



Southeast Michigan Health Information Exchange

SEMIE: Request for Information

SUMMARY:

On behalf of the Southeast Michigan Health Information Exchange, responses are sought regarding the implementation of a healthcare information exchange solution that will be available to providers in the Detroit metro area of Southeast Michigan.

The Southeast Michigan Health Information Exchange (SEMHIIE) is requesting information to understand and analyze possible solutions for interoperable health information exchange technology available to hospitals, laboratories, pharmacies, physical and behavioral health clinics public health departments and physicians offices throughout Southeast Michigan. Responses to this RFI are expected to be consistent with the Michigan Health information Network (MiHIN) Project and the goals and objectives of the SEMHIIE (see www.mihin.org and www.semhie.org). Use case and requirements descriptions are included in this RFI to inform respondents of the specific goals and framework proposed by SEMHIIE.

The purpose of this RFI is to identify potential clinical information exchange solutions and provide SEMHIIE with pricing, requirements and ideas that best fit the needs of the Southeast Michigan region and its providers. Responses to this RFI will be reviewed by SEMHIIE to be used in the establishment of a public Request for Proposals (RFP). **Proprietary information is not to be submitted in response to this RFI.** Indications of proprietary information will be disregarded without exception.

DATES:

Responses must be submitted to SEMHIIE on or before 5/16/2008.

SCHEDULE OF EVENTS:

Respondents are expected to fully participate in the Schedule of Events.

EVENT	DATE
Release of RFI	04/14/2008
Time period to submit questions	04/14/2008 – 04/25/2008
E-mail responses to questions provided	05/5/2008
RFI responses due	05/16/2008

ADDRESSES:

Electronic responses are required and should be sent to semhie.info@altarum.org. Include SEMHIIE RFI in subject line. Non electronic responses will not be accepted.

FOR FURTHER INFORMATION:

Questions from potential responders will be accepted via email at semhie.info@altarum.org

Responses will be provided on or before 5/5/2008. Additionally, a public, online Frequently Asked Question (FAQ) page will be provided to answer questions throughout the response period at www.semhie.org.

BACKGROUND:

Mission and Vision of SEMHIE

In late 2006 the SEMHIE Consortium identified four host organizations to facilitate planning activities toward the development of a multi-stakeholder initiative dedicated to the creation of a health information exchange (please see appendix A). Altarum Institute was asked to serve as the lead agent for the project and was subsequently awarded a \$1.1 million dollar planning grant to further the Consortiums' efforts. The SEMHIE Consortium is currently in the process of forming a separate, legal entity dedicated to delivering the promise of integrated, interoperable health information exchange throughout Southeast Michigan. When successfully deployed, SEMHIE will:

- Enhance patient care, quality and safety
- Increase effectiveness and efficiency of healthcare delivery
- Reduce healthcare costs

The SEMHIE Consortium has the mission of advancing the implementation of an integrated interoperable health information exchange across the region, supporting the data needs of physicians, health systems/hospitals, public health departments, patients, employers, health plans and other regional constituents. The exchange will provide a platform for the delivery and sharing of electronic health information in a secure and timely manner to authorized users across organizational boundaries. The SEMHIE organization has 5 major objectives:

1. Establish a sustainable self-sufficient business model that aligns costs with benefits for the stakeholders
2. Provide for secure, private and efficient cross-institutional exchange of clinical and administrative healthcare data
3. Create a secure, interoperable health information technology infrastructure consistent with state and federal standards/guidelines
4. Link to national and regional efforts through use of a common trust framework, business and operating rules, technical infrastructure, and governance models for federated identity management and interoperability
5. Develop and maintain an environment of trust among the stakeholders

For more information see www.semhie.org.

Southeast Michigan Environment

The Southeast Michigan region covers the five Michigan counties of the Wayne Medical Trading Area: Macomb, Monroe, Oakland, St. Clair, and Wayne. Over 4 million people, over 40 percent of the state's population, live in the region. Just under half of the region's population is concentrated in Wayne county, another 28 percent in Oakland county, an additional 20 percent in Macomb county, and less than 5 percent each in Monroe and St. Clair. Over 50 hospitals or medical centers operate in the region, with about three quarters affiliated with one of seven major health systems: Detroit Medical

Center; Henry Ford Health System, McLaren Health Care, Oakwood Healthcare System, St. John, Trinity Health, and William Beaumont Hospitals. Over 17,000 physicians (MDs and DOs) practice in the region, well over half the state's physician population. Within the region, half the physicians are located in Oakland county, another third in Wayne county, and 10 percent in Macomb county. While some of these physicians are aligned with one of the health systems, many interact with multiple systems. Healthcare resources in the region provide on the order of 9 million visits, 600,000 annual discharges, and 7 million lab tests annually.

RFI Context

SEMHIE is currently seeking a clinical messaging solution that will allow the exchange of healthcare information among various stakeholders as members of the exchange. Successful SEMHIE implementation will create a system whereby a healthcare provider can access complete basic medical information about his or her patients no matter where the patient is treated in southeastern Michigan. SEMHIE will allow authorized users (physicians, therapist, hospitals, pharmacies, etc and eventually health insurers and patients) to have timely secure and appropriate electronic access to complete, accurate and essential patient information at the point of care for the purposes of improving the quality of health care (through more informed decision making), reducing cost (through avoidance of unnecessary tests and treatments), enhancing patient safety (through reducing the risk of adverse events) and improving efficiency of managing healthcare services (through reduction in administrative paperwork).

A first priority of SEMHIE is the electronic facilitation of existing provider communications conducted primarily through fax phone or paper means. The HIE will first allow for the direct delivery of health information to providers. This information should include at minimum; laboratory and radiology results, admission and visit notification and medication related data. The creation of a clinical in-box containing results from multiple data sources is of particular interest. Further phases should include the organization of health related information allowing for the ability of members of the exchange to submit queries to retrieve health information for each patient. Use cases describing top level priorities are included in following sections.

Potential long term expansions of SEMHIE will include; communication between area emergency departments, integration with state public health departments, administrative communications between payers and providers, communication specifically focused on needs of accident victims and emergency responders and patient access to healthcare information.

REVIEW CRITERIA:

Reponses will be reviewed by members of the SEMHIE project with the goal of further defining and selecting a health information exchange system architecture and implementation based on the following criteria (in no particular order):

1. Functionality

2. Usability
3. Interoperability and Extensibility
4. Reliability and Availability
5. Performance
6. Scalability
7. Security
8. Maintainability
9. Ease of Implementation
10. Total Cost of Ownership/Financial Sustainability
11. Adherence to Standards
12. Previous Experience/References

USE CASE DESCRIPTIONS:

Responses should address a phased plan that includes the following high priority use cases. Responses need to address both the ability to meet proposed use case functionality and requested information pertinent to each use case.

A. Clinical Messaging/Results Delivery

The HIE plans to deliver clinical documents from hospitals, labs and/or other providers via standardized messages to the ordering physician. Beginning phases should include results delivery directly to ordering physicians and expand to include two way communications between providers in both inpatient and outpatient settings. This use case is initially defined to provide the following types of results:

- Laboratory ordering and results from laboratory service providers
- Radiology ordering and reports from radiology service providers
- Admissions notifications and discharge summaries from hospitals and other ADT encounter data
- Encounter information and physician notes from outpatient facilities
- Diagnoses, results and physician notes required to facilitate referrals, consults and transfers in care including:
 - To or from acute care hospitals
 - Skilled nursing facility
 - Rehabilitation facility
 - Home health services
 - Between primary care and specialty services
 - Between physical and behavioral health services

B. Clinical Results Retrieval

The HIE plans to allow providers to search for patients and retrieve clinical documents from across multiple participating sources. Through use of appropriate patient and provider identification, the HIE would assist providers, in

both ambulatory and inpatient settings, in obtaining needed patient information. This is considered technology whereby a physician can search for results on patients for which they did not place the orders. This use case is initially defined to provide access to the following types of results:

- Lab reports from laboratory service providers
- Radiology reports from radiology service providers
- Discharge summaries from hospitalizations and ED visits
- Treatment encounter data – admission dates, discharge dates, and other ADT information
- Encounter information and physician notes from outpatient facilities
- Allergies
- Immunization data from the state
- Prescription drug histories from the following potential sources: Payers/PBMs, Pharmacies, Hospitals/providers, RxHub/SureScripts/other clearing houses

Responses May Address:

Use Cases for Consideration in Future Phases

- **E-prescribing enhancements** – HIE supported enhancements to e-prescribing technology allowing physicians to electronically write and communicate drug prescriptions, track and monitor patient medications and receive drug related decision support at the point of care.
- **Emergency Department Communications** – HIE functionality focused on the improved clinical information availability and communication between regional emergency departments.
- **Administrative Communications** – HIE functionality focused on the standardized transfer of claims related data between payers and providers. Includes e-billing, eligibility monitoring and deductible determination.
- **State Public Health Integration** – Functionality allowing for both outgoing and incoming messages between the HIE and state public health agencies and systems (e.g. immunization registries, disease surveillance, syndromic surveillance)
- **Emergency Responder** – Timely electronic access to critical health information related to assessment, stabilization and treatment of the victims of emergency incidents.

REQUEST FOR INFORMATION:

Please address the following questions as they relate to the proposed development of a health information exchange solution.

General

1. Please provide a key point of contact to coordinate any follow-up or questions that the team may have regarding your response.
2. Please provide an executive summary containing an overview of previous experience with health information exchange technology, all major points detailed in the RFI and an explanation of how the proposed solution's strategy addresses the key principles described.
3. Please describe and/or provide a visual representation of how your system will meet the various workflows described in the use case and how each component of your proposed solution is utilized throughout the workflow. Additionally please respond to the questions posed for each use case
4. Please describe your strategy for historical data loading, including services offered and recommendations.

Questions related to Use Case A

5. Describe how the proposed solution would preserve, augment or replace existing lab ordering and result posting functionality in physician's offices.
6. The delivery of information to physicians will depend upon the technology they have available. Some options that have been considered include 1) Messaging to a secure e-mail results inbox; 2) Messaging to an existing electronic Medical Record (EMR) clinical application; or 3) Electronic or paper facsimile (fax). Describe how the proposed solution would support each of these options. Describe the feasibility/practicality of each option.

Questions related to Use Case B

7. Patient authorizations / identification
 - a. Describe how the solution would verify and manage authorizations for information, patient release of information etc.
8. Patient search functionality
 - a. Describe technologies utilized to confirm patient identification. How is certainty presented to the provider? Describe search logic
 - b. Describe the process and sources utilized to produce the most reliable complete and cost efficient patient history.
 - c. Describe how validity of information is determined

- d. Describe how information / encounters would be updated by multiple providers across the exchange

General Technical Requirements

9. Please provide and describe a technical architecture including major design principles and elements.
10. Please clearly describe the hardware, software, operating systems, and database requirements that your proposed solution requires from data user, data provider, and system administrator perspectives. Include in your response any product names included in your proposed solution including version, current release and a description of how each product or component fits into the overall architecture.

Privacy/Security

11. Please describe how your solution ensures the privacy, confidentiality, and security of patient information from technical and functional perspectives. Include in your response details regarding compliance with Health Insurance Portability and Accountability Act of 1996 (HIPAA)
12. Please indicate how your solution would assist in creating / obtaining the necessary inter-entity agreements needed to share data of this nature.
13. Describe the level of information available in the solution's audit trail and the process for HIE utilization and reporting of the audit trail.

Standards

14. Please indicate how your solution ensures compliance with accepted standards in electronic communication including where possible references to the following standards organizations. Please see appendix for applicable standards and policies.
 - a. Health Level 7 (HL7)
 - b. Public Health Information Network (PHIN)
 - c. National Institute of Standards and Technology (NIST)
 - d. International Organization for Standardization (ISO)
 - e. American Society for Testing Materials (ASTM)
 - f. Federal Public Key Information Policy Authority (FIPS)
 - g. Healthcare Information and Management Systems Society (HIMSS)
 - h. Liberty Alliance
 - i. Request for Comments Series
 - j. American National Standards Institute (ANSI)
 - k. The Open Group (TOG)

I. Object Management Group (OMG)

Interoperability and Extensibility

15. Define how your solution interfaces to existing source systems. List which data types your solution can handle and which data standard formats you would support. Include how information can be captured as well as disseminated from your solution. Be sure to address how integration will occur for providers that are the least technologically advanced (i.e. paper-based) to the most advanced (i.e. "paperless")
16. Please describe any Application Programming Interfaces (API's), Software Development Kits (SDK's) or other tools available for third-parties to extend the functionality offered by your solution.
17. SEMHIE expects that providers will have an extremely diverse range of technical capabilities and systems in their organizations. To support sharing of data among these disparate systems, a flexible architecture will be required that can take advantage of these existing systems and provide redundancy. Additionally SEMHIE believes that the architecture should communicate via public network services (ie the Internet) to avoid the creation of additional infrastructure for the exchange. Service Oriented Architectures (SOA) are useful in unifying business processes while accomplishing these goals. Please describe your solutions approach to interoperability and service oriented architectures.

Scalability

18. Please describe how the system would be deployable to additional organizations in a scaleable manner and the incremental technical, financial, and operational implications associated with system expansion at both data provider (federated) and administrative (central) levels. Describe the ongoing support and maintenance that will be necessary for your solution at both the statewide and regional level. Include the pricing and costs associated with each component.

Implementation

19. Please attach a sample project plan that includes typical project tasks, milestones, estimated timelines, and required resources (indicate if task is typically staffed with respondent-supplied implementation team, client team, or third party resources). Please reference management procedures and tools used to track implementation timelines, manage and resolve issues, and maintain project documentation. Please indicate implementation services that are typically included and those that can be purchased on a fee basis.

20. Please describe the recommended technical and end user training / education including documentation, approaches, modules offered, and services that would be offered.
21. Please describe how your solution and its implementation facilitate physician adoption. Include how the proposed solution will incorporate and compliment existing provider workflows. Be sure to include details related to ease of use particularly in the area of patient searches

Patient and Provider Identification

22. Please describe your proposal's approach to provider identification, credentialing and verification. Please include the following scenarios of providers seeking healthcare information:
 - a. Physician previously credentialed by HIE with established patient relationship
 - b. Physician credentialed by HIE, no established relationship
 - c. Physician not credentialed by HIE no established patient relationship
23. Please describe your proposal's approach to maintaining accurate patient identification across organizations
24. Describe how your proposed solution integrates with any third party vendor for a) identity management b) record locator services. If your solution provides a tool for a) identity management b) record location services are you required to use that specific tool? Please describe.

Maintainability

25. Please describe the level of support and maintenance required for your proposed solution. Include in your description the types of services required to keep the solution operational, hours of operation for support, support contact methods, response times, whether support is outsourced, and any other information that may be valuable to SEMHIE.

Total Cost of Ownership

26. Please provide a detailed cost model to purchase/develop, implement, and operate your proposed solution including unit costs based on key variables such as data users, source systems, interfaces, and the pricing scales based on those key variables using the attached pricing schedule.
27. Please provide any references to cost reductions or return on investment associated with your proposed solution.

28. Please indicate previous experience with sustainable funding models associated with your solution.

Performance, Reliability and Availability

29. Describe the system performance for the proposed solutions. In addition to the items below, list any requirements and other factors that could influence performance of the system.
- a. Response time for the types of transactions mentioned in the above use cases (average, maximum)
 - b. Capacity (for example, the number of concurrent customers or transactions the system can accommodate)
 - c. Average system response time after user input
 - d. System safeguards that prevent users from severely degrading system performance or “hanging” the system (e.g., searches that return a large number of records)
30. Address the following questions regarding system availability:
- a. Describe your application’s availability in terms of redundancy or fault tolerance.
 - b. What are the implementation requirements for maximum system availability?
 - c. Does the application allow for a limited mode of operation (e.g. continued operation in event of a disaster)?
 - d. Describe aspects of the system that allow continued usability when certain services or entities are not available (offline), or become unavailable during communication.

National Health Information Network (NHIN) Concerns

31. How would the system conform to the architectures and standards utilized by the NHIN pilots established by the ONC?
32. Looking to the future how will your solution integrate with other regional HIE’s in Michigan and NHIN?

History / References

33. Please provide a brief summary of your company along with previous health information exchange experience. Include descriptions of any other companies or groups that will be included in your proposed solution. Please include 3 current references. For each of the references, please fill out the attached reference form. The organizations may be contacted by the team without prior notice.

Appendix A - SEMHIE Participating/Supporting Organizations

Community	
Southeastern Michigan Health Association	Hospice of Michigan
Greater Detroit Area Health Council* ^H	Presbyterian Villages of Michigan
Detroit Community Health Connection	Visiting Nurse Association
Consumer	
AFL-CIO Employer Purchasing Coalition	Michigan Health and Safety Coalition
Citizens Research Council of Michigan	
Employer	
Chrysler	General Motors*
Detroit Regional Chamber	University Bank
Ford Motor Company*	
Medical Society	
Oakland County Medical Society* ^H	Michigan State Medical Society
Wayne County Medical Society* ^H	
Government	
Detroit Department of Health & Wellness Promotion	Oakland County Community Mental Health Authority
Detroit Wayne County Health Authority	Washtenaw Community Health Organization
Macomb County Community Mental Health Services	Washtenaw County Public Health
Michigan Department of Community Health	Wayne County Department of Public Health
Oakland County Health Department	
Association	
Healthcare Information Management Systems Society	Macomb County Osteopathic Medical Association
Huron Valley Physicians Association	United Physicians
Health Plan	
Blue Cross Blue Shield of Michigan*	Priority Health
Great Lakes Health Plan	United Healthcare
Health Alliance Plan	
Health System	
Botsford Hospital	St. John Hospital*
Detroit Medical Center	Trinity Health*
Henry Ford Health System*	University of Michigan Hospitals and Health Centers
Oakwood Healthcare System*	William Beaumont Hospitals
POH Regional Medical Center	
Ancillary Services	
Joint Venture Hospital Laboratories	Michigan Pharmacists Association
Michigan Hospital Association Laboratories	Quest Diagnostics Clinical Group
At Large	
Ann Arbor Area Health Information Exchange	MPRO
Other	
Altarum Institute ^H (Lead Host)	

H - Denotes host organization

* - Denotes representation on current Governance Committee

Appendix B – Security and Privacy Standards Organizations

- I.) National Institute for Standards and Technology (NIST)
 - NIST 800-63
 - a) 4 levels of mapping
 - Level 1: Low value and perhaps “User ID and Password” would suffice.
 - Level 2: Low value and determined in value to require PIN/Password.
 - Level 3: High value and “business risk” mapping determination of the enterprise to perhaps a set of multiple digital solutions.
 - Level 4: High value and mapped to require “strong” credential solutions.

- II.) International Organization for Standardization. (ISO)
 - ISO TS21091 Health Informatics – Directory Services for Security, Communications and Identification of professionals and patients.
 - ISO IS17090 Part 1,2,3 -- Health Informatics—Public Key Infrastructure.
 - ISO TS26000 Part 1,2. – Health Informatics – Privilege Management and Access Control.
 - ISO DTS21298—Health Informatics: Function and Structural Roles.
 - ISO/IEC 9594-8—Information Technology Open Systems Interconnection-The Directory: Public Key and Attribute Certificate Frameworks.

- III.) American Society for Testing Materials. (ASTM)
 - ASTM E1986 – Standard Guide for Information Access Privileges to Health Information.
 - ASTM E1762—Standard Guide for Electronic Authentication of Health care Information.
 - ASTM E2084 – Standard Spec. for Authentication of Healthcare Information using Digital Signatures.
 - ASTM E2212-02a—Standard Practice for Healthcare Certification Policy.

- IV.) Federal Government Agency and Standards Bodies. (NIST/Federal Public Key Information Policy Authority)
 - FIPS 201—Personal ID Verification of Federal Employees and Contractors.
 - NIST 800-63—Recommendation for E-Authentication.
 - NIST 800-73 – Interfaces for PIV Card.
 - OMB M-04-04.
 - FBCA – Certification Policy.
 - FBCA—Common Certification Policy.
 - FBCA – Cross-Certification Requirements.
 - FBCA – Trust List.

- V.) Healthcare Information and Management Systems Society. (HIMSS)
 - IHE Audit Trail and Node Authentication Profile. (ATNA).
 - IHE Document Digital Signature. (DSG)
 - IHE Cross-Enterprise User Authentication. (XUA)

- VI.) Liberty Alliance.

Liberty Alliance – The Identity Assurance Framework.
Liberty Alliance - Web Services Framework.
Liberty Alliance – ID-WSF ID-SIS A collection of Identity Services Interface Specs.

VII.) Request for Comments Series. (RFC)

RFC 3377—Lightweight Directory Access Protocol: (v3) Technical Specs.
RFC 3280 – Internet X509 Internet Public Key Infrastructure Certificate and CRL Profile.
RFC 3851—Secure/Multipurpose Internet Mail Extensions (S/MIME) Version 3.1 Message Spec.
X.500—The CCITT and ISO Standard for electronic directory services.

VIII.) American National Standards Institute. (ANSI)

ANSI X9.31 – Digital Signatures Using Reversible Public Key Cryptography. (rDSA)
ANSI X9.45 – Enhanced Management Controls Using Digital Signatures and Attributes Certificates.

It should be noted that ANSI and the Liberty Alliance support the “Healthcare Information Technology Standards Panel” (HITSP)

IX.) “The Open Group”, (TOP) www.opengroup.org and “Object Management Group” (OMG) www.omg.org are both internationally recognized Standards bodies.
Both Bodies have completed much work in:

- a) Healthcare Quality and SOA.
- b) Open Source Tooling.
- c) Business Process Models.
- d) Enterprise Architecture.
- e) Healthcare SOA Reference Architecture.
- f) Interoperability of Healthcare Information.
- g) Security and Privacy.