

Maine Health Information Network Technology (MHINT)

Maine Clinical Information Sharing System Request For Information (RFI)

Date: June 7, 2005

RFI Document

1. Introduction

The intent of this Request for Information (RFI) document is to solicit responses from national vendors and partners to the questions outlined in section 3. The feasibility phase of the Maine Health Information Network Technology (MHINT) project (August - December 2004) has been completed and Phase II, the Planning and Development Phase, is underway. Phase II will focus on the development of an architectural model and system design for a statewide implementation of a clinical information sharing network across all providers and systems. It is planned that the first stage of implementation will occur in 2006 with full statewide implementation targeted for 2010.

This RFI is requesting technical and cost information from vendors interested in working with Maine to develop the statewide IT system. The MHINT project has attempted to put forward in this document as much detailed information as possible to provide potential responders with an overview of Maine and the project. There is an opportunity for responders to ask questions. All questions will be received via e-mail and all questions with responses will be forwarded to all parties who have submitted a notification of intent to respond.

The Maine Health Information Center (MHIC), the manager of the MHINT project, is releasing the RFI and will be following the schedule of activities as outlined in section 5. The MHIC will notify all responders of the results of the review process. It is unclear at this time if a formal Request for Proposal (RFP) will be issued or if formal negotiations and scope of work development will be the next step after the RFI review and vendor selection. That decision will be made after responses to the RFI are received and reviewed.

1.1 Background

Established in 1976, the Maine Health Information Center (MHIC) is an independent, nonprofit health data research and data management organization. The MHIC's mission is committed to promoting informed decision-making by designing, managing and analyzing timely, high quality integrated healthcare databases. The Board of Directors of the MHIC includes senior executives from state agencies, health care provider organizations, insurers, public health organizations, employers, and academic institutions. For more information regarding the MHIC, visit the web site www.mhic.org.

The MHIC is uniquely well qualified to lead health care information technology related projects. Through its work for a diverse client base across the state over the course of nearly three decades, the MHIC has developed an extensive understanding of Maine's health care infrastructure. As Maine's leading nonprofit data research and management organization, the MHIC has particularly strong resources in information technology, both in the training of its professional staff and in its own technology infrastructure. The MHIC serves as the manager of the nation's first all-payer, all-setting health and dental insurance claims database. This public/private partnership, known as the Maine Health Care Claims Data Bank, required the MHIC to build an IT system capable of processing more than 50 million records each year that are transmitted via a new state of the art, web-based system that connects some 150 insurers

from across the country to the MHIC.

In the late 1990's the MHIC led an extensive statewide effort to establish a statewide, coordinated Community Health Information Network (CHIN). Although there was insufficient financial support at that time in Maine and nationally to allow this innovative health care information technology project to be implemented, much was learned about building a statewide collaborative IT infrastructure system. The MHIC gained substantial experience in building and managing the processes that are essential in building awareness and support for large-scale collaborative projects of this kind.

In August 2004, with collaborative financial support from the Maine Health Access Foundation, the Maine Quality Forum and the Maine Bureau of Health, Phase I of the MHINT was launched to formally establish the feasibility of developing a statewide inter-connected clinical information system. A wide range of leaders and leadership organizations were involved in the advisory committees and workgroups during Phase I. These participants included clinicians, hospitals, IT professionals, health care and government decision makers, health plans and other.

Phase I was completed in December 2004. There was strong support of the MHINT from the health care community and 34 hospitals signed written commitments to move into Phase II, Planning and Development. The completed Phase I work focused on the following areas of activity:

- An inventory of vendors and analysis of existing and planned IT systems in Maine's hospitals and practices;
- The development of a technical vision and criteria for a statewide clinical information system.
- The establishment of two major advisory committees: the provider advisory committee and the chief information officers' work group;
- The development of a preliminary business case for a clinical data sharing network;
- Substantial commitment from key stakeholders and hospitals for the development of the statewide system.

At the end of Phase I, it was concluded that:

1. There is a sufficient proliferation of EMR technology in Maine's hospitals and physician practices to provide a robust early stage database of patient specific clinical information.
2. The Maine health care community supports the move to the next phase of the project to begin the development and design phase.
3. Although incomplete, national efforts to create standards for data sharing are sufficiently developed to support a clinical data-sharing network.
4. The technology currently exists and the vendor interest is sufficient to allow for a statewide system.
5. A preliminary cost-benefit analysis demonstrated that there are potentially significant financial savings that might be realized from the implementation of a statewide system.

Maine's collaborative environment and IT progress combine to make Maine a potential model for a statewide inter-connected IT system. Maine's health care community and interested parties are ready to go forward to address the governance, funding and technology components of the system to complete the development and design Phase II work.

1.2 Environmental Assessment

Through the use of a web-based IT information survey instrument completed by a large sample of Maine hospitals and contacts familiar with practice based information systems, sufficient information was obtained to conclude that Maine hospitals have made significant strides in IT development and in general have aggressive plans to refine their programs. It was also determined that several health care delivery systems are actively pursuing solutions to address intra-system data sharing.

All of the hospitals that responded to the survey have more than the minimum resources (mostly inbound bandwidth, outbound web access) required to provide access to a MHINT system for their in-house staff and authorized parties. Several hospital systems have information systems in place that may be connected to the MHINT data source through a standard interface to provide a single, unified user interface to all of the data for clinicians at their site.

While a number of physician practices in Maine have adopted electronic medical records (EMRs), use is not widespread beyond practices owned by (or closely affiliated with) either hospital systems or those large practices or practice groups in major population areas. Reasons for the slow adoption of clinical medical record systems in Maine practices are very similar to national reasons: lack of financial incentive, lack of resources, and lack of technical expertise to select, implement and maintain a system.

Phase I of the MHINT project concluded that there is a sufficient critical mass and geographic dispersion of hospital IT systems and provider practices with electronic health record systems in place, or planned for, to support a pilot implementation phase.

Complete reports on the hospital and physician IT survey results can be found as attachments to the Phase I report (December 15, 2004) on the MHIC web site: www.mhic.org.

1.3 Phase II Scope of Work

The MHINT, in collaboration with a number of organizations with a strong interest in quality, cost and access, now believes there is a limited window of opportunity to bring together health care decision-makers to build a coordinated IT infrastructure in Maine.

The objective of Phase II is to lay the groundwork for the implementation of a statewide clinical information-sharing network to begin sometime in 2006. This Phase II will be an intense, highly coordinated effort over the next twelve months to develop the governance model, implementation and long range funding plan, and architectural model and system design for the MHINT system.

The work under Phase II will focus on the following areas:

Governance

Identify and/or establish an appropriate governing body to assume final responsibility for oversight, coordination, facilitation and management of the implementation and operation of the MHINT.

Consumer Engagement

The MHINT project will work closely with consumer representatives to address issues of confidentiality, consent for access to patient-specific data, and patient access to their own personal health record through the MHINT.

Technical Development

The MHINT Technology Committee and selected vendor(s) will work with the MHINT staff to select an architectural design for the MHINT system, develop a functional system design document, identify the MHINT clinical data elements and a phase-in plan for data transfers, identify and develop an interface relationship with data sources, and identify the resource commitment required of pilot phase data users and provider participants.

Funding and Business Plan Development

Develop a business plan based upon the final architectural model.

1.4 Objectives

Responses to questions in section 4 should indicate your familiarity with Health Information Technology and the establishment of an interconnected set of servers, software, networks and security mechanisms across disparate systems to supply providers, patients and facilities with the ability to create and manage this complex clinical interconnectivity in Maine. The MHINT system should be designed for “routine” point-of-care access and, at least in its earliest iterations, is not intended to be a primary source of information for emergency patient care. The system must have the capability to interface with existing hospital and practice systems for connectivity.

An interconnected, secure data sharing network of healthcare providers, public health professionals, consumers, payers, and affiliated services will permit rapid access to patient-specific healthcare data at the point of care and across networks, hospital systems and state lines.

Objectives for the system are:

An integrated clinical information system of this kind will maximize the effectiveness of available technology to provide accurate, secure, and current clinical and administrative health care data to points of care in order to:

- ?? Improve patient safety
- ?? Improve the quality of clinical care
- ?? Identify potential threats to the public health

- ?? Reduce duplication of services
- ?? Improve clinical and administrative efficiency and effectiveness
- ?? Allow connectivity to a national network of interconnected healthcare data exchange
- ?? Provide consumers with access to their personal healthcare information

An interconnected, secure data sharing network of healthcare providers, public health professionals, consumers, payers, and affiliated services would permit rapid access to patient-specific healthcare data at the point of care and across networks, hospital systems and state lines.

1.5 MHINT Principles

The following principles for the MHINT system were developed and endorsed by all parties during Phase I:

Patient privacy, system security and HIPAA compliance shall be the highest priorities in building and operating a statewide clinical information sharing system:

- ?? Individually identified data shall remain the property of that individual and shall not be disclosed or disseminated to others without that individual's express written consent.
- ?? Any data accessed for the development of public health initiatives, clinical quality initiatives, and/or patient safety initiatives must be de-identified and remain under the control of the representative oversight body.

Participation in the system shall be open to and affordable by all individual health care providers and provider and public health organizations that are involved in patient care and safety. Governance of the system shall be through an existing or new organization that is based in Maine and is representative of all stakeholders.

Participation in the system shall be voluntary and include the right of any individual or organization to withdraw.

System operations shall be designed in a format that is driven by end-user physician value and efficiency.

Priorities for clinical data elements that will be made available through a statewide information sharing system will be determined by physicians. Data element selection will be evidence-based and outcomes-focused.

System operations shall be funded in a manner that does not compromise the above principles in any way.

2. Technical Vision and Criteria

2.1 Technical Vision

During Phase I, a work group comprised of Chief Information Officers from several Maine hospitals and physician practices throughout the state was convened to establish the Technical Vision and Criteria for MHINT. Meeting several times during October and November 2004, those IT experts, after unanimously agreeing that the technology currently exists to create a secure statewide clinical information sharing network, prepared the Technical Vision and Criteria to guide the process.

From a technical perspective, the statewide clinical information sharing system should be primarily focused on the sharing of clinical information while recognizing the potential for such a system to eventually develop administrative and public health functionality. This Technical Vision fully supports the MHINT Vision and Principles stated above. To that end, the system must:

- ?? permit interconnectivity to all of Maine's healthcare delivery systems and provider sites;
- ?? provide access to data that is clinically relevant, as determined by Maine clinicians;
- ?? provide point-of-service access and timely response;
- ?? be compatible with existing and planned information systems;
- ?? be consistent with national IT direction and initiatives;
- ?? be based upon and adhere to national and state data element and coding transaction standards, when such standards are available;
- ?? follow existing and developing national and state interconnectivity standards;
- ?? comply with privacy and security standards; and
- ?? guarantee accuracy, validity, and timeliness of data across all participating sites.

2.2 System Criteria

MHINT staff prepared diagrams of five basic architectural models and a preliminary list of criteria for the statewide system. Through a series of CIO Work Group meetings, the criteria were revised and enhanced. The development of the criteria resulted in the elimination of one of the proposed models. A final list of the adopted criteria appears below.

2.2.1 Integration with existing and planned systems.

- a) Interface with existing and planned information systems in order to extract clinical data.
- b) Work with system vendors to accommodate new versions of supported systems as they are developed.
- c) Support national and state standards for the transfer of clinical data where they exist.
- d) Provide the necessary conversions for data that does not conform to national and state standards.
- e) Build on existing network and Internet capability.
- f) Provide a basic, easy-to-use front end that allows any clinician to access the system with minimal requirements. (Internet connection and a Web browser, for example)
- g) Provide well-documented interface specifications to vendors of existing systems (HIS or PPMS packages) to build access to the MHINT system into their proprietary front ends.

- h) Work with vendors of existing front ends to guarantee the interface to the MHINT system supports any existing or emerging data transfer standards.
- i) Support both the automatic and manual submission of data.

2.2.2 Performance

- a) The process of extracting information from existing information systems will not adversely impact the performance of those systems
- b) The process of requesting/importing data from the MHINT system will not adversely impact network performance at the point of service
- c) System will be capable of responding to queries at point of service within MHINT adopted standards for timeliness
- d) System will be capable of extracting data from existing information systems in a timely manner required to make clinical data meaningful
- e) If access to MHINT system requires an Internet or WAN connection, sites will be responsible for their own Internet/WAN connection and for any impact that a slow or congested connection may have on the timely access to the MHINT system from their site.

2.2.3 Reliability/Availability

- a) The part of the system responsible for responding to point of service requests must be highly available. (strict standards for downtime, ability to re-route requests to alternate systems, etc).
- b) Any MHINT equipment located at central site(s) must meet reliability standards.
- c) Any MHINT equipment located at remote sites must meet specified reliability standards even if high-availability is not necessary.
- d) Any MHINT equipment located at remote sites must be simple, easy to support, and maintain.
- e) If access to MHINT system requires an Internet or WAN connection, the reliability of the system at any point of service will be limited by the reliability of the Internet/WAN connection at that location.

2.2.4 Integrity

- a) Data sources must demonstrate ability to assure accuracy of data within acceptable standards.
- b) MHINT will attempt to identify and flag errors and inaccuracies in data from the data sources.
- c) MHINT will guard against inaccuracies that may result from building a statewide system, e.g. duplicate patients, conflicting test results, identifying providers, etc.

- d) A solid methodology for identifying unique patients across networks and provider sites will be identified and adopted.

2.2.5 Privacy and Security

- a) All HIPAA and Maine State requirements will be met regarding patient authorization, data privacy, and security.
- b) Site specific (including hospitals and practices) security requirements will be met.
- c) Strong user authentication standards will be developed, maintained, and clearly stated for all participants.
- d) Authorization standards for accessing data will be developed, maintained, and clearly stated for all participants.
- e) MHINT must log all access to clinical data on a patient by a user.

2.2.6 Cost

- a) Upfront/initial cost for MHINT must be identified and affordable.
- b) Ongoing/monthly costs for MHINT must be identified and affordable.
- c) Add on costs related to customized requests must be identified and managed by the MHINT.
- d) Programming costs for building interfaces with hospital IT and practice management systems will be negotiated as one MHINT price.

2.3 Design Discussions (Key Success Factors)

2.3.1 Architecture

At the outset of Phase I, the MHINT CIO Work Group reviewed five potential architectural models for the System:

- a) Central/Regional data repository without a local application server
- b) Central/Regional data repository with a local application server
- c) Local repository with a central/regional index, a local application server and a local database server
- d) Local repository with a local index, a local application server and a local database server
- e) Local repository with a local mirror of the complete index, a local application server and a local database server

After developing and adopting the technical criteria, each model was re-evaluated to determine its ability to support the criteria and one model was eliminated (Model A) The architectural drawings can be found in the Phase I final report on the MHIC web site (www.mhic.org). It is recognized that other models may also successfully meet the Technical Criteria.

2.3.2 Patient Identification

Frequently referred to as “master patient index”, the MPI is a mechanism to uniquely identify each patient in the system and is one of the key components required to ensure accuracy of data. This is essential so that data from different sources can be mapped reliably to the appropriate patient. Some Maine health delivery systems have developed or are in the process of developing an MPI, the MHINT must have such a mechanism that functions on a statewide level and does not require participating organizations to change or replace their internal MPI systems. Other provider sites may be using a billing ID number as a unique identifier for their patients and have no MPI link at this time. We recognize a significant amount of procedural work will be needed for the statewide MPI implementation.

2.3.3 Patient Privacy and Confidentiality

No information is more sensitive than the information resulting from a clinical encounter between patient and provider. This fact has been reinforced by regulations established as a result of federal legislation known as HIPAA (Health Insurance Portability and Accountability Act). The MHINT must employ state-of-the-art tools and techniques to protect patients’ rights to privacy and confidentiality in accordance with HIPAA guidelines. Included should be mechanisms to acquire and manage patient consent for use and release of protected information as well as tracking and reporting all access to protected information.

2.3.4 Source of Data

Providers need to be assured of the validity of the data used for clinical decision support. One key to building and maintaining confidence in data depends on knowing the source of the data. The MHINT must have the ability to link clinical data to its originating source at the data element level.

2.4 Minimum Data Content and Standards

Through a Medical Advisory Group representing several Maine hospitals, healthcare systems, and physician practices, MHINT has defined a minimum clinical data set that would be most likely to add value, reduce errors, and minimize costs at the point-of-care. The Medical Advisory Group adopted the standards set forth by the American Society of Testing and Materials (ASTM) in its Continuity of Care Record project.

The data elements included by ASTM in the CCR are:

- ?? Patient identification information
- ?? Patient insurance / financial information
- ?? Information regarding the patient’s Advance Directives
- ?? Information regarding the patient’s health status, including:
 - Conditions, Diagnoses, or Problems
 - Family History
 - Social History and Health Risk Factors
 - Adverse Reactions / Allergies
 - Medications
 - Immunizations
 - Vital Signs / Physiological Measurements

- Laboratory Results / Observations
- Procedures / Imaging
- Care Documentation
- Care Plan Recommendation
- Practitioners

Whenever possible, the MHINT project will use national consensus standards and adopt the data elements of the CCR, but not all in the first phase. The following are to be included in the first phase:

- ?? Patient identification information (including Next of Kin)
- ?? Information regarding the patient's Advance Directives (including DNR status)
- ?? Information regarding the patient's health status, including:
 - ⌘ Conditions, Diagnoses, or Problems
 - ⌘ Adverse Reactions / Allergies
 - ⌘ Medications
 - ⌘ Laboratory Results
 - ⌘ Imaging (transcribed documents including imaging results)

3. Potential Annual Volume

To be added by MHINT staff prior to RFI release

4. Your Response

The MHINT team is seeking information from vendors that will assist in the development and deployment of a statewide clinical interconnected network for patient-specific data.

Specifically, this RFI seeks the following information:

- Conceptual technical architecture alternatives
- Comments and discussion on technical feasibility and alternatives
- List of major architectural components
- Approximate cost information (i.e., order of magnitude, software, hardware and other cost estimates, etc.) for alternatives including areas where lower cost alternatives (ex. open source software, commodity hardware, etc.) might be used to reduce the overall system cost and what sorts of impacts this might have on system performance, reliability, and maintenance cost.
- Information about various telecommunications /networking technologies that could be used for this type of system and what capacity, if any, would be required for the different elements (contributing data sources, data consumers, system servers)
- Schedule for implementation (pilot vs. statewide, hospitals vs. practices) and related cost estimates including statewide development costs.
- Any ideas and suggestions that provide alternative approaches to designing, developing, acquiring, operating, and managing this type of system.

RFI Questions/Requirements

General

1. Briefly describe your company, your products and services, history, and other information you deem relevant.

2. Describe the capabilities of your staff and company in supporting a MHINT system. Describe your process for project management and identify your usual level of on-site involvement.
3. Provide a recent annual report. Include separate statements for the portion of your company serving the healthcare market. If your company is a subsidiary of another company, please provide the parent company financials. Include financial information for each vendor partner included in your proposed product.

Partners

4. Name and describe all existing and potential future relationships with partners who may provide products and services that meet the MHINT requirements.
5. Differentiate between the role of your organization and those of your partners. What are the responsibilities associated with each partner by product and/or service?
6. Please describe any interfaces that you have already built with specific health care information systems vendors.

References

7. Describe your experience managing HIT projects with multi-million dollar budgets.
8. Provide references to three HIT operational systems including contact names and telephone numbers.
9. Describe current HIT projects that are similar in concept to the MHINT and identify current status including implementation dates. Please provide a sample design document developed for one of your projects.
10. List participant entities in these projects and describe the geographic area involved.
11. Describe the applications supported/installed and planned.
12. What economic justification data was shown to participants and were you involved in developing that data?
13. What level of application integration was necessary at each site?

MHINT Architecture and System Design

14. Please describe your response to the architecture options presented in this RFI.
15. Please describe in detail, including a network diagram, the architecture of the solution you would like to propose for the MHINT (may or may not resemble one of the proposed MHINT models) and how it/you would meet the system criteria outlined in Section 2.2. Discuss the capability for the solution to be constructed in phases and identify the type of software/equipment that would typically be deployed. Identify which software is currently available vs. what will be developed.

16. Please identify the coding standards you support for data elements and transactions.
17. Please describe your proposed approach to privacy and confidentiality (including securing and managing patient consent, tracking access, HIPAA compliance, Maine State privacy laws that are more restrictive than HIPAA, etc.)
18. Please describe your approach to a Statewide MPI (patient identification) capable of interfacing with existing delivery systems' MPI's including minimum data standards for building a MPI as discussed in Section 2.3.2).
19. Please describe your proposed approach to tracking the source of all data elements.
20. During Phase I, the project discussed the potential composition of the first pilot phase to include participation by a certain number of hospitals and at least one pharmacy data source. Please state any recommendations regarding the composition of the pilot phase participants and data sources you might have.
21. Eventually, the MHINT project will be including a portal for access to health records by individual patients. Please describe your experience with systems allowing patient access.
22. Please identify any alternatives to the proposed scope of work that may result in lower costs.

Cost

23. Provide cost estimates including your approach to pricing for your proposed solution for a 5 and 10 year contract for non-recurring and annual recurring costs. Also discuss cost drivers and cost tradeoffs.
24. Identify and discuss an implementation approach with associated costs.
25. Describe your company's position on creating custom modifications, responses to user requests, and requests for additional implementation and support services.

When responding to each of the questions above, be sure to consider the technical and system criteria identified in section 2 of the RFI. It is extremely important that these specifications be met by any proposed system.

5. RFI Timetable

Activity	Date
Release of RFI	6/7/2005
Final date for receipt of emailed questions	6/20/2005
Response to written questions	6/30/2005
Final date for Notification of Intent to respond	7/15/2005
Closing date for receipt of responses	7/29/2005
Selection of finalists	9/13/2005

6. Instructions for Responses

6.1. Letter of Intent

A Notification of Intent to respond to this RFI must be received by 5 PM EDT on Friday, July 15, 2005 via email or fax to the Point of Contact specified in Section 8. The Letter of Intent must include the name, phone number, mailing address and email address of the respondent's contact to whom all correspondence will be directed. Failure to submit a timely Letter of Intent will not prevent a response from being accepted.

6.2 Bidder's Conference, Questions, and Answers

There will be no bidder's conference held on this RFI. All questions about this RFI, including but not limited to requests for clarification, additional information and/or changes to the RFI must be made in writing, citing the RFI page number and section. The questions must be submitted via fax or email to the Point of Contact specified in Section 8 by 5 PM EDT on Monday, June 20, 2005 to be considered.

Responses to all questions will be distributed via email to all parties who have submitted a Letter of Intent.

6.3 Response Submission

In preparing your response, please re-state the question and its number, followed by your response.

Responses must be submitted via email attachment in Microsoft Office format by 5:00 PM EDT on July 29, 2005 to the POC identified in Section 8. You may also submit supplemental hardcopy materials such as brochures, etc. (5 copies each) to the POC. Supplemental hardcopy materials must be postmarked July 29, 2005.

7. Disclaimer

This RFI is issued solely for information and planning purposes only and does not constitute a solicitation. All information received in response to this RFI that is marked Proprietary will be handled accordingly. Responses to the RFI will not be returned. Responses to this notice are not an offer and cannot be accepted by the MHINT project to form a binding contract. Responders are solely responsible for all expenses associated with responding to this RFI.

8. Contact Information

The following is the Point of Contact (POC) for this RFI:

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