

# MidSouth eHealth Alliance

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## Contributing data:

Baptist – 5 facilities

Methodist – 7 facilities

St. Francis – 2 facilities

The MED

Christ Community Health Services – 4 clinics (they are working to add a 5<sup>th</sup> clinic in April or May)

The Health Loop – 11 clinics (may reduce to 10 clinics in April)

UTMG - 400+ providers

## Users

All of the 14 emergency departments continue to access the system including those in Fayette and Tipton counties and one in Southaven, MS.

16 ambulatory clinics and some hospitalists also have access

Number of active users as of mid-March 2009

Hospitalists - 18

Nurses - 131

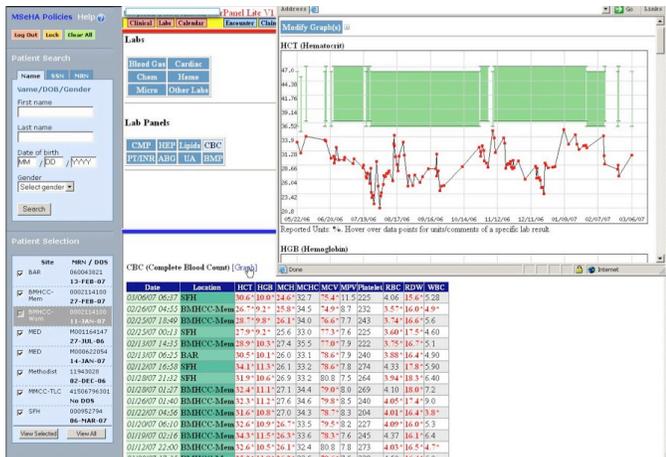
Physicians clinicians - 222

## The Database (dated information)

- Total # of encounter records: > 4 million
- Total # of patients with clinical data: 1.2 million
- Monthly Encounter Data: 140,000
- Monthly ICD-9 admission codes (Chief complaints): 34,000
- Monthly labs: 2,400,000
- Monthly microbiology reports: 26,000
- Monthly chest x-ray reports: 35,000
- Comprehensive privacy agreements
- Costs to participants less than \$50,000 per hospital
- Overall annual operating cost – under \$3 million

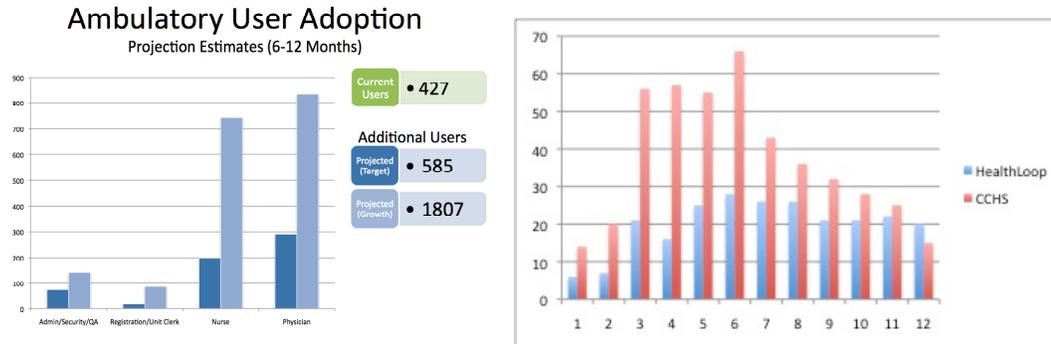
## The Interface

Secure web browser. Two factor authentication. Some data standards at presentation level (e.g., LOINC encoding for over 50 common laboratory test. Focused on simplicity rather than elegance. Designed to address the common case and not the exceptional case.



## Ambulatory systems strategy

Key to the success of the Exchange will be the addition of ambulatory sites so that Exchange will have available all or nearly all important clinical information about high risk populations. This will accelerate disease management programs, inform resource allocation decisions, and aid in measuring impact of care.



Increased ambulatory use allows for greater coverage of health care conditions and allows one to provide care across multiple sites. The left histogram projects additional users with an increased ambulatory strategy. The right histogram shows the number of patients discharged from the Med and when they next visit either Christ Community or Health Loop. The ability to link patient records and track their care is novel.

## Technology

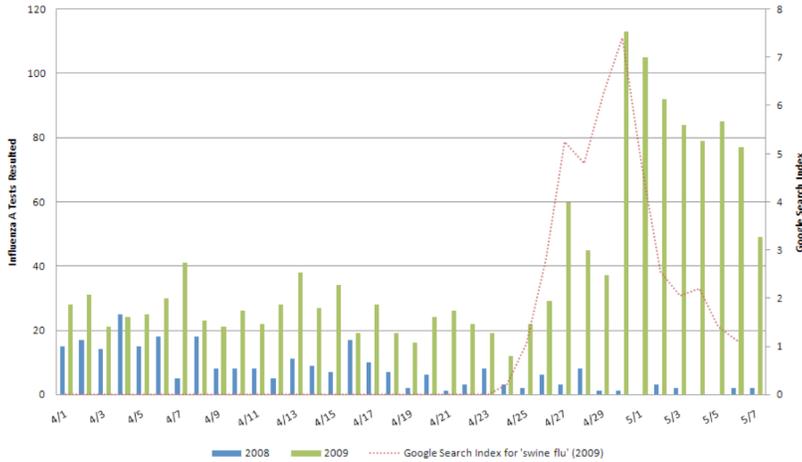
Now running “stand alone” on a secure facility through Informatics Corporation of America (ICA), chosen because it is the same model as the Vanderbilt system. Memphis is not tied to this platform upon expiration of the contract.

- Does not require “one standard”
- Does not pose significant burden on providers

- Can extend and scale as needs and standards evolve.

## Population Health

The Exchange has the ability to contribute to surveillance at a low marginal cost. Tracking complaints of flu or flu-like symptoms upon presentation is straightforward. Tracking and reporting on all positive flu tests is more complicated because of differences in coding formats.



## Prescription Medication Hub

- An open-source medication hub has been developed and can take patient identifier information, transmit it securely through the Indianapolis Exchange to SureScripts, and return a prescription medication history. At present, such histories are available for approximately 26% of patients seen because the primary source is claims. When SureScripts completes its interfaces and data sharing efforts with retail pharmacies, this number will approach 100%.

Drug Name	Oldest Fill Date	Most Recent Fill Date	# of Fills
Prochlorperazine 25 MG Rectal Suppository	2008/05/17	2008/05/17	1
Amoxicillin 500 MG Oral Capsule	2008/03/17	2009/02/14	3
Dihydroergotamine 4 MG/ML Nasal Spray	2008/08/30	2008/08/30	1
Acetaminophen 300 MG Oral Tablet	2008/04/07	2009/02/28	9
Misoprostol 50 MG / Prostaglandin 25 MG Oral Capsule	2008/04/01	2008/06/26	2
oxybutynin 5 MG Oral Tablet	2008/05/06	2008/05/06	1
M-ERD 900	2008/09/23	2008/09/23	1
Prochlorperazine 500 MG Oral Tablet	2008/03/02	2008/03/02	1
Clindamycin 300 MG Oral Capsule	2009/02/26	2009/02/26	1
Nitrofurantoin 100 MG Oral Capsule	2008/05/06	2008/05/06	1
Enalapril 10 MG Oral Tablet	2009/01/18	2009/01/18	1
Misoprostol 50 MG Extended Release Tablet	2008/03/17	2008/08/30	6
Atropine 0.025 MG / Diphenhydramine 2.5 MG Oral Tablet	2008/08/19	2008/08/19	1
Ethinone, Conjugated (USP) 0.45 MG Oral Tablet	2008/03/17	2009/02/04	11
chlorhexidine gluconate 1.2 MG/5ML Mucous Membrane Topical Solution	2009/02/04	2009/02/04	1
Etonogestrel 0.02 MG Extended Coated Capsule	2008/04/15	2009/02/04	9
METOPROLOL SUCCLINATE	2008/01/15	2009/02/04	4
Contraceptives 0.5 MG Oral Tablet	2008/05/17	2008/08/30	3

## Finances

The full operational costs are less than \$3.0 million per year. With a one-million population, this is \$3.0 pmpy. Health care spend estimated to be \$7,400 pmpy.

### Funding

AHRQ	\$4.8m
State of TN	\$6.0m
Total	\$10.8 m

## Impact

### Use

System use is 5-10% across all sites. Primary care usage has increased slightly, from an average of 5% to 5.6. Usage is increasing significantly with the pilot availability of the Exchange data through a hospital physician portal (so instead of just accessing data from their own hospital, providers can access all data from every hospital in the region. )Usage is generally higher if the patient has been seen elsewhere within the past days or weeks.

Note that we do not expect 100% usage. This system is designed to answer questions when histories are not sufficient to solve whatever acute or chronic problem is encountered in the care setting. In the coming months, we will add an analysis of usage patterns (i.e., what parts of the system are being used, and how that differs between ED and primary care.)

### Avoidable Duplicate Tests

Based on preliminary analyses, using all data from all sites to examine the impact of the HIE system on each *high-stability test* (HST), we see a modest yet significant decrease in the proportion of avoidable duplicates for 4 HSTs: CT Head, CT Abdomen, Ankle X-Ray, and HbA1c. These decreases are significant but less than 5% depending on the test. This still amounts to tens of thousands of dollars a month for the population served. And these numbers are very conservative.

### Complaint-specific Impact

Very early analyses have been conducted for one condition—chest pain. That analysis has disclosed that two of the three highest volume sites, Baptist and St. Francis, saw significant reductions in the percent of patients admitted. By contrast, the admission rate was slightly higher at Methodist, which may be either due to a difference in the way MSeHA is used (for example, if it is used after a decision to admit is made) or in the types of patients seen at each site. We are examining this further.

## Security and Privacy Design and Implementation

- Data sharing and participation agreements are consistent with new ARRA legislation
- Governance body is capable of expanding use agreements for public health, personal health records, case management, and other functions.
- Integration with State authentication strategy

- Integration with State MPI
- Development of “trusted zones” that will allow clinicians to access the exchange through their provider’s primary systems. This is early

## Project Management/Administrative

- Continue to work with other states.
- Work continued on leveraging the work done in Memphis to be applied in Nashville. The executive leadership has committed funding and the Nashville exchange is “in process”. Bylaws and charters have been drafted and are being reviewed.
- Continue to work with Markle Foundation on “meaningful use” criteria and other policy matters.
- Mark Frisse beginning to work Dr. Clayton Christensen from Harvard (author of *the Innovator’s Dilemma* and *the Innovator’s Prescription*) and others from Harvard on “disruptive” approaches to health care technology.

## Publications by Regional Informatics Personnel

1. Coffman T, Porter JP, Frisse ME. Reducing HIE Costs through Real-Time Data Feed Visualizations. AMIA Annual Symposium proceedings / AMIA Symposium. 2008:913.
2. Frisse ME, King JK, Rice WB, Tang L, Porter JP, Coffman T, et al. A Regional Health Information Exchange: Architecture and Implementation. AMIA Annual Symposium proceedings. 2008:212-6.
3. Johnson KB, Gadd C, Aronsky D, Yang K, Tang L, Estrin V, et al. The MidSouth eHealth Alliance: Use and Impact in the First Year. AMIA Annual Symposium proceedings. 2008:333-7.
4. Frisse ME. Perspective: Health Information Technology: One Step at a Time. Health affairs (Project Hope). 2009;28(2):w379–w84.
5. Frisse ME. Information Technology Platform Requirements for a Learning Healthcare System. Washington Institute of Medicine; 2009.
6. Frisse ME, Lloyd TC, Swarr EC. Project HealthDesign: Rethinking the Power and Potential of Personal Health Records (PHR): A Design Consultancy Perspective Case Study. Journal of the American Medical Informatics Association. 2009; Submitted for review.
7. Fahey C. Long Term Care Workshop: Creating Solutions for New York State. New York: CUNY; 2008 October, 2008.
8. University of Puerto Rico. Planning for Health Care Improvement for the People of Puerto Rico; 2008.
9. Penfield SL, Anderson KM, Edmund M, Belanger M. Toward Health Information Liquidity: Realization of Better, More Efficient Care from the Free Flow of Health Information. Washington: Booz Allen Hamilton; 2009 January.