

**Project Title:** State and Regional Demonstrations in Health Information Technology (currently known as Mid-South eHealth Alliance – MSeHA)

**Principal Investigator:** Frisse, Mark, M.D., M.S., M.B.A.

**Organization:** Vanderbilt Center for Better Health

**Contract Number:** 290-04-0006

**Project Period:** 09/04 – 09/09

**AHRQ Funding Amount:** \$5,000,000

**Summary Status as of:** December 2008

---

**Strategic Goal:** To develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

**Business Goal:** Implementation and Use

**Summary:** The MidSouth eHealth Alliance (MSeHA) is one of six AHRQ-sponsored State and regional demonstration (SRD) projects begun in late 2004 and early 2005 to create a non-profit health information exchange (HIE). Each of the SRDs is developed using a variety of approaches (e.g., technical, business, and governance models) in order to support data sharing and interoperability on a State or regional level; conduct analyses of the role of the Medicaid program; provide an evaluation of their project; and develop a sustainability model. The MSeHA’s goal is to implement and evaluate regional data-sharing and interoperability service interconnecting health care entities in the Greater Memphis area, which includes three counties in southwest Tennessee as well as northern portions of Mississippi and northeastern Arkansas. The lessons learned and applicable work products are to be applied across these States. The MSeHA is a nonprofit that works in close conjunction with Vanderbilt University. The stakeholders include patients, primary care providers, specialty care providers, inpatient and emergency room care teams, health systems, safety net clinics, public health department, and State and local government.

The MSeHA began exchanging data on May 23, 2006. At that time, inpatient, outpatient and emergency department data from all 13 participating hospitals were available in the emergency department setting. As of December 2008, data from 14 hospitals (inpatient, outpatient, and emergency departments) as well as 14 primary care safety net clinics and the University of Tennessee Medical Group (UTMG), representing over 400 providers, were available to 14 emergency rooms (including one in Southaven, Mississippi), 14 primary care clinics, and hospitalists. The data include lab results, diagnostic imaging reports, cardiac study reports, discharge summaries, dictated emergency department notes, operative notes, history and physical exams, diagnostic codes, patient demographics and other identification, and encounter data. The MSeHA has been working on a medication hub project with Indianapolis to provide a patient medication history from RxHub and SureScripts and has worked with allergy information in a test environment.

Initially, Vanderbilt “donated” the use of its proprietary technology (software, hardware, etc.). As part of the plan for sustainability, the MSeHA system is converting from the Vanderbilt system to a commercially available system hosted by Informatics Corporation of America (ICA; <http://www.icainformatics.com/>). The conversion was to be completed by January 9, 2009. Through a partnership and licensing agreement with Vanderbilt, ICA retains the exclusive right to sell a commercial version of the Vanderbilt system.

The MSeHA began with a focus on improving the quality of patient care while maintaining or, hopefully, decreasing the cost of care delivery. As part of the AHRQ contract, an extensive evaluation began in 2006 and will continue through the end of the contract period. The evaluation expands the initial focus by

evaluating use/adoption, usability, measuring avoidable duplicate tests, complaint specific impact (e.g. chest pain), workflow assessment, and financial impact. Based on a literature review and discussions with Memphis clinical leadership, the evaluation team has focused on high-stability tests, which are defined as those tests whose results are unlikely to change rapidly within a defined time frame (i.e., 14 – 42 days). Adoption in the emergency departments varies between 1 percent and 14 percent, with an average rate of 3.5 percent in December 2008. In the ambulatory setting the adoption rate is closer to 7 percent. The evaluation team hopes to report the impact on duplicate high-stability tests and specific complaints soon.

The MidSouth eHealth Alliance has gained State and national recognition for its approach to privacy, security, and confidentiality. Its data-sharing agreements, policies, and operating committee infrastructure have been adopted and adapted by over 30 organizations and States.

### Specific Aims

- Exchange of clinical data elements among providers in a three-county region with a population of about 1 million. **(Achieved)**
- Leverage the Vanderbilt technical architecture to start the exchange, but transition to an independent platform. **(Ongoing)**
- Expand the number of participating organizations to remaining safety net providers and primary care ambulatory providers. **(Ongoing)**
- Develop a business model for sustainability. **(Ongoing)**

**2008 Activities:** In October 2007, the MSeHA successfully demonstrated the ability to exchange 100 percent of core data elements between core and extended facilities. Not all core elements are in production, however, as allergies and medication claims are still in test mode. In 2008, the MSeHA continued to maintain and work with 20 plus live data feeds from its various sites. In addition, we sought to engage with new partners. An agreement was signed with Informed, a local application service provider (ASP) vendor for a number of ambulatory practices in the community, including two MSeHA participants, to develop the interface between the NextGen system and MSeHA system. This interface essentially will be replicated as other providers that use Informed’s service become participants.

The MSeHA’s focus has been to “roll-out access” to its system to 14 emergency department practices and 15 health centers (larger numbers than originally anticipated). The MSeHA is available in emergency departments in the three counties in southwest Tennessee, as well as an emergency department across the State line in Southaven, Mississippi. In addition, the MSeHA has added new functionality to the exchange. For example, a partner requested special access to data of its patients who visit other hospitals. Along with this partner’s clinicians and IT personnel, MSeHA is designing a prototype for this functionality. MSeHA has been continuing the logical observation identifiers names and codes (LOINC) mapping of additional lab results, which has strengthened its ties with participating providers. Early in 2008, MSeHA mapped an estimated 50 labs, including panels, which represents 50 to 60 percent of the total ordered labs.

MSeHA recently signed a contract with a new vendor, ICA. MSeHA will work through the end of the year to ready the system to move the technical infrastructure from behind the Vanderbilt firewalls outward, to the ICA platform in early January 2009.

In addition, the MSeHA successfully engaged one of the largest pediatric practices in its community and by the end of 2008 was in discussion with the next-largest pediatric practice, as well as the two remaining safety net providers in the community. The MSeHA Board elected its third set of officers in May 2008. The focus for the Board is developing a business model/plan for sustainability. Discussions with Fed Ex and Cigna as potential partners took place in 2008, but no terms were negotiated.

The MSeHA was involved at the State level in developing an approach to measuring quality using clinical data and in developing business models for sustainability. The Vanderbilt team, in conjunction with the Regenstrief team in Indiana, developed a prototype for a medication hub. The pilot project progressed more slowly than planned due to the SureScripts/RxHub merger. By the end of 2008, test messages were successfully sent between MSeHA and Regenstrief and RxHub.

**Preliminary Impact and Findings:** As part of its evaluation, the MSeHA is conducting usability surveys, with prize incentives, and qualitative data collection that aims to identify workflow issues in emergency department and ambulatory settings. Overall, providers commented that the data were valuable and useful in caring for patients. Suggestions for improvement were forwarded to the development team. As of December 2008, duplicate testing analyses are underway for the following: head MRI, head CT, abdomen CT, HbA1c (a test that measures the amount of glycated hemoglobin in the blood), and ankle x-rays. The MSeHA tracks the number of patients who are queried and whether the data were found on the patient. All patients are “looked up” through an automated process; up to 13 percent of the time, a more detailed query is made by the provider. Approximately one-third to one-half of patients who have a detailed query have some information available for the clinician.

---

## Selected Outputs

The Vanderbilt Regional Informatics team has made many of the documents, including legal agreements, operations committee structure, original technical proposal for the project, and the evaluation plan, available at [http://www.regionalinformatics.org/docs/task.cat\\_view/gid,30/](http://www.regionalinformatics.org/docs/task.cat_view/gid,30/).

In January and July 2008, this HIE participated in two in-person meetings with fellow AHRQ-sponsored SRDs to share lessons learned, share general information, and plan for upcoming project-specific deliverables such as conducting evaluations and developing sustainability plans.

In late 2008 and onward, this HIE contributed to the AHRQ-sponsored manuscript entitled, *Liability for Regional Health Information Organizations: Lessons from the AHRQ-Funded State and Regional Demonstration Projects and Other Community Efforts*, [available online](#).

The fact sheet is available at <http://www.midsoutheha.org/>, as well as links to all participating organizations.

## Presentations/Publications/Dissemination:

- Principal Investigator, Mark Frisse, together with project team leaders, Vicki Estrin and Janet King, has been facilitating meetings with key stakeholders in middle Tennessee to develop a data exchange in that community building on the work of the MSeHA in Memphis.
- Webinar (AHRQ/CHI), July 10, 2008
- Institute of Medicine, Comparative Effectiveness, July 30, 2008
- Redwood MedNET Annual Conference (Ukiah, CA), Janet King, July 2008
- Owen School of Business (sponsored HIT meeting), Janet King, Fall 2008
- AHIMA Regional Keynote (Chicago), August 18, 2008
- Owen School of Business (lecture), October 31, 2008
- Vanderbilt Seminar, September 1, 2008
- National Medicaid MMIS Keynote (for Governor Bredesen), September 15, 2008
- DBMI Course, Public Health Informatics, November 18, 2008
- California Privacy and Security Meeting (Sacramento), October 28, 2008
- Emdeon November Institute, November 6, 2008
- Cumberland Pediatrics, Annual Meeting (Keynote), December 9, 2008
- State of Pennsylvania eHealth Meeting (Keynote), May 4, 2009

- New York Academy of Medicine (Invited Lecture), May 21, 2009
- Vicki Estrin participated in a number of NHIN DURSA work group calls regarding the production level DURSA.
- Mark Frisse, Kevin Johnson, and Vicki Estrin presented different aspects of the Memphis project at AMIA in Washington, DC, November 10–12, 2008. (Note: with permission obtained in advance, up to \$3,000 of AHRQ funds were spent to fund the travel.)
- Mark Frisse and Vicki Estrin participated in the Governor’s statewide ePrescribing Summit on December 11, 2008.

**Conference papers and journal articles:**

1. Coffman T, Porter JP, Frisse ME. Reducing HIE Costs through Real-Time Data Feed Visualizations. AMIA Annual Symposium proceedings. Washington, DC, 2008:913.
2. Frisse ME, King JK, Rice WB, et al. A Regional Health Information Exchange: Architecture and Implementation. AMIA Annual Symposium proceedings. Washington, DC, 2008:212-6.
3. Johnson KB, Gadd C, Aronsky D, et al. The MidSouth eHealth Alliance: Use and Impact in the First Year. AMIA Annual Symposium proceedings. Washington, DC, 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. 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; January 2009. (MSeH leaders served as major contributors.)