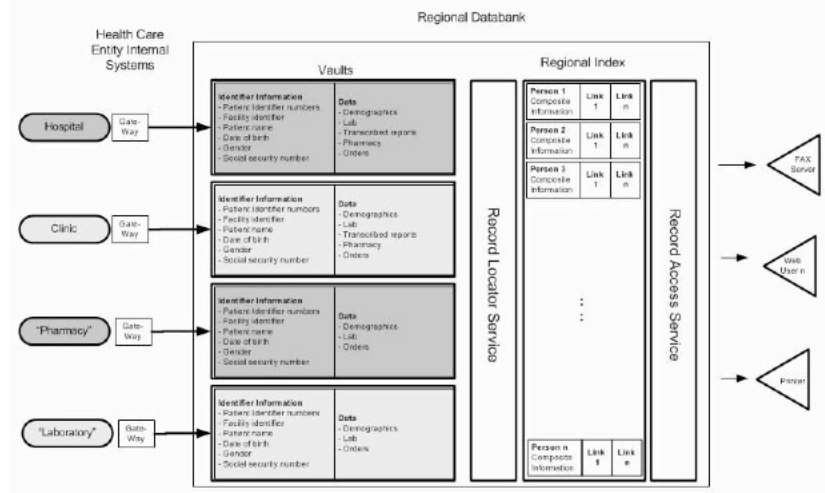
- ▣ Impact on patients with chest pain
- ▣ Avoidance of CTs and MRIs
- ▣ Avoidance of admissions

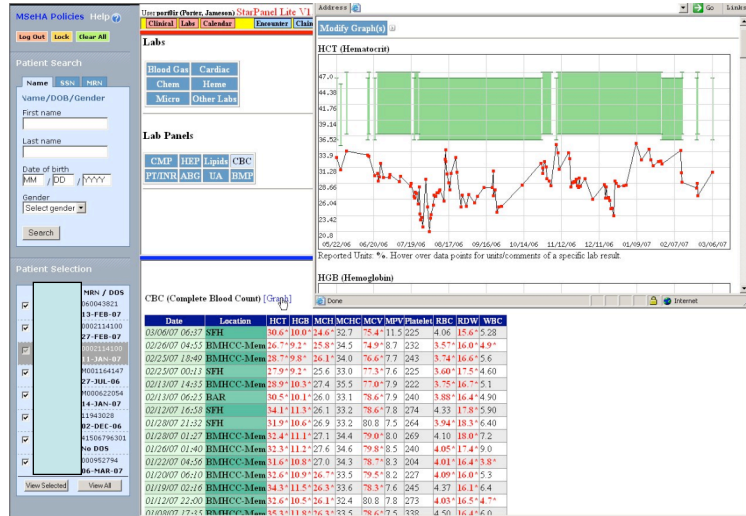
The third principle centers on how we incorporate what we do into the mainstream, day-to-day business of delivering health care. Aside from early adopters and true believers, how do you get ordinary, mainstream health providers to use this technology, how do you establish a reason powerful enough to compel large numbers of them to invest their time and resources and participate. (Bredesen, HIMSS, 2007)



- **Data available today**
 - Patient identification/demographics
 - Lab results
 - Encounter data: date of service, physician and reason
 - Dictated Reports
 - Imaging studies
 - Cardiology studies
 - Discharge summaries
 - Operative reports
 - History and Physicals
 - Diagnostic Codes
 - Some medication history (TennCare Claims)
 - Etc.
- **Data to be available in the future**
 - Medication history
 - Allergies

The screenshot displays a complex medical information system interface. It includes a patient profile section with fields for name, date of birth, and gender. Below this, there are sections for 'Lab Results' and 'Reports', each containing a table of data with columns for test name, date, and result. The interface is typical of a clinical decision support system or electronic medical record.





Participants:

- ☑ are allowed the use of the data for designated purpose of treatment and diagnosis only.
- ☑ signed a Registration Agreement that designates them as a Data Provider and/or a Data Recipient.
- ☑ signed a Data Sharing Agreement.
- ☑ have a vote on the policy committee known as the Operations Committee

What is the MidSouth eHealth Alliance?

Certain health care providers in the Memphis area share health information through the MidSouth eHealth Alliance (the Alliance). The Alliance is a community-wide information system that helps health care providers in the treatment of patients. Providers are doctors, nurses, healthcare workers, hospitals and clinics.

Which organizations in the MidSouth eHealth Alliance share information?

- The following organizations now participate in the MidSouth eHealth Alliance:
- Baptist Memorial Hospital/Collerville
 - Baptist Memorial Hospital for Women
 - Baptist Memorial Hospital/Memphis
 - Baptist Memorial Hospital/Tipton
 - Christ Community Health Services
 - Memphis Managed Care/FHC
 - Methodist Healthcare including LeBonheur
 - Children's Medical Center
 - Saint Francis Hospital/Memphis
 - Saint Francis Hospital/Bartlett
 - St. Jude Children's Research Hospital
 - The Med
 - Health Loop Clinics
 - UT Medical Group Inc.

Why is health information shared?

Health care providers can make better choices about a patient's care and treatment when they have as much information as possible about that patient's health, lab tests, medical history, medicines, or other reports. The Alliance permits providers to review medical information in a system faster than contacting patient's other providers by one. The Alliance only shares information about patient's medical condition with health care providers currently involved in that patient's care.

Is shared health information kept private and secure?

Yes. The Alliance obeys all applicable federal and state laws about privacy of medical information. The Alliance will not share health information with anyone not involved in the care of a patient related to operations of the Alliance. Every organization and provider that shares or uses information from the Alliance must obey strict rules regarding privacy.

What are your rights?

As a patient, you have the right to not share your health information in the Alliance called "Opting Out." However, if you choose to opt out, health care providers may not have access to health information that may be important and useful in making choices about your medical care.

If you have questions regarding your privacy rights, please refer to the Notice of Privacy Practice provided to you by your health care provider. You need another copy? That's okay. Please ask your provider to give you one. This Fact Sheet is intended for educational purposes only. Operations of the Alliance and the content of this Fact Sheet may be changed by the Alliance from time to time without notice.

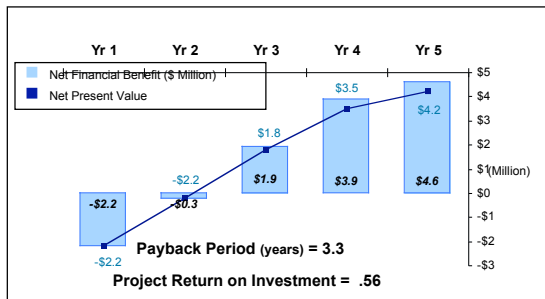
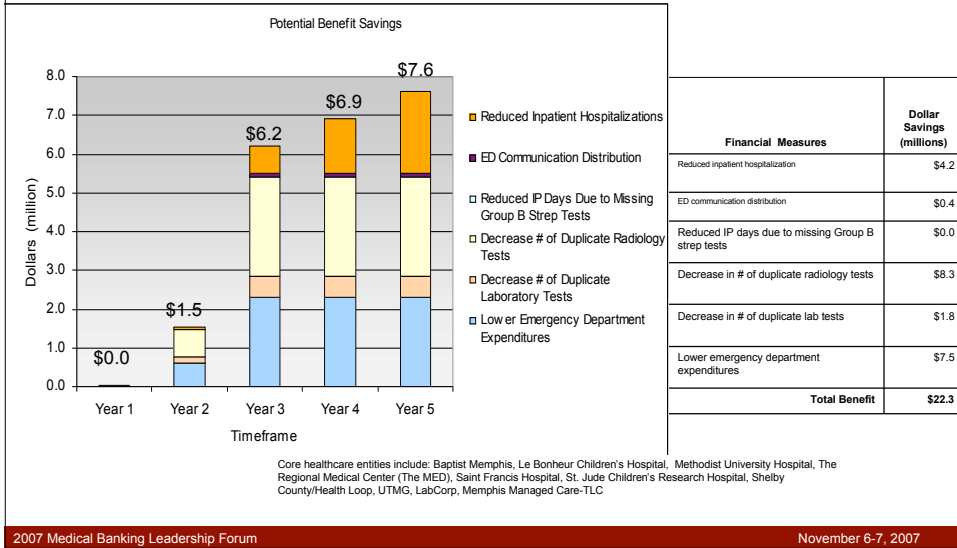
Who do I contact for more information?

Every organization in the Alliance has a person who is responsible for privacy. When you have a question, ask the Privacy Officer. He or she will be able to answer your questions or find someone who can help you.

Patients :

- ☑ are notified that their clinical data could be shared with the MidSouth eHealth Alliance..
- ☑ have the right to "Opt Out" of the system. It is assumed they are in the system until they "Opt Out".

Documents: <http://www.volunteer-ehealth.org>



Assumptions

- Based on data obtained on the core healthcare entities and Memphis Managed Care
- Research factors are applied to calculate the benefits
- Deployment schedule is limited initially to EDs and Labor & Delivery; years four and five will extend to all healthcare providers
- Inflation and volumes remain constant
- The costs to move and support the RHIO data center are not included in the five-year forecasts
- The RHIO support desk infrastructure is not established; Vanderbilt will provide this service
- Labcorp will not charge the project for their effort
- The average cost for a core healthcare entity for implementation and operation activities is \$30,000 per year.

The State of Tennessee and the Core Healthcare Entities realize a higher financial gain when you consider the different stakeholder contributions.

State of Tennessee	Core Healthcare Entities
Payback Period = 1.7	Payback Period = 0.5
Return on Investment = 1.95	Return on Investment = 17.5



- We don't have answers, but perhaps we are beginning to ask the right questions
- We need to build a "version 1.0" that presents new market opportunities that are in the public interest
- Operational exchanges can be built at relatively low cost
- We do not know how they will impact health care - yet
- The true impact has been on the community
 - Informed consumers concerning health care technology
 - Educated in the practical applications of technology, policy, and confidentiality
 - Changing the way care is delivered
- When combined with the best of what we currently have, new personal health record initiatives, and medical banking, there is hope of enabling a more effective health care delivery system