

**New Mexico Health Information Collaborative (NMHIC)**

# **Business Plan**

**Version 1.0**

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## **Executive Summary**

The New Mexico Health Information Collaborative (NMHIC) is the name of New Mexico's rapidly growing health information exchange (HIE) network, as well as the community collaborative that has supported its development with time and funding. The collaborative includes important New Mexico stakeholders representing health care providers, payers, employers, state agencies and consumers. NMHIC was created in 2004, and continues to be fully staffed and operated by the Lovelace Clinic Foundation.

This report has two objectives. The first objective is to provide business and financial information to NMHIC stakeholders that will enable them to begin discussions that will lead to stakeholder decisions regarding the financing for NMHIC. To enable these discussions this report presents comprehensive business information that supports the consideration of three NMHIC financial projection scenarios:

- The first scenario is the one that the NMHIC staff believes is the most probable. In Scenario 1, NMHIC would become financially self-sufficient by 2011 (Year 4). This scenario assumes that federal funding will continue for 2009 and 2010, clinicians and medical practices will pay network user fees for access to NMHIC, and that payers will provide funding on a per member per month basis.
- The second scenario shows the possible impact to NMHIC and payers if federal funding for Years 2 (2009) and 3 (2010) is not received. If the payers are willing to make up the difference for the loss in federal funding, then the second scenario could still show financial self-sufficiency in 2011 (Year 4). The NMHIC staff believes that the loss of federal funding is not likely, but it is presented to facilitate consideration if needed.
- The third scenario shows the possible impact to NMHIC and payers in the event that a community consensus evolves that charging no subscription fees for clinician users would encourage greater clinician adoption. This scenario could only work if the payers are willing to make up the difference for the loss of user subscription fees. The third scenario would not show financial self-sufficiency until 2012 (Year 5).

The second objective is to describe how clinician access to the Nationwide Health Information Network, through NMHIC, will enhance this Business Plan. The benefit of the NHIN to clinicians in New Mexico is based on the access it will provide to patient information from the Veterans' Health Administration, the Department of Defense Military Health System, and the Indian Health Service, as well as many other HIE networks and healthcare organizations that will be connected to the NHIN.

This report describes how NMHIC has been developing a strong foundation to meet community health information needs in New Mexico. It begins with a description of how NMHIC has been guided by the priorities of the NMHIC stakeholders and community. A key example has been the selection of NMHIC network services based on a comprehensive survey of potential network users. It goes on to describe how NMHIC has developed a solid network technical infrastructure that will enable clinicians to import clinical data directly into their electronic health record (EHR) systems, or – if they do not have an EHR – still make full use of the NMHIC Clinician Portal. The report describes how LCF has built a strong and effective NMHIC executive/management team. It also includes a candid summary of the factors that are likely to support and mitigate success of the network along with the financial projections that reflect these assessments. Depending on the scenario and assumptions, the savings-to-cost ratio for

the payer community varies from 180% to more than 500% per year. All scenarios show that the savings to the community significantly exceed the cost of supporting the NMHIC network.

The federal government has recognized NMHIC's strong foundation and its capabilities by prominently featuring NMHIC during the live demonstration of the Nationwide Health Information Network (NHIN) Trial Implementation on September 23, 2008, in Washington, DC.

The NMHIC staff expects that this report will be the first in a series of reports covering business plans that will enable informed financial decisions by NMHIC stakeholders.

Supporting documents for this report include:

- Survey of Potential Network Users
- Environmental Scan
- NMHIC Network Subscription Agreement
- Financial Pro Forma Software Tool (available in electronic form only)

## **Background**

### **NMHIC Perspective**

Vision: To provide a sustainable statewide health information exchange network that transforms health care quality, patient safety, efficiency, and outcomes.

Health Information Technology, including the HIE network, should be considered an enabler rather than a goal in itself.

### **Problem to be Solved**

Every day, New Mexico doctors make decisions without access to all the necessary patient information because this information is often scattered among different healthcare organizations that are not connected. Scattered information wastes precious physician time, causes unnecessary ordering of repeat laboratory and radiology tests, reduces the accuracy of diagnoses, and contributes to medical errors that may harm or even kill the patient.

### **NMHIC Solution**

NMHIC will enable doctors to electronically locate, connect to, and review patient information scattered across multiple health care organizations. This patient information may include previous medical events, diagnoses, tests, medications, and relevant documents. Doctors will be able to access this information via a web portal or receive it directly into their computers and/or electronic health record (EHR) systems. Physicians do not need to have EHR systems to make full use of the NMHIC Clinician Portal. The organizations that participate in the NMHIC network have agreed to make that information accessible by building secure electronic connections to NMHIC. Whenever clinicians request access to information about individual patients for whom they are responsible, the NMHIC HIE network will authenticate that they are who they claim to be and provide privacy protections that comply with federal and state regulations. Across the nation, similar HIE networks are developing in almost every state because these networks enable communications that are faster, more current, more complete, more private, and less costly than phone, fax, or postal mail. These networks also can be used by any doctor with a computer and internet access, even if their medical practice does not have an EHR system or they are located in a rural area.

### **NMHIC History and Future**

Phase 1 – Foundation building – 2004-2006. NMHIC was created in 2004 by the non-profit Lovelace Clinic Foundation (LCF) in Albuquerque, New Mexico. It began with \$1.5 million in federal funding, matching funds from community stakeholders and \$447,000 from the State. The initiative:

- brought together 33 public and private New Mexico health organizations and non-medical employers in a community collaborative to develop the network that now connects sources of scattered medical information;
- designed a federated network architecture that leaves patient information on the originating organization's computers, thereby avoiding a central data warehouse or repository; and
- built a secure, privacy-protected network prototype to exchange medical information.

Phase 2 – Conducted demonstration projects – 2006-2007. NMHIC piloted three demonstration projects:

- In 2006, NMHIC conducted a test that successfully matched individual patient identities across multiple healthcare facilities using 4 million patient identity entries contributed by eight different New Mexico healthcare organizations.
- On November 1, 2006, Taos doctors and nurses used the NMHIC exchange for the first time to coordinate medication, education, and dietary care for patients with diabetes.
- In 2007, Taos Holy Cross Hospital staff demonstrated that it could report abnormal hearing screening tests for newborns to the New Mexico Department of Health using the NMHIC network.

In addition, in March 2007, the New Mexico State Legislature approved funding of more than \$600,000 to continue development and expansion of NMHIC.

Phase 3 – NMHIC chosen to participate in the Nationwide Health Information Network - 2007-2008. The NMHIC successes in Phase 1 and Phase 2 led to the award of a federal contract for \$3.84 million from the Office of the National Coordinator for Health Information Technology (ONC) to participate in the base year of the Nationwide Health Information Network (NHIN) Trial Implementations. The NHIN contract provides funds for NMHIC to:

- accelerate development and expand its network services within New Mexico.
- participate as one of the nine HIE networks across the country in a trial implementation of the NHIN. This trial will:
  - include the exchange of summary patient records plus other clinical information among the nine HIE networks;
  - test standards and connections for accurately, securely, and privately moving information between regional HIE networks; and
  - demonstrate the benefits provided by the NHIN (e.g., patients temporarily needing to have their medical information available to doctors in a community other than their home).

Phase 4 – Becoming self-sustaining – 2009 and beyond. The funds from Phase 3 are enabling NMHIC to rapidly strengthen its infrastructure, provide additional network services, and extend these services to more New Mexico hospitals, laboratories, and doctors. However, federal and state funding for the development of the network may only be available for the next few years. Now, while we still have the support of state and federal funding, is the time for us to develop the sustainable business plan for the future. In order for NMHIC to become self-sustaining, it must:

- clearly understand which network services have the highest priority within the New Mexico community; and
- demonstrate that the value of the network services it offers will more than justify user fees, member subscriptions, and/or annual contributions from the NMHIC stakeholders (providers, payers, employers and public health) that benefit from these services.

## **NMHIC Governance**

The New Mexico Health Information Collaborative (NMHIC) is a statewide effort that engages stakeholders from all sectors of the community. In establishing the initial infrastructure for the HIE, Lovelace Clinic Foundation (LCF) convened leaders from all possible community organizations or groups which could benefit from NMHIC and established a Stakeholder group and a Steering Committee.

The NMHIC Steering Committee represents 33 organizations. The Steering Committee provides community input from the constituents who contribute either data and/or funds to the exchange; who use exchange data; or who represent important employer, professional, or state government groups. The Steering Committee votes on issues needing community consensus or response because it includes every constituency. Various work or advisory groups have been formed to address specific exchange topics over the course of NMHIC's existence. Membership has increased over the project duration. Attendance at the Steering Committee meetings remains high, reflecting continuing community support and commitment to establishing an HIE in New Mexico. NMHIC stakeholders and Steering Committee members are shown in Appendix B.



## NMHIC Network Services

The network services subsection includes four topics:

1. Criteria for Selecting Network Services
2. Descriptions of Network Services
3. Community Readiness for Network Services
4. Availability of Network Services

### **Criteria for Selecting Network Services**

Health Information Exchanges around the country have developed a variety of services for their users. These services are typically referred to as network services. The selection of network services provided by our HIE network is influenced by four major factors:

- a comprehensive survey that has identified which network services are considered to have the highest priority by the potential users of the network within the New Mexico community,
- the network services (use cases) that have already been implemented and tested as part of the base year of the NHIN contract,
- market or technical issues related to providing certain network services, and
- willingness/ability of health care organizations to supply data for different network services.

**The first factor** influencing the selection of network services is the result of a comprehensive survey. The Community-wide Survey of Potential Network Users was designed from January through March of 2008 and conducted from March 24 through April 27, 2008. Invitations to take this survey were emailed to more than 1,700 Medical Doctors, Doctors of Osteopathy, and practice managers throughout the State of New Mexico. Invitations were sent to members of the New Mexico Medical Society, physicians practicing at ABQ Health Partners, physicians practicing at the University of New Mexico Hospital, and practice managers identified by the Medical Group Management Association. In total, 513 potential users completed this survey.

The following table displays the priority rankings of the network services from the *Survey of Potential HIE Network Users*. Column 2, Priority Ranking, shows the percentage (in bold) and actual number of survey respondents who indicated that the network service was either their “highest priority” or “very important”. Column 3, Network Interfaces Implemented, identifies the dates when the interfaces to support the network service have been, or will be, implemented and tested. Column 4, Commercial Service Available, identifies the dates when the network service will be fully supported for commercial availability.

**Table 1**

<b>Network Service</b>	<b>Highest Priority and Very Important</b>	<b>Network Interfaces Implemented</b>	<b>Commercial Service Available</b>	<b>Comments</b>
Receive Lab Results	<b>85.4%</b> 438	July 2008	July 2009	Lab Results will be available to view on a portal by 7/2009, and received as a message by 9/2009
View or Update Summary Patient Record	<b>84.8%</b> 435	July 2008	July 2009	A continuity of care record summarizes the significant parts of a patient's medical record
Access Medication List from pharmacy benefit managers (PBMs)	<b>83%</b> 426	September 2009	November 2009	Medication lists from commercial and retail pharmacies via connection to RxHub
Receive Radiology and Imaging Reports	<b>82.5%</b> 423	July 2008	July 2009	
Receive Hospital Discharge Summaries	<b>70.7%</b> 363	July 2008	July 2009	This need will be met by the Summary Patient Record in some cases
View Routine Progress Notes and Consultation Reports	<b>70.3%</b> 361			This need will be met by the Summary Patient Record in some cases
Verify Patient Eligibility and Authorization for Care	<b>69%</b> 354	March 2010	June 2010	This data would be obtained from payers (insurance, Medicaid, Medicare)
Verify Whether a Provider Can Accept a Patient's Insurance, and Receive Authorization for Referral	<b>64.3%</b> 330			Service availability to be determined
Send Prescriptions Electronically (e-Prescribing)	<b>61.6%</b> 316	April 2010	September 2010	This will require contract arrangements with SureScript and RxHub networks
Send and Receive Patient Referrals	<b>59.5%</b> 305			Service availability to be determined
Order Radiology / Imaging	<b>58%</b> 298			Service availability to be determined
Order Lab Tests	<b>57.9%</b> 297			Service availability to be determined
View Immunization Records	<b>45.6%</b> 234			Service availability to be determined
Record or View Advanced Directives	<b>39.4%</b> 202			Service availability to be determined

Network Service	Highest Priority and Very Important	Network Interfaces Implemented	Commercial Service Available	Comments
Send Mandatory Public Health Reporting (Biosurveillance)	36.9% 189	November 2009	March 2010	Mandatory reporting is a part of biosurveillance

The complete survey results are available in a separate supporting document, *Survey of Potential HIE Network Users in New Mexico*.

**The second factor** that influences the selection of network services is that some use cases have already been implemented as part of the base year of the NHIN contract. These include:

- Summary Patient Record (part of the core implementation)
- EHR-Lab Results
- Emergency Responder

Consequently, these three network services have fewer barriers to becoming commercial network services than other services.

The third factor that influences the selection of network services is market or technical issues. For example, the New Mexico Department of Health has expressed interest in receiving mandatory public health reports, emergency responder reports, and other public health situational awareness reports through the HIE network. Other than mandatory reporting, these network services were not included in the *Survey of Potential HIE Network Users*. However, these services are important to the New Mexico Department of Health.

Another example, e-prescribing, is identified as a network service that has a high priority within the New Mexico community. In order to provide this service, NMHIC would probably need to secure agreements with other networks, such as SureScripts/RxHub. The SureScripts network provides links to local and commercial pharmacies throughout the United States. SureScripts was founded by the National Association of Chain Drug Stores (NACDS) and the National Community Pharmacists Association (NCPA). It has become the network of choice for e-prescribing because it is efficient and uses national standards for interoperability when it sends prescriptions to pharmacies. RxHub was created by the three leading pharmacy benefit management companies. RxHub provides three network services to prescribers: eligibility benefits, formulary information, and medication history. RxHub and SureScripts are merging to provide full service e-prescribing.

The fourth factor that influences the selection of network services is the willingness/ability of health care organizations to supply data for specific network services. This issue can affect the ability of the network to provide complete data, facilitate continuity of care, or even make it impractical to provide a network service.

## Description of Network Services

- NMHIC Clinician Portal – Community Patient Healthcare Record. The Clinician Portal will include the following clinical data:
  - Summary Patient Record: Access to a patient’s Summary Patient Record, also referred to as a Continuity of Care Record, portable among different health care systems and providers, for key patient data. This data would usually include: problem list/diagnoses, medication list, allergy list, test results, immunizations, procedures, and dates of service and names of providers, viewed through the NMHIC Clinician Portal.
  - Lab Results: Access to a patient’s laboratory results, from multiple laboratories, viewed through the NMHIC Clinician Portal.
  - Radiology and Imaging Reports: Access to a patient’s radiology and imaging reports from multiple radiology providers, viewed through the NMHIC Clinician Portal.
  - Discharge Summaries: Access to a patient’s discharge summaries from multiple hospitals, viewed through the NMHIC Clinician Portal.
  - Access to patient record information via the Nationwide Health Information Network (NHIN). NMHIC users will also be able to access patient record information from other organizations that are connected to the NHIN, including the Veterans’ Health Administration, the Department of Defense Military Health System, the Indian Health Service, Kaiser-Permanente, Cleveland Clinic, etc.
- Emergency Responder: Electronic reporting of emergency responder and emergency department notifiable diseases or conditions, adverse events, and situational awareness data to the New Mexico Department of Health and CDC.
- Lab Results – Message: Transmission of a patient’s laboratory results, through the HIE network, into the EHR system operated by the physician that ordered the laboratory tests. The laboratory results will be communicated within a standard HL7 message format.
- Medication History from RxHub: Access to a patient’s list of medications paid for by pharmacy benefit managers (PBMs) and dispensed by commercial and retail pharmacies, viewed through the NMHIC Clinician Portal.
- e-Prescribing: Send prescriptions electronically via computer to commercial/retail pharmacies (without using paper or fax), through the NMHIC HIE network. This will require a business agreement with the SureScript network to route and distribute prescriptions to commercial and retail pharmacies. It may also require a business arrangement with RxHub to provide information about patient eligibility, formulary limitations, and medication history.
- Quality: Using the functions of the HIE to help improve health care of an individual, as well as improving health care of the participating community. Improving the health care of an individual occurs by: improving continuity of care (identifying potential adverse events such as drug-to-drug interactions, reducing redundant lab tests, avoiding medical errors) and lowering the cost of care. Improving health care for the community occurs by: 1) aggregating health care information, comparing provided care against best practices, and reporting this information back to health care facilities and medical practices so that they can take action to improve their clinical processes and patient outcomes; and 2) reporting the results of the comparison of performance with best practices to health plans and the public.
- Biosurveillance: Electronic reporting of required Laboratory Results for Notifiable Diseases or Conditions, from multiple laboratories, to the New Mexico Department of Health.

- Insurance Eligibility: Verify a patient's insurance eligibility and authorization for care, procedures, medications, etc., through the NMHIC Clinician Portal.
- Health Plan Claims Data: If a patient covered by a health plan decides to see a new physician/health care provider, this network service will provide health claim data from previous patient visits to the new health care provider for patient care purposes. The previous health claims data (ICD9 codes, CPT codes and NDC codes for prescribed medications) will be viewed on the NMHIC Clinician Portal.

## Community Readiness for Network Services

The following table shows statistics that can serve as indicators of potential user readiness to begin to use the NMHIC HIE network. Column 2 shows the responses of 548 potential users (mostly physicians) who addressed these questions online. The online *Survey of Potential HIE Network Users* was conducted March 24 through April 27, 2008, by the RHIO Grande and LCF/NMHIC. Column 3 shows the responses of 563 potential users (mostly physicians) who answered these questions via postal mail. The postal mail survey was conducted by the New Mexico Health Policy Commission in May and June of 2008. Since the survey sent by postal mail specifically excluded the 548 email respondents, it enables us to combine the results of both surveys in the fourth column of the table (Combined Results).

Readiness Indicator	Email Responders (n=548)		Mail Responders (n=563)		Combined Results (n=1111)	
	No.	%	No.	%	No.	%
<b>Access to Internet in Office</b>	536	99.1%	522	95.4%	1,058	97.2%
<b>Access to Broadband Internet</b>	401	73.6%	439	81.1%	840	77.3%
<b>EHR Systems:</b>						
• <b>Implemented and in Use</b>	255	46.7%	168	31.2%	423	39%
• <b>Being Implemented Now</b>	91	16.7%	81	15.1%	172	15.9%
• <b>Planned Implementation Next Year</b>	86	15.8%	92	17.1%	178	16.4%
• <b>No Plans for EHR in Near Future</b>	114	20.9%	197	36.6%	311	28.7%

In order for a potential user to be considered “ready” to use HIE network services, they must, at a minimum, have access to the Internet in their office. The email survey and the postal mail survey tell us that there are at least 1058 potential users that have Internet access in their office today. If we use other indicators, such as access to Broadband, then the data tells us that there are at least 840 potential users today. EHR systems are not a prerequisite for a medical practice to connect and receive the benefits from an HIE network. However, the information about the number of respondents who have EHR systems implemented and the number of respondents who plan to implement EHR systems is provided as an indicator that the New Mexico clinician population is moving forward to implement health information technology.

Although there may be an inclination to extrapolate the percentages of the NMHIC and HCP survey results to the total population of 4312 practicing physicians in the State, it is likely that the respondents to these two surveys are not representative of the total population. That is, it is likely that the survey respondents are more computer-literate and more likely to work in organizations that have implemented EHR systems than are New Mexico physicians as a whole. However, if the respondents to these surveys tend to be more computer-literate than other respondents, the survey results might be a good reflection of the priorities of the early adopters. It also appears that having 840 potential users that are “ready” is sufficient to move forward.







## **Business Assessments**

This section presents essential information that will be needed for an informed business assessment by NMHIC Stakeholders. It includes:

- Total Market Opportunity
- Factors Supporting Adoption of Network Services
- Factors Supporting Successful Operations
- Factors Mitigating Success

### **Total Market Opportunity**

The following information defines the total market opportunity (i.e., maximum or “ceiling” for business estimates) for the NMHIC Business Plan. This information has been extracted from the *New Mexico Health Care Environmental Scan*, which is a companion document to the NMHIC Business Plan.

#### **Potential Patients and Consumers (Total Population and Covered Lives)**

The total population in New Mexico as of 2005-2006 data is 1.932 million.

The total number of individuals:

• Covered by all types of health insurance	1.513 million	(78%)
o Covered by plans paid for by employers	835,514	(43%)
o Covered by health plans paid for by individuals	77,510	(4%)
o Covered by Medicaid	318,596	(16%)
o Covered by Medicare	250,039	(13%)
o Covered by Other Public Agencies	31,684	(2%)
o Not covered by insurance	419,227	(22%)

#### **Potential Users (Total Number of Clinicians, Etc.)**

The total number of:

- Licensed physicians practicing in state in 2008 was 4,312
- Licensed physician’s assistants in state in 2008 was 485
- Advanced practice nurses in 2006-2007 was 634

#### **Potential Data Suppliers (Total Number of Health Care Providers and Payers)**

- Total number of hospitals in New Mexico: 59
- Major group practices (10 or more physicians): 10
- Major laboratories serving New Mexico: 4
- Major radiological/imaging centers in New Mexico: 7
- Physicians practicing in New Mexico as of 2008: 4,312

#### **Potential Beneficiaries (Health Plans, Medicare, Medicaid and Employers)**

- Major health plans
  - o Presbyterian Health Plan (418,000 members)
  - o Blue Cross and Blue Shield of New Mexico (270,000 members)
  - o Lovelace Health Plan (190,000 members)
  - o Molina Healthcare of New Mexico (76,000 members)
- Medicare (250,000 members)
- Medicaid (319,000 members)

- Other Public Agencies (32,000 members)
- The total health care expenditures for New Mexico were \$7.93 billion as of 2004

## Factors Supporting Adoption of Network Services

The factors that support adoption of network services include:

- Momentum created by recent NMHIC activities
- National HIE network trends
- Benefits by type of network service
- Benefits to community stakeholders
- The NMHIC marketing plan

### Momentum Created by Recent NMHIC Activities

- NMHIC achievements during AHRQ grant (October 2004 – September 2007)
  - Garnered support from NMHIC Steering Committee and Stakeholders
  - Developed and tested prototype network components
- NMHIC achievements from Health Information Security and Privacy Collaborative (HISPC) contract (May 2006 – present)
  - Provided leadership to identify variations in privacy and security policies throughout the state
  - Introduced draft legislation to define HIT privacy laws for New Mexico
- NMHIC achievements during Nationwide Health Information Network (NHIN) Trial Implementation contract (October 2007 – present)
  - Strengthened NMHIC management and staff
  - Implemented robust network infrastructure (MPI, Record Locator Service, portal, interfaces, edge servers, security, etc.)
  - Established and tested interfaces with Presbyterian Healthcare Services and TriCore Reference Laboratories
  - Developed and signed Network Subscription Agreements (NSAs) with partners
  - Exchanged Summary Patient Records during the NHIN demonstration with more than a dozen other networks in September 2008

### National HIE network trends

- The *Fifth Annual Survey of Health Information Exchange at the State and Local Levels*, conducted by eHealth Initiative for 2008 reports the following:
  - The number of operational health information exchange initiatives has increased from 232 in 2007 to 42 in 2008, which is an increase of 31%
  - A majority of fully operational exchange efforts (29/42) report reductions in health care costs. Sixty-nine percent of 2008 respondents say health information exchange allows them to either decrease dollars spent on redundant tests; reduce the number of patient admissions to hospitals for medication errors, allergies, or interactions; decrease the cost of care for chronically ill patients; or reduce staff time spent on administration.
  - For this first time, a majority (69%) of operation exchange efforts (29/42) report a positive financial return on their investment.

Benefits by Type of Network Service

<b>NMHIC DATA SUPPLIERS, USERS &amp; BENEFICIARIES</b>				
<b>Network Service</b>	<b>Data Suppliers</b>	<b>Benefits to Users</b>	<b>Types of Users</b>	<b>Beneficiaries</b>
Lab Results on Portal	* Laboratories	* Reduces redundant lab test. * Faster results to clinicians * Improves continuity of care * Less costly	* Clinicians and their assistants	* Data Suppliers * Health Plans * Medicaid * Employers
Summary Patient Record on Portal	* Medical Practices * Hospitals * ER on site * Emerg. Dept Hospital	* More complete information to clinicians * Improves continuity of care * Less costly	* Clinicians and their assistants	* Data Suppliers * Health Plans * Medicaid * Employers * Dept. of Health
Radiology & Image Reporting on Portal	* Radiology facilities	* Reduces redundant image services * Faster results to clinicians * Improves continuity of care * Less costly	* Clinicians and their assistants	* Data Suppliers * Health Plans * Medicaid * Employers
Discharge Summaries on Portal	* Hospitals	* More complete information to clinicians * Improves continuity of care * Less costly	* Clinicians and their assistants	* Data Suppliers * Health Plans * Medicaid * Employers
Emergency Responder	* ER on site * Emerg. Dept. * Hospital	* Saves lives * Less costly * Improves efficiency of mandatory reporting	* Department of Health	* All citizens * State Govt.
Lab Results Messages	* Laboratories	* Reduces redundant lab tests * Faster results to clinicians * Improves continuity of care * Less costly	* Clinicians and their assistants	* Data Suppliers * Health Plans * Medicaid * Employers

## NMHC DATA SUPPLIERS, USERS & BENEFICIARIES

Network Service	Data Suppliers	Benefits to Users	Types of Users	Beneficiaries
Access to the Nationwide Health Information Network (NHIN)	<ul style="list-style-type: none"> <li>* Healthcare facilities operated by the VA</li> <li>* Healthcare facilities connected to IHS</li> <li>* Healthcare facilities operated by the DoD</li> <li>* All healthcare facilities in the private sector that are connected to NHIN</li> </ul>	<ul style="list-style-type: none"> <li>* More complete information to clinicians</li> <li>* Improves continuity of care</li> <li>* Less costly</li> </ul>	<ul style="list-style-type: none"> <li>* Clinicians and their assistants</li> </ul>	<ul style="list-style-type: none"> <li>* Data Suppliers</li> <li>* Health Plans</li> <li>* Medicaid</li> <li>* Employers</li> <li>* Dept, of Health</li> </ul>
Medication History on Portal (from RxHub)	<ul style="list-style-type: none"> <li>* RxHub</li> <li>* Hospital</li> <li>* Pharmacies</li> </ul>	<ul style="list-style-type: none"> <li>* Faster medication history to clinicians</li> <li>* Improves continuity of care</li> <li>* Improves patient safety</li> <li>* Less costly</li> </ul>	<ul style="list-style-type: none"> <li>* Clinicians and their assistants</li> </ul>	<ul style="list-style-type: none"> <li>* Data Suppliers</li> <li>* Health Plans</li> <li>* Medicaid</li> <li>* Employers</li> </ul>
Insurance Eligibility	<ul style="list-style-type: none"> <li>* Health Plans</li> <li>* Medicare</li> <li>* Medicaid</li> <li>* PBMs</li> </ul>	<ul style="list-style-type: none"> <li>* Clinician payment</li> <li>* Clinician time</li> <li>* Lower cost</li> </ul>	<ul style="list-style-type: none"> <li>* Clinicians</li> <li>* Office staff</li> </ul>	None
e-Prescribing (Gateway)	<ul style="list-style-type: none"> <li>* Clinicians</li> </ul>	<ul style="list-style-type: none"> <li>* Improves patient safety</li> <li>* Less costly</li> <li>* Less time for refills and renewals</li> </ul>	<ul style="list-style-type: none"> <li>* Clinicians</li> <li>* Pharmacies</li> </ul>	<ul style="list-style-type: none"> <li>* Health Plans</li> <li>* Medicaid</li> <li>* Employers</li> </ul>
Quality Measurement and Reporting	<ul style="list-style-type: none"> <li>* Hospitals</li> <li>* Medical Practices</li> <li>* Laboratories</li> <li>* Health Plans</li> </ul>	<ul style="list-style-type: none"> <li>* Improves clinical processes</li> <li>* Improves patient safety</li> <li>* Less costly</li> </ul>	<ul style="list-style-type: none"> <li>* Hospitals</li> <li>* Clinicians</li> <li>* Health plans</li> <li>* Other payers</li> </ul>	<ul style="list-style-type: none"> <li>* Consumers</li> <li>* Health Plans</li> <li>* Medicaid</li> <li>* Employers</li> </ul>
Biosurveillance	<ul style="list-style-type: none"> <li>* ED Hospitals</li> <li>* Laboratories</li> <li>* Medical Practices</li> </ul>	<ul style="list-style-type: none"> <li>* Saves lives</li> <li>* Less costly</li> <li>* Improves efficiency of reporting</li> </ul>	<ul style="list-style-type: none"> <li>* Department of Health</li> </ul>	<ul style="list-style-type: none"> <li>* All citizens</li> <li>* State Govt</li> </ul>
Claims Information	<ul style="list-style-type: none"> <li>* Health Plans</li> <li>* HSD</li> <li>* Medicaid</li> </ul>	<ul style="list-style-type: none"> <li>* Continuity of care</li> <li>* Patient safety</li> <li>* Less costly</li> </ul>	<ul style="list-style-type: none"> <li>* Clinicians</li> <li>* Office staff</li> <li>* Patients</li> </ul>	<ul style="list-style-type: none"> <li>* Health Plans</li> <li>* Medicaid</li> </ul>
Other Network Services TBD				

### Benefits to Community Stakeholders

The New Mexico Health Information Collaborative (NMHIC) HIE network will provide benefits to physician practices, hospitals, health plans, Medicare, Medicaid, employers and patients.

- Benefit to Physician Practices
  - Prompt access to information from other healthcare providers (including medical practices, hospitals, Veterans Health Administration, IHS, etc.).
  - Better clinical decisions and care with access to more complete data.
  - Able to provide care with fewer delays.
  - Avoid rework - repeating taking of histories.
  - Better access to current medications lists.
  - Less time collecting or getting information, more time using available information.
  - There may be less liability risk exposure with improved information access.
  
- Benefit to Hospitals
  - Prompt access to patient information from other health care facilities.
  - Expedite patient information to Emergency Departments.
  - Minimize unnecessary/avoidable services.
  - Reduce expensive manual information processing costs, especially for non-routine requests.
  
- Benefit to Laboratories and Imaging Centers
  - Prompt access to information from other providers.
  - Reduce expensive manual information processing costs, especially for non-routine requests.
  - Capability to use the NMHIC for report distribution functions instead of building new interfaces.
  - Opportunity to reduce lost revenue from lab orders that lack complete patient billing information.
  
- Benefit to Health Plans
  - Reduction of redundant lab and radiology tests will lower costs.
  - Faster clinician access to more complete patient information improves efficiency and lowers costs across the entire health care community.
  - Potential use of clinical data for quality reporting and for pay-for-performance.
  
- Benefit to Employers / Purchasers
  - Reduction of redundant lab and radiology tests will lower costs.
  - Faster clinician access to more complete patient information improves efficiency and lowers costs across the entire health care community.
  - Potential use of clinical data for quality reporting and for pay-for-performance.
  - Lower absenteeism and higher productivity for employers as employee health improves.
  
- Benefit to Patients
  - Continuity of care across health care providers will be dramatically improved.
  - Patients can avoid both the time and expense involved with redundant laboratory and radiology tests.
  - Patients will experience less frustration caused by providing information again and again.

- Patients will know that they are receiving higher quality care because physicians will have access to all of their health records without delays even when their records are scattered across multiple health care facilities.
- **Benefit to the Community as a Whole**
  - Improved continuity of care between the health care facilities operated by the VA, the Indian Health Services (IHS), the Department of Defense (DoD), and the private sector healthcare facilities enabled by access to the Nationwide Health Information Network (NHIN).
  - Decreased escalation of health care costs for the state of New Mexico.
  - Healthier community members, allowing increased productivity and freeing financial resources for other needs.
  - Increased economic development, since employers seek to relocate in areas with high quality health care.
  - It should, however, be noted that the savings from avoidable services represent a loss of revenues to the organizations and practices that would have provided those services.

### NMHIC Marketing Plan

The purpose of the marketing plan is to ensure that the revenue goals for NMHIC are achieved. The marketing plan for NMHIC will be developed by December 31, 2008. Marketing plans traditionally include five elements: product, packaging, price, place, and promotion. This Business Plan will provide the foundation for several elements of the marketing plan. For example: the product portion of the marketing plan will be based upon the information within the Network Services section; packaging and pricing will be based upon the Revenue Generated by User Subscriptions section; and place can either be considered to be the NMHIC network portal or the user's computer monitor.

The promotion plan has not been addressed within this Business Plan. The promotion plan will include the names of key individuals and organizations that should participate in the HIE network. This includes the data suppliers (hospitals and medical practices), potential users (clinicians), the payer beneficiaries (health plans, Medicaid, and employers), the State of New Mexico, and consumers. NMHIC has already conducted interviews with executive decision makers of the hospitals, medical practices, and health plans that will become the data suppliers, users, and payer beneficiaries of the network.

### **Factors Supporting Successful Operations**

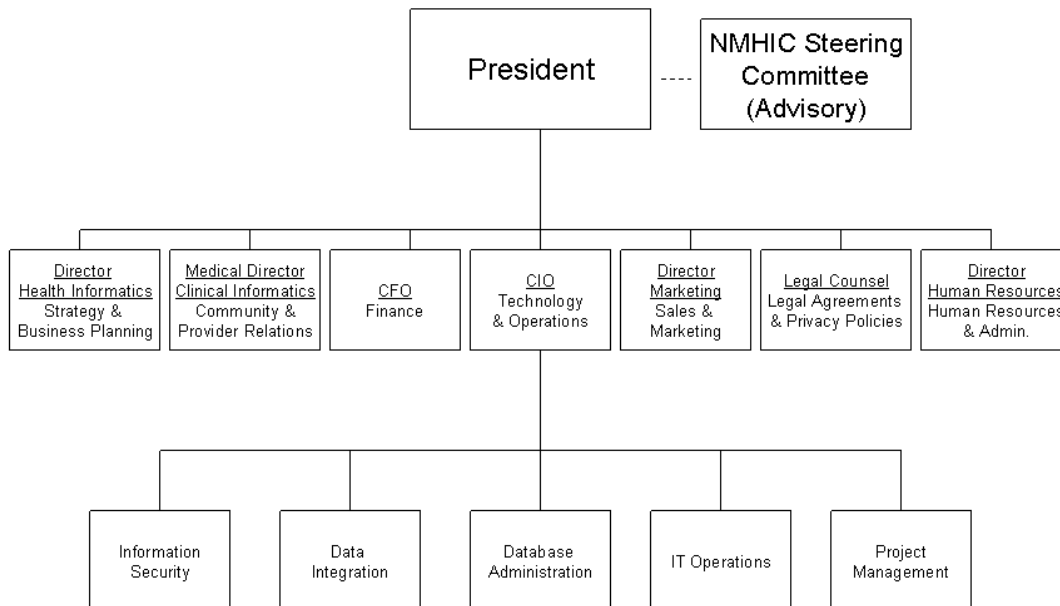
The factors in this section that support successful operations are discussed in the following subsections:

- Organization Structure
- Staffing
- Exchange Operations
- Exchange Partners and Their Roles

### Organization Structure

The health information exchange (HIE) network in New Mexico is called the New Mexico Health Information Collaborative (NMHIC). NMHIC is a community collaborative that has been initiated, developed, operated, and staffed by Lovelace Clinic Foundation (LCF). LCF is a 501(c)(3), non-profit, tax-exempt applied health research organization. The NMHIC organization chart is shown below. Please refer to Appendix C for the biographies of the NMHIC staff.

## NMHIC Organization Chart



### Staffing

Staff functions required for NMHIC include: project management, generalists, facilitation, communications/communicators, product management, and administrative leadership. Maximum leverage of limited but adaptable resources is required in order to achieve the vision and mission of the NHIN project.

Key functional roles include:

- *President and Executive Director:* This position serves as the chief executive officer of NMHIC and co-lead for the NHIN initiative. Utilizes the NMHIC advisory steering committee to obtain key input regarding the direction and strategy of the NHIN initiative.
- *Director of Health Informatics:* This position serves as lead for the NHIN initiative, and is responsible for the strategy and business plan.
- *Medical Director of Clinical Informatics:* This position serves as the chief medical officer for NMHIC and the liaison coordinator for working with physicians, clinical practices and other stakeholder groups on the NHIN programs and services. This position will be extremely important in providing thought leadership and relationship management with physicians and medical groups; physicians are more receptive to and more likely to consult with other physicians about issues of technology and business management, workflow issues, and information seeking.

- *Chief Financial Officer:* This position provides the key financial expertise to ensure the financial aspects of the business plan are identified and addressed in order to create a sustainable operation for health information exchange.
- *Marketing:* This position is responsible for outreach and marketing of the health information exchange (HIE) to the healthcare community in New Mexico. The person in this position will spend significant time with healthcare providers and payers to explain the benefits of participation as a data provider and/or user. This person will raise awareness and enthusiasm within the state for the HIE, leading to expanded adoption beyond the pilot participants. It is critical that this position be staffed by a physician who is highly knowledgeable in the national HIT and HIE initiatives.
- *Legal Officer:* This position serves to assure that all legal aspects regarding the implementation and operation of the health information exchange are identified and addressed.
- *Director of Human Resources:* This position provides human resource and administrative support for the health information exchange. As new positions are needed, this position assures the market assessment is performed to attract and recruit qualified candidates. This position also is responsible for ongoing programs to ensure that qualified staff is retained as well as to ensure staff issues are addressed in a timely and appropriate manner. This position is also responsible for ensuring general administrative support is provided for NMHIC/NHIN staff activities.
- *Chief Information Officer:* This position serves as the combination chief technology operating-information officer and overall NHIN project manager with prime responsibility for leading the technology staff, managing the programmatic and contractual relationship with the supporting vendors, and implementation of the health information exchange services with the participating organizations.
- *IT and Data Security Analyst:* This position is responsible for assuring the security and integrity of the technical environment and data managed by the NHIN initiative. The individual filling this position has extensive security expertise, including CISSP certification.
- *Applications and Interface Support Analysts:* These positions are responsible for managing the various components of the NMHIC network, including application servers, internet portals, databases, data supplier interfaces, etc. Responsibilities also include front line support for subscribers, with additional support provided by MedPlus as required.
- *Admin and IT:* This position is responsible for administration of the various components of the NHIN environment.
- *Project Managers:* These positions are responsible for the development and management of the various project use cases and/or phases required for the implementation of the NHIN initiative. The individuals in these roles ensure that the projects follow Project Management Institute concepts and principles.
- *Subscriber Support:* These positions are responsible for the day to day support of the subscriber community, responding to technical problems, providing training, and providing go-live assistance when new data providers or data users subscribe to NMHIC.

Other positions will be added as the buildup of NHIN operations occurs. These positions will provide expanded support for help desk services, end-user training, system administrative functions, etc.



## Exchange Operations

### *Privacy Policies*

- It is essential that individuals trust that their electronic health information is kept private and secure by the NMHIC health information organization. It is also essential that the methods used to protect privacy and maintain the security of the electronic health information are not so burdensome as to deter clinician use and health information exchange. As a result, LCF developed NMHIC Privacy Policies to address the balance between these two objectives, and to ensure patient consent is obtained by the provider prior to accessing patient information on the NMHIC network. Please refer to Appendix D for a list of the Privacy Policies.

### *Expectations of Data Users and Providers*

- All NMHIC data users and providers are required to sign the NMHIC Subscription Agreement, which provides details regarding requirements and expectations for participation in the network.
- Data Providers are expected to allow NMHIC servers within their network environments to enable access to patient information. Additionally, Data Providers are expected to work with LCF staff to ensure the continuous operation of the NMHIC data exchange, including operations monitoring, incident management, problem management, configuration management, change management, service management, etc.
- Data Users are expected to contact LCF operations staff in the event of issues with accessing NMHIC supplied information.
- Both Data Providers and Data Users are expected to immediately report any patient information security or privacy breaches, or inappropriate disclosures. The LCF help desk and service support staff are the primary points of contact for ongoing operations management of the NMHIC network.

### *Security Practices and Technology*

- LCF implemented the latest in best practices for information security technology and information security to ensure protection of individual health information accessed by the NMHIC network. The formal security policy and Standard Operating Procedures (SOPs) are patterned after industry best practices that meet or exceed all of the HIPAA security requirements.
- LCF understands that NMHIC security crosses all levels of the service model, including physical access systems and SOPs, as well as SOPs governing network access, directory access, system access, database access, and applications.
- LCF is responsible for the installation, upgrade, maintenance, and change management associated with all aspects of information security infrastructure hardware and system software for NMHIC.

### *Administrative and Technical Operations*

- NMHIC's administrative and technical operations are conducted in secure facilities within the LCF offices in Albuquerque, New Mexico. To support the NHIN Trial Implementation contract, LCF upgraded the facilities to provide enhanced support, including privacy protection, data security, availability, and reliability, and backup recovery.
- LCF provides all NMHIC data center services including operations, technical support, monitoring, and system administration. LCF personnel have extensive experience in healthcare technology and have implemented a full suite of advanced solutions that enable optimal operations in the NMHIC environment. LCF's approach is flexible, customizable, and responsive to changing needs. NMHIC's maintenance and implementation control policies and standard operating procedures (SOPs) ensure that maintenance--installations, upgrades, patches, and functionality changes--are properly approved, tested, implemented, and documented in accordance with

service center standards. For more details regarding Administrative and Technical Operations, as well as the NMHIC technical architecture, please refer to Appendices E and F.

#### *Facility and Infrastructure Requirements*

- The NMHIC staff occupies offices at 2309 Renard Place SE in Albuquerque, New Mexico. The current facility provides the necessary space to accommodate existing and near-term anticipated staff for the NHIN initiative. Additional office space may be required as the NHIN initiative approaches the full realization of its potential. The infrastructure equipment required for current and anticipated NHIN requirements will be housed within the existing NMHIC facility. This equipment is scalable to the needs of the NHIN initiative, and is configured to be easily moved if the need arises. Edge servers required at data provider sites will be installed by NMHIC staff. The space required for this equipment is minimal and should not pose any challenges at provider facilities.

#### Exchange Partners and Their Roles

The NMHIC partners consist of data providers and data users. Data providers are those healthcare systems (hospitals, health plans, government entities, physician clinics) that subscribe to the network with the purpose of sharing patient care information with subscribing data users. Data users access patient care information from NMHIC in order to gain a more complete picture of the history of care given to their patient.

LCF has spent a number of years building positive relationships with healthcare providers across the state. As a result, LCF has been able to obtain signed subscriber agreements with four organizations as the initial NMHIC data providers. These organizations include Presbyterian Healthcare Services, TriCore Reference Laboratories, Albuquerque Ambulance Service, and Taos Holy Cross Hospital. In addition, LCF signed a NMHIC subscriber agreement with the New Mexico Department of Health, as a data user.

LCF continues to work with other healthcare organizations, in order to meet their needs with NMHIC services. The LCF goal is to add at least 12 subscribers to NMHIC within the next 36 months. Potential candidates to become new NMHIC subscribers include Lovelace Health System, ABQ Health Partners, Heart Hospital of New Mexico, UNM Hospital System, New Mexico Heart Institute, Eye Associates of New Mexico, Presbyterian Health Plan, Lovelace Health Plan, Blue Cross Blue Shield of New Mexico, United Healthcare, Molina and RxHub.

The specific data provided may vary slightly from one subscriber to the next. However, most hospital organizations will provide ADT, clinical notes, medication history, laboratory results and orders, radiology reports, allergy history, immunization history, and EKG/cardiology reports. Most health plan organizations will provide eligibility information and healthcare information from claims history.

## Factors Mitigating Success

### Partnership Risks and Constraints

- Some healthcare providers may take more time than planned before they agree to provide data and/or become a user of the NMHIC network.  
Risk Mitigation: The NMHIC team plans to engage all potential data suppliers and users as early as possible, so that there is sufficient time for these partners to plan, budget, test, and implement their interfaces to the NMHIC network.
- If one or more major healthcare providers do not participate in the NMHIC network, it will degrade the value of network services for all other users.  
Risk Mitigation: The NMHIC team plans to engage potential partners on both a collective and an individual basis in order to encourage all partners to participate.

### Technical Risks and Constraints

- While the network infrastructure is robust and scalable, every new supplier of patient data for the network will require the installation of an interface and, in many cases, an Edge Server. This will take time and resources.  
Risk Mitigation:
  - The Business Plan has projected adoption rates over the next several years and included the resources to support these adoption rates in the plan.
  - NMHIC has contracted with a technology partner, MedPlus, which has years of experience implementing HIE networks.
  - NMHIC has hired a technical staff with the skills and experience that are appropriate for managing and installing network interfaces. This team has demonstrated its capabilities during the test and demonstration of the NHIN trial Implementation.
- Every new user on the network will require authorization, authentication, education and technical support.  
Risk Mitigation: The NMHIC team plans to establish a comprehensive marketing plan and update the privacy and security plan by the end of December, 2008. The marketing plan and the privacy and security plan will identify the specific actions necessary to address these requirements.
- After the network is commercially operational and interfaces to the data suppliers and users are in place, there will continue to be operational risks including maintaining network availability and reliability, and recovering quickly from network interruptions.  
Risk Mitigation: Operations risk has been mitigated by implementing accepted practices for continued operations in the event of failure, data backup and recovery processes, and subscriber support processes.

### Competitive Risks and Constraints

- In other parts of the country, employers, health plans, and private initiatives are developing personal health record (PHR) networks. If PHR networks are implemented in New Mexico, they might be installed in a manner that uses the patient data provided by NMHIC (which will be complementary to NMHIC), or they may attempt to obtain patient information from the same data suppliers as NMHIC (which would be directly competitive to NMHIC, as well as being redundant and a waste of community resources).  
Risk Mitigation: the NMHIC team plans to address this risk in two ways: (1) Move as quickly as possible to implement the NMHIC network with our local partners so that NMHIC will be the *de facto* source of provider data for patient care throughout the state. If we do this in a manner that provides good value to our partners and users, it is less likely that another network will be able to compete with us. (2) The NMHIC team will be exploring the emerging PHR marketplace to better understand the requirements for this market and the business and technical options available.

This knowledge should put us in a better position to recommend, select, or partner with a PHR solution that will best meet the needs of the New Mexico community.

- Payers (health plans and Medicaid) are offering, or planning to offer, physicians access to health claims data for a patient at the time of patient care. This service is not as comprehensive or timely as the Summary Patient Record, but it does present some degree of competition.

Risk Mitigation: The NMHIC team plans to discuss this with the health plans to identify the best way for NMHIC and the health plans to work together to provide an information solution that gives the greatest value to health care providers and consumers.

- If several of the beneficiaries (health plans, Medicare, or Medicaid) decline to contribute to the network on a per member per month basis, that might delay the development of the network.  
Risk Mitigation: There are many reasons why a good solution like NMHIC may take time to receive full community support. The NMHIC Business Plan has attempted to recognize this reality by projecting support from health plans and other payers over a period of years.

#### Financial Risks and Constraints

- If Congress does not continue to provide NHIN funding for Option Year One (2009) and Option Year Two (2010), that may impact the rate of growth of the NMHIC HIE network.  
Risk Mitigation: Although we do not expect this to occur, Scenario 2 in this Business Plan shows how the community might respond to this possibility and still move forward toward financial self-sufficiency.

#### Legal Risks and Constraints

- At this time, neither the nation nor the State of New Mexico has come to a consensus regarding the policies and practices to protect the privacy of healthcare information. This lack of legal consensus leaves HIE networks like NMHIC in a vulnerable position until consensus is reached. While NMHIC can be developed to support most of the privacy policies and practices being considered, NMHIC will remain vulnerable to a redesign of its network if Federal or State privacy laws are adopted that vary too far from those being considered today.  
Risk Mitigation:
  - The NHIN Trial Implementation contract calls for NMHIC to support a basic level of patient preferences regarding the privacy protections of their health care information. In addition, the NMHIC Business Plan includes funding to support additional types of patient preferences when they arise.
  - Privacy/security risks have been mitigated by implementation of NMHIC subscriber agreements and the execution of appropriate liability insurance policies. The NMHIC subscriber agreement ensures that each subscriber understands and complies with data use privacy and security requirements. The liability insurance policies mitigate risk and provide coverage necessary for an entity that is involved in providing electronic access to protected health information.

## Summary of Financial Projections

The intent of this section is to complement the business information from the previous sections with financial information that will enable NMHIC stakeholders to begin discussions that will lead to stakeholder decisions regarding the financing for NMHIC.

The tables in this section were generated by the *Financial Pro Forma Software Tool*, which was developed specifically for HIE networks by the e-Health Initiative. This software tool is intended to help HIE networks determine when they will achieve financial self-sufficiency.

## Summary of NMHIC Expenditures

The NMHIC expenditures shown below have been developed by the NMHIC staff based on the following:

- Actual NMHIC expenditures to develop and implement the HIE network infrastructure during the last quarter of 2007 and the first three quarters of 2008. Funding for this infrastructure was provided by the NHIN Trial Implementations contract.
- Priorities and time frames for the availability of NMHIC network services derived from the results of the survey of potential network users and careful business and technical assessment of how quickly NMHIC can provide each new network service.
- Interviews with executive decision makers and stakeholders representing the medical practice community, the hospital community, the health plan community, the State of New Mexico Department of Health, and the New Mexico Human Services Department (Medicaid).
- Business and technical experience of the NMHIC staff.

The *Projection of NMHIC Expenditures* table below shows the financial data generated by the *Pro Forma Software Tool* from e-Health Initiative.

**Projection of NMHIC Expenditures (in millions)**

Type of Expenditure	2004 - 2007	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5
<b>COST OF REVENUE</b>	N/A	0.59	0.76	0.95	0.97	0.96
MINUS DEPRECIATION	N/A	-0.09	-0.16	-0.22	-0.22	-0.22
SUBTOTAL - COST OF REVENUE	N/A	0.50	0.60	0.73	0.75	0.74
<b>OPERATING EXPENSES</b>	2.85	2.08	2.37	2.90	2.09	2.19
MINUS DEPRECIATION	0.00	-0.13	-0.15	-0.18	-0.11	-0.15
SUBTOTAL - OPERATING EXPENSES	2.85	1.95	2.22	2.72	1.98	2.04
<b>CAPITAL INVESTMENTS</b>	1.05	0.85	0.42	0.37	0.20	0.16
<b>TOTAL EXPENDITURES</b>	3.90	3.30	3.24	3.82	2.93	2.94

The major factors driving expenditures for each year are:

- Year 1 – High infrastructure costs (base hardware and software), moderate development costs (new network services), and moderate implementation costs (interfaces to partners)
- Year 2 – Moderate infrastructure costs, high development costs, moderate implementation costs
- Year 3 – Low infrastructure costs, moderate development costs, high implementation costs
- Year 4 – Low infrastructure costs (upgrades), low development costs, moderate implementation costs
- Year 5 – Low infrastructure costs (upgrades), low development costs, moderate implementation costs

## Summary of Revenue Projections

### Revenue to HIE Network from User Subscriptions

NMHIC will earn revenue based on the value of the network services it offers to users. Revenues to NMHIC from user subscriptions will be provided by the number of clinicians that become users/subscribers.

NMHIC plans to accelerate user adoption by signing Network Subscription Agreements (NSA) with key leading provider organizations. The first four candidates for this initial enrollment are: Presbyterian Healthcare Services, ABQ Health Partners, University of New Mexico, and Eye Associates of New Mexico. The NSAs signed by these organizations should enable 930 clinicians to have access to the NMHIC Clinician Portal by August 2009. The portal will display a summary patient record which will include patient demographics, lab results, radiology results, medication history, etc. The retail price for this package will be a very modest \$500 per year per clinician; however, the subscription fee will probably be discounted as a group rate to \$400 per year per clinician. The details for user adoption rates and the revenue generated by subscribers were developed using the *Financial Pro Forma Software Tool*.

A brief summary of the electronic spreadsheet is shown below:

	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5
Clinician users at year end	0	1126	1926	2526	2701
Annual revenue from clinician users	\$0	\$201,270	\$649,784	\$919,616	\$1,070,508

### Revenue to HIE Network from Payer Beneficiaries

As the HIE network develops, it will be connecting more data suppliers, adding more network services, and increasing the number of clinician users. In addition, the number of payer beneficiaries (health plans, Medicaid) that participate in NMHIC will also be increasing. All of this means that:

- The value of the network services will increase over time at no additional cost for each user.
- The growing revenue from user subscriptions will cover an increasing share of total NMHIC costs.
- As the total revenue from users to NMHIC increases, the relative contribution (PMPM) of payer beneficiaries can decrease.
- The relative cost to payer beneficiaries will probably decrease as the value of the network to them increases.

## Financial Projection Scenarios

The intent of this report is to provide business and financial information to NMHIC stakeholders that will enable the beginning of discussions that will lead to some degree of community consensus and stakeholder decisions regarding the financing for NMHIC.

To enable these discussions this report presents three NMHIC financial projection scenarios:

- The first scenario is the one that the NMHIC staff believes is the most likely. In scenario 1, NMHIC would become financially self-sufficient by 2011 (Year 4). This scenario assumes that federal funding will continue for 2009 and 2010, that clinicians and medical practices will pay network user fees for access to NMHIC, and that payers will provide funding on a per member per month basis.
- The second scenario shows the possible impact to NMHIC and payers if federal funding for Years 2 and 3 is not received. If the payers are willing to make up the difference for the loss in federal funding, then the second scenario would still show financial self-sufficiency in 2011 (Year 4). The NMHIC staff believes that the loss of federal funding is unlikely, but it is presented to facilitate consideration if needed.
- The third scenario shows the possible impact to NMHIC and payers in the event that a community consensus evolves that not charging subscription fees to users would encourage greater clinician adoption. This scenario could only work if the payers are willing to make up the difference for the loss of user subscription fees. The third scenario would not show financial self-sufficiency until 2012 (Year 5).

The information in the tables below was generated by the *Pro Forma Software Tool* developed by the e-Health Initiative. Please note that this software tool recognizes start-up funding from federal and state contracts and grants as part of cash flow, but it does not recognize these funds as revenue. By using this approach NMHIC will not show a positive net income until the revenue from network services exceeds the costs of providing those services (financial self-sufficiency). The net income for each year is shown as the bottom line in each scenario below.

### Scenario 1

Assumption:

1. NMHIC will receive \$1.49 M per year for the NHIN contract for Year 2 (2009) and Year 3 (2010).

Revenue/Expense	2004 - 2007	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5
<b>Costs:</b>						
Total NMHIC Development and Operating Costs	\$3.90 M	\$3.30 M	\$3.24 M	\$3.82 M	\$2.93 M	\$2.94 M
<b>Revenue:</b>						
Revenue From User Subscriptions	\$0.00	\$0.00	\$0.20 M	\$0.65 M	\$0.93 M	\$1.12 M
Revenue from Payers	\$0.00	\$0.00	\$1.56 M	\$1.87 M	\$2.18 M	\$2.21 M
▪ Number of Covered Lives	0	0	420 K	600 K	700 K	800 K
▪ Per Member Per Month (\$)	N/A	N/A	\$0.31	\$0.26	\$0.26	\$0.23
Total Operating Revenue	\$0.00	\$0.00	\$1.76 M	\$2.52 M	\$3.12 M	\$3.33 M

Funding From Federal, State and Stakeholders	\$3.45 M	\$3.30 M	\$1.49 M	\$1.49 M	\$0.00	\$0.00
Total Operating and Funding Revenue	\$3.45 M	\$3.30 M	\$3.25 M	\$4.01 M	\$3.12 M	\$3.33 M
<b>Financial Summaries:</b>						
Cash Flow (+/-)	-\$0.45 M	\$0.00	+\$0.04 M	+\$0.20 M	+\$0.19 M	+\$0.29 M
Net Earnings (+/-)	\$0.00	-\$2.67 M	-\$1.37 M	-\$1.33 M	+\$0.05 M	+\$0.18 M

### Scenario 2

Assumptions:

1. NMHIC will **not** receive \$1.49 M per year for the NHIN contract for Year 2 (2009) and Year 3 (2010).
2. Health plans will be willing to make up the difference for the loss of funding for Years 2 and 3.

Revenue/Expense	2004 - 2007	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5
<b>Costs:</b>						
Total NMHIC Development and Operating Costs	\$3.90 M	\$3.30 M	\$3.29 M	\$3.88 M	\$2.93 M	\$2.94 M
<b>Revenue:</b>						
Revenue From User Subscriptions	\$0.00	\$0.00	\$0.20 M	\$0.65 M	\$0.93 M	\$1.12 M
Revenue from Payers	\$0.00	\$0.00	\$2.97 M	\$3.24 M	\$2.18 M	\$2.21 M
▪ Number of Covered Lives	0	0	420 K	600 K	700 K	800 K
▪ Per Member Per Month (\$)	N/A	N/A	\$0.59	\$0.45	\$0.26	\$0.23
Total Operating Revenue	\$0.00	\$0.00	\$3.17 M	\$3.89 M	\$3.12 M	\$3.33 M
Funding From Federal, State and Stakeholders	\$3.45 M	\$3.30 M	\$0.00	\$0.00	\$0.00	\$0.00
Total Operating and Funding Revenue	\$3.45 M	\$3.30 M	\$3.17 M	\$3.89 M	\$3.12 M	\$3.33 M
<b>Financial Summaries:</b>						
Cash Flow (+/-)	-\$0.45 M	\$0.00	-\$0.10 M	+\$0.02 M	+\$0.18 M	+\$0.39 M
Net Earnings (+/-)	\$0.00	-\$2.67 M	+\$0.01 M	-\$0.01 M	+\$0.05 M	+\$0.18 M

### Scenario 3

Assumptions:

1. NMHIC will receive \$1.49 M per year for the NHIN contract for Year 2 (2009) and Year 3 (2010).
2. To encourage clinician adoption, the user subscription fees will be reduced to zero.
3. Health plans will be willing to make up the loss of revenue from network subscriptions

Revenue/Expense	2004 - 2007	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5
<b>Costs:</b>						
Total NMHIC Development and Operating Costs	\$3.90 M	\$3.30 M	\$3.23 M	\$3.82 M	\$2.92 M	\$2.94 M



<b>Revenue:</b>						
Revenue From User Subscriptions	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Revenue from Payers	\$0.00	\$0.00	\$1.73 M	\$2.45 M	\$2.94 M	\$3.36 M
▪ Number of Covered Lives	0	0	420 K	600 K	700 K	800 K
▪ Per Member Per Month (\$)	N/A	N/A	\$0.34	\$0.34	\$0.35	\$0.35
Total Operating Revenue	\$0.00	\$0.00	\$1.71 M	\$2.45 M	\$2.94 M	\$3.36 M
Funding From Federal, State and Stakeholders	\$3.45 M	\$3.30 M	\$1.49 M	\$1.49 M	\$0.00	\$0.00
Total Operating and Funding Revenue	\$3.45 M	\$3.30 M	\$3.23 M	\$3.95 M	\$2.94 M	\$3.36 M
<b>Financial Summaries:</b>						
Cash Flow (+/-)	-\$0.45 M	\$0.00	+\$0.00 M	+\$0.13 M	+\$0.02 M	+\$0.42 M
Net Earnings (+/-)	\$0.00	-\$2.67 M	-\$1.40 M	-\$1.40 M	-\$0.11 M	+\$0.21 M

## Financial Benefits to NMHIC Stakeholders

A quantification of the benefits to stakeholders is shown below.

**The first perspective** to help us quantify the benefits to NMHIC stakeholders is derived from a study of nationwide HIE savings performed by the Center for Information Technology Leadership (CITL), *The Value of Healthcare Information Exchange and Interoperability*. This perspective takes the savings generated by HIEs and interoperability at the national level and projects these savings to New Mexico based upon the percentage of national versus state expenditures on health care. **Since the national savings estimates assume an advanced level of interoperability, and since many health care organizations in New Mexico do not yet have EHR systems with advanced levels of interoperability, it was decided to use only 10% of the projected savings from HIE networks in this report.** This perspective shows the following annual financial benefits (mostly cost avoidance) for New Mexico.

### Projected Savings (and/or Cost Avoidance) from HIE Networks

Source of Savings	Annual Savings New Mexico	Annual Savings to New Mexico Payers
Outpatient Providers & Laboratories		\$2.07 M
• Reduced Tests	\$ 2.62 M	
• Efficiencies on Remaining Tests	\$ 16.94 M	
Outpatient Providers & Radiology Centers		\$4.42 M
• Reduced Tests	\$ 5.61 M	
• Efficiencies on Remaining Tests	\$ 10.50 M	
Providers Communicating with Other Providers		\$5.41 M
• Physicians	\$ 5.45 M	
• Hospitals	\$ 2.68 M	
Providers & Public Health Departments		N/A
• Physicians	\$ 0.07 M	
• Public Health Departments	\$ 0.07 M	
Total Interoperability Savings	\$ 43.94 M	\$11.90 M

For more details on these savings (cost avoidance), please refer to Appendix H.

**The second perspective** to help us quantify the benefits to NMHIC stakeholders is derived from local examples and interviews with local healthcare executives.

- **Annual projected savings (cost avoidance) from New Mexico laboratories due to the Health Information Exchange Network is approximately \$6 M.** (See Appendix I for methodology and details).
- **There are many other areas of potential savings (cost avoidance) to stakeholders; however, local data to quantify these benefits is still limited or not available.** Despite the limitation of local data, we have been able to quantify an additional \$750 K to \$875 K per year in savings from other sources. (See Appendix J for methodologies and details).

**Ratio of Stakeholder Savings (Cost Avoidance) to Payments to NMHIC Network**

	<b>Derived from National Estimates</b>	<b>Derived from Local Estimates</b>
Annual Savings to Payers	\$11.9 M	\$6.75 M
Annual Contribution to NMHIC from Payers for Years 2011 and Beyond		
• With user subscribers	\$ 2.1 M	\$ 2.1 M
• Without user subscribers	\$ 3.6 M	\$ 3.6 M
Savings to Cost Ratio		
• With user subscribers	11.9 / 2.1 = 567 %	6.75 / 2.1 = 321%
• Without user subscribers	11.9 / 3.6 = 331 %	6.75 / 3.6 = 188%

The purpose of this table is to provide another metric for beneficiaries (health plans, Medicaid) to measure the return on their annual investment in NMHIC. The ratios shown are derived from national and local data. The ratios derived from local data are shown, even though we lack the data to quantify many areas of potential savings, so they significantly understate the potential savings to the community and payers. Despite this significant lack of data, the ratios are still fairly attractive.

## **Conclusions and Recommendations**

### **Conclusions**

- NMHIC has assembled the resources, technologies, and community stakeholders to develop an HIE network to solve the problem of scattered patient information. Scattered information wastes precious physician time, causes unnecessary ordering of repeat laboratory and radiology tests, reduces the accuracy of diagnoses, and contributes to medical errors that may harm or even kill the patient. NMHIC will solve this problem by enabling physicians to have rapid access to this critical information when making decisions about patient care. NMHIC has already established a strong foundation to achieve this, including:
  - Developing broad community support among NMHIC stakeholders
  - Identifying network service priorities from a comprehensive survey of potential network users
  - Demonstrating a prototype HIE network in 2006-2007
  - Establishing a robust technical platform and strong executive and management team to operate the HIE
  - Demonstrating the ability to communicate with other networks as part of the Nationwide Health Information Network in 2008
- NMHIC has developed revenue and cost models to help assess options for expansion of high priority network services over a five year period. Three scenarios are presented in this business plan report for consideration by NMHIC stakeholders.
- The health information exchange network is a critical component of a health information infrastructure for New Mexico. The development of this health information infrastructure is necessary for improving quality and lowering costs, and therefore an essential component of all proposals for universal access to health care.

### **Recommendations**

#### **Recommendations for NMHIC Stakeholders**

- NMHIC and the community should view the development of the HIE network as if it were the development of a non-profit public utility.
- The presentation of this report to the NMHIC Steering Committee and RHIO Grande Board on Tuesday, October 21, 2008, should be the beginning of community discussion that will lead to stakeholder decisions regarding the financing for NMHIC.
- Since the benefits of sharing patient information to improve quality of care, patient safety, and lower costs must be balanced by the need to ensure that patient protected health information (PHI) is safeguarded, the initiatives to build community consensus for financial support of NMHIC must move forward in parallel with forums to develop community consensus to protect PHI.

#### **Recommendations for Payers (Health Plans and Medicaid)**

- Since the scenarios in this report reveal that most of the cost to support the HIE network will be directly or indirectly covered by the payer community, the forums to develop community consensus for the financial support of NMHIC should be led by the payer community.
- Since the New Mexico Human Services Department (Medicaid) will benefit from the lower community healthcare costs provided by NMHIC (e.g., significant improvements in continuity of care and reduced duplication of health care services) it should consider covering the cost of access to NMHIC for physicians caring for Medicaid patients.

- The New Mexico Human Services Department (Medicaid) can also directly improve the quality and lower the cost of health care in the state by making Medicaid health claim information accessible to physicians throughout the state via NMHIC.

#### Recommendations for Health Care Providers

- Since the success of the NMHIC HIE is dependent on data supplied by health care providers and the use of the network by clinicians, there should also be an initiative to promote clinician review of the network services as they are being developed to provide feedback to maximize the ease of use and benefits to clinicians.

#### Recommendations to New Mexico Department of Health

- The relationship of the New Mexico Department of Health (DOH) to NMHIC should shift from that of a benefactor to that of a customer of HIE network services. In addition to the transfer of medical information about DOH clients, these network services should include mandatory reporting of notifiable diseases and conditions, Biosurveillance, Emergency Responder, and other network services for safety net providers operated by the DOH.

#### Recommendations to Employers

- Since the benefits of the Health Information Network will accrue to the entire New Mexico community, employers who provide health benefits for their employees will also realize savings (and/or cost avoidance). For this reason, employers should consider paying for their share of the annual costs of NMHIC. Employers' shares of NMHIC costs might be determined using an algorithm similar to the "per member per month" construct used by health plans.

## **Appendices**

### **Appendix A: Philosophy**

- **Mission**

To create a statewide health information exchange network that is sufficiently trusted and valued by all stakeholders (employees/patients, employers, physicians, health systems and health plans) so that it will improve care coordination and create a foundation for sustainability.

- **Goals**

- Improve statewide benefits, such as continuity of care and lower costs, by providing rapid access to patient health care information from multiple health care facilities across the community.
- Provide additional cost savings for the community by reducing redundant clinical tests and results reporting for the same patient
- Secure the trust of consumers, patients and providers by providing strong privacy and security safeguards for health care information
- Implement appropriate interoperability, privacy and security capabilities so that NMHIC can be certified by the Certification Commission for Health Information Technology (CCHIT)
- Interoperate with other NHIE's within the Nationwide Health Information Network
- Facilitate improved public health services, including mandatory reporting, monitoring of health status, and the ability to respond more quickly to health emergencies
- Empower consumers to understand and access personalized health information to facilitate active management of their health
- Utilize health information technology to provide health care services to rural and underserved populations
- Encourage the adoption of electronic health records systems in New Mexico by making it easier and less costly to securely share information over electronic networks
- Facilitate public reporting of patient outcomes and quality measures

- **Guiding Principles**

- The priorities of potential network users and stakeholders in the community should drive the selection of network services offered by the HIE
- The HIE should be developed and operated for the benefit of all users and stakeholders; that is, as if it is a public utility
- Since the use of HIE network services may require user acceptance of new processes, policies and culture, the HIE may need to set forth realistic expectations by providing appropriate user and community education
- The business model of the HIE network should lead toward financial self-sufficiency as soon as possible

## Appendix B: NMHIC Stakeholders by Type and NMHIC Steering Committee Members

NMHIC Stakeholders	Steering Committee Member
<b>Business Organizations:</b>	
Albuquerque Hispano Chamber of Commerce	
Association of Commerce and Industry of NM	
Bank of Albuquerque	
Don Chalmers Ford	Yes
First Community Bank	Yes
Four Thought Group	Yes
Greater Albuquerque Chamber of Commerce	
Health Extranet (provides patient eligibility information)	
Intel Corporation	Yes
Johnson Associates (consulting firm)	Yes
Public Service of New Mexico (PNM)	
Sandia National Laboratories	Yes
Semantic Mesa Technology	
Technology Ventures Corporation	
Wells Fargo Bank	
<b>Healthcare Providers:</b>	
Albuquerque Indian Health Center	
First Choice Community Healthcare (safety net provider)	Yes
Heart Hospital of New Mexico	
Holy Cross Hospital (Taos)	Yes
Lovelace Health Systems	Yes
New Mexico Veterans Affairs Health Care System	
New Mexico Heart Institute (cardiology specialty physician group)	
NM Primary Care Association (rural safety net provider association)	Yes
Presbyterian Healthcare Services	Yes
SED Laboratory	Yes
Taos Medical Group	
TriCore Laboratory	Yes
UNM Center for Telehealth	Yes
UNM Hospital	
<b>Professional Associations:</b>	
Greater Albuquerque Medical Association	Yes
New Mexico Medical Society	Yes
NM Coalition for Health Information Leadership Initiatives	Yes
NM Hospital and Health System Association	Yes
NM Takes on Diabetes (cooperative alliance of insurers and health plans)	Yes
NM Telehealth Alliance	Yes

NMHC Stakeholders	Steering Committee Member
RIOSNET (physician primary care alliance)	
Sangre de Cristo Community Health Partnership	Yes
<b>Healthcare Payers:</b>	
Blue Cross/Blue Shield	Yes
Lovelace Health Plan	
Molina Health Care of NM (Medicaid insurer)	Yes
New Mexico Mutual	
Presbyterian Health Plan	Yes
United Healthcare	Yes
<b>Educational Institutions:</b>	
Albuquerque Public Schools (secondary schools)	Yes
Project ECHO – University of New Mexico	
Rio Rancho Schools	Yes
UNM Health Sciences Center	Yes
UNM School of Management	Yes
<b>Government:</b>	
Health Policy Commission (state body to collect health service and policy information)	Yes
New Mexico Department of Health	Yes
NM State Legislature	
Office of Governor Bill Richardson	
<b>Consumer/QIO Organizations:</b>	
New Mexico Retiree Health Care	Yes
New Mexico Medical Review Association	Yes
<b>Charitable Organizations:</b>	
McCune Charitable Foundation	
United Way	



## Appendix C: NMHIC Staff Biographies

- Margaret J. Gunter, PhD, a health services researcher and medical sociologist, is the Project Co-Lead for the NHIN Trial Implementation contract. She is President and Executive Director of the Lovelace Clinic Foundation (LCF), a non-profit health research institute in Albuquerque, NM. LCF's primary purpose is to develop interventions and conduct outcomes and healthcare delivery research to improve the quality, availability, and cost effectiveness of healthcare in the United States. Dr. Gunter was instrumental in the development of Lovelace Health System's nationally recognized Episodes of Care® (EOC) Disease Management Program. From 2004-2008, Dr. Gunter served as Principal Investigator for the AHRQ-funded New Mexico Health Information Collaborative (NMHIC) project, which is developing a statewide health information exchange network. Dr. Gunter has been responsible for developing broad community participation in NMHIC with a very participatory governance model. Dr. Gunter is also Senior Project Manager for New Mexico's ONC-funded Health Information Security and Privacy Collaborative (HISPC), which has identified key privacy and security barriers to implementing a health information exchange in New Mexico, and is currently working to pass new updated state privacy legislation to address these barriers. Dr. Gunter holds a PhD in medical sociology from the University of Pittsburgh.
- Jeff Blair, MBA, is the Director of Health Informatics for the New Mexico Health Information Collaborative (NMHIC) at Lovelace Clinic Foundation. He currently serves as the Lead for the Nationwide Health Information Network (NHIN) Trial Implementation contract that was awarded to NMHIC in September 2007. During 2005, Mr. Blair served as the facilitator for the development of the New Mexico Regional Health Information Organization (NM RHIO). During 2006, Mr. Blair was the Technical Manager for the AHRQ / RTI-funded Health Information Privacy and Security Collaborative (HISPC) project. The objective of this project was to identify variations in privacy and security policies and develop solutions for these variations that may create impediments to interoperable health information exchange in New Mexico. He was appointed by the U.S. House of Representatives to the National Committee on Vital and Health Statistics (NCVHS) in 1997 and is currently in his third four-year term with NCVHS, serving as Co-Chair of the Subcommittee on Standards and Security. During the last ten years, Mr. Blair has played a leadership role in almost every standards recommendation and task that has been directed to the NCVHS by Congress or the Secretary of HHS. These include the HIPAA transaction standards, the standards for EHR functionality, and the e-prescribing standards. Virtually all of the NCVHS recommendations on these topics have been adopted as federal regulations. In 2006 the Office of the National Coordinator of Health Information Technology (ONCHIT) asked the NCVHS to recommend the minimal but essential functional requirements for the Nationwide Health Information Network (NHIN). Mr. Blair was Vice Chair of the NCVHS Task Force that set forth the minimal but inclusive set of functional requirements for the NHIN. Mr. Blair held a variety of management and staff positions during his 30-year career with IBM. Mr. Blair has his Bachelor of Management Engineering from Rensselaer Polytechnic Institute, and his MBA from Northwestern University. Mr. Blair has been elected a Fellow of the American College of Medical Informatics (ACMI) and the Health Information and Management Systems Society (HIMSS).

- Robert E. (Bob) White, MD, MPH, is the Medical Lead for the NHIN Trial Implementation contract. He is Director of Medical Informatics and Senior Research Scientist for Lovelace Clinic Foundation (LCF), and is also Professor Emeritus, Department of Medicine, University of New Mexico School of Medicine. Prior to joining Lovelace Clinic Foundation full-time in September 2006, Dr. White practiced general internal medicine at the New Mexico Veteran's Administration Health Care System. He was an academic generalist at the VA and the University of New Mexico beginning in 1979. His academic focus was using electronic medical databases for research and quality improvement projects. Dr. White is very familiar with the use and applications of EHRs from his years of experience using the VA VISTA EHR system. Dr. White currently works on four funded projects at Lovelace Clinic Foundation and the VA, and he is the Director of Medical Informatics for the New Mexico Health Information Collaborative (NMHIC). Since May 2006, Dr. White has also been a testing juror of ambulatory electronic record software with the national Certification Commission for Health Information Technology.
- Dave Perry is the Chief Information Officer for Lovelace Clinic Foundation. He has over 25 years of information technology experience and expertise. Mr. Perry was the Director of IT Infrastructure for Presbyterian Healthcare Services (New Mexico's largest healthcare integrated delivery system) from 1998 to 2006 and was responsible for their state-wide telecommunications network, information security, and computer support. He has run his own successful technology business in New Mexico and has also worked for other large technology vendors, gaining experience in many industries. He is now focused on building NMHIC and supporting the technology requirements of Lovelace Clinic Foundation. Mr. Perry received an Electronics Technician Diploma from DeVry Institute of Technology in 1980.
- Donald L. Nettles, MBA, CPA is LCF's Chief Financial Officer. He has extensive experience with financial accounting, financial operations and auditing at the public and federal level. Retiring after 25 years with Standard Oil holding down financial management and operating positions in the research, law, pension administration and accounting policy departments, Don operated his own accounting firm and has been employed by the DOD as an auditor with the DCAA. As Controller of the Research Dept of Standard Oil, he was responsible for budgeting and controlling the costs for on average about 1100 research projects with a \$300 million dollar budget.
- Shelley Carter is Lovelace Clinic Foundation's (LCF) Director of Research and Educational Services, a senior research associate and project manager. Ms. Carter is currently serving as the Clinical and Community Coordinator for the New Mexico Health Information Collaborative (NMHIC). Ms. Carter is also project lead for New Mexico's Health Information Security and Privacy Collaborative (HISPC) project. The HISPC contract is addressing privacy and security issues in New Mexico that relate directly to the development of the HIE Network and the NHIN Trial Implementation contracts. Ms. Carter has extensive experience designing and managing programs to improve the health of New Mexico communities. In her work with the New Mexico Primary Care Association (NMPCA), Ms. Carter oversaw the data collection and analysis of the impact of health care on 117 Federally Qualified Community Health Centers statewide. As the NMPCA's Community Planner/Developer and Clinical Analyst, she facilitated analysis of a health care/Medicaid utilization report to HRSA. At LCF, Ms. Carter is the Director of Research and Education. Over the last five years, she has been involved in a ten-site HMO Research Network's Center for Education and Research on Therapies (CERT) Prescribing Safety project. Ms. Carter served as project manager for the CMS-funded Medicare Case Management Demonstration for Congestive Heart Failure and Diabetes

Mellitus, whose objective was to assess the cost-effectiveness of case management. She is currently involved in a project with Centers for Disease Control and Prevention (CDC)/Battelle Seattle Research Center to implement and evaluate interventions to increase colorectal cancer screening in primary care clinics. Ms. Carter is coordinating a project with ORC Macro and CDC to conduct a clinical trial of the impact of a prostate cancer screening decision aid (brochure) on such issues as provider practice style and patient-provider shared decision making.

- Randall McDonald is part-time in-house legal counsel to LCF and a practicing attorney in Albuquerque, New Mexico. Mr. McDonald received his B.A. in 1974 from Montana State University, his J.D. from the University of Montana School of Law in 1978, and his LL.M. in Taxation from Boston University in 1981. His practice areas include business and commercial transactions, computer and technology law, and tax-exempt organization law. He also represents numerous New Mexico technology companies and provides legal assistance with respect to issues regarding the formation, financing, operation, and the sale of technology companies and the licensing of technology, both with respect to private licensing transactions and transactions with federal and state institutions. Mr. McDonald has extensive experience in issues related to HIPAA and health information exchange. Mr. McDonald has provided legal counsel to LCF for the past ten years and is the lead legal and privacy consultant for the New Mexico Health Information Collaborative. He also chaired the Legal Working Group and the Implementation Plan Working Group of the AHRQ / RTI-funded Health Information Security and Privacy Collaborative project for New Mexico, and is currently involved in the HISPC , Harmonizing State Laws Collaborative and in the NHIN Project DURSA Workgroup. Mr. McDonald has an AV rating from Martindale Hubbell, and is listed in the 2007 edition of The Best Lawyers in America in the areas of Corporate Law and Mergers and Acquisition Law, is listed in Chambers USA, America's Leading Business Lawyers in the area of Corporate/M and A, and is listed by Southwest Super Lawyers, in the area of Intellectual Property.
- Kent R. Langsteiner, BSCS, CISSP, CHFI, MCP has over 26 years of experience in computer application, database analysis, design and development as well as network and applications security. This experience has been gained in many different computing as well as business environments. Mr. Langsteiner initially started in the Health Care Insurance industry, working on system processing regular business as well as Medicare and Medicaid claims. Most recently, Mr. Langsteiner has been involved in the development of a distributed patient medical information system for the New Mexico Health Information Collaborative (NMHIC). In this role, he has developed the data engine which builds virtual health information records from distributed databases residing at client locations. In addition, he was involved in the development of the Master Patient Index (MPI) for the NMHIC system. The MPI implements a deterministic patient record matching algorithm which employs several industry standard methods for comparing patient records and selecting those which apply to a single individual. Mr. Langsteiner's other duties have included coordinating the implementation of interface standards with client institutions for the purpose of providing data to the NMHIC system, reviewing security policies and procedures related to the LCF computing environment, serving on the Technology and Security Working Group for the National Health Information Network Trial Implementation. He has provided consulting services for various other projects within LCF as well as providing oversight and supervision of the expansion of the LCF datacenter.

- Shirley Fuller is the IT Project Manager for the Emergency Responder Use Case on the NHIN Trial Implementation Project. Ms. Fuller has 35 years of health care experience including being a Certified EMT Licensed Paramedic. Ms. Fuller has extensive experience in implementing EMR/PM systems to individual physician offices as well as hospitals and clinics employing over 300 physicians. Ms. Fuller has experience working in the Ambulatory and Emergency Department environments on the redesign of operational workflow from both the User and Clinician perspective. Ms. Fuller's project management experience includes being the liaison between software, hardware and networking Vendors, giving her the ability to see the beginning to end view of the project, the "Big Picture".
- Mark Butler is the IT Project Manager for the Laboratory Results Use Case as part of the NHIN Trial Implementation Project. Mark has over 27 years of healthcare experience including over 20 years of healthcare IT experience. Mr. Butler was the Information Systems Director for SED Medical Laboratories, a regional reference laboratory in New Mexico, from 1991-2007. Mr. Butler was responsible for providing strategic oversight and management for the organization's clinical and financial information systems. He directed complex projects relating to the technologic support of the laboratory's business and technical operations. Mr. Butler directly managed all hardware infrastructure, software systems, and IT support. Mr. Butler was a member of the New Mexico Health Information Collaborative (NMHIC) Clinical Council and Steering Committee from 2005-2007, assisting in the development of NMHIC's HIE network.

## Appendix D: Privacy Policies

- All health care organizations who participate in the NMHIC network are required to sign a network subscription agreement that specifies their responsibilities as users and data providers, and the health information organization's responsibilities to protect the privacy and security of electronic health information.
- The NMHIC health information organization will be a business associate to covered entities that are participants in the NMHIC network, requiring the NMHIC health information organization to meet privacy and security standards for business associates as set out in the HIPAA regulations.
- Before an individual's electronic health information may be accessed on the NMHIC network, the user must be authorized (registered as a qualified user on the network) and then authenticated (verified that the users are who they say they are).
- The NMHIC authorized user may access an individual's electronic health information under only two circumstances:
  - The user has acknowledged that the individual has given written consent to that health care provider to access the individual's electronic health information. (Duration of validity of consent to be determined.)
  - The user makes a representation of the existence of a medical emergency. (Referred to as the "break the glass" process)
- The health information organization will maintain a record of each access to an individual's electronic health information to support investigation of improper access.
- The network is able to support the emergency "break the glass" process only because all patient health records of participating health care providers are made available to the network by placing them on a secure computer that is located within the health care data provider's physical location.
- The NMHIC health information organization will require that all employees, contractors, and service providers adhere to the organization's policies on privacy and security. LCF will provide annual HIPAA Privacy and Security training to employees.
- NMHIC will have a policy and/or procedure indicating that LCF IT staff regularly review the audit logs for potential breaches of security or possible unauthorized access.

## **Appendix E: Administrative and Technical Operations Approach**

The LCF approach to NMHIC client services blend MedPlus' advanced toolsets, NMHIC's seasoned healthcare professionals, and MedPlus' industry best practices approach to deliver a seamless customer support framework. We optimize this approach to suit the needs of the network subscriber.

Through the provision of a single point of contact for all IT services, and direct access to our centralized customer service center, NMHIC and MedPlus are positioned to offer a greatly enhanced spectrum of application and technical support services. We believe this will have a positive impact on the network subscribers' user satisfaction. Our Help Desk solution includes the best technology set available in the market today, healthcare domain-experienced support professionals and years of operational proficiency that position NMHIC and MedPlus to efficiently effect positive improvement in the network subscribers' IT domain. An overall understanding of the uniqueness associated with a large healthcare environment enables NMHIC and MedPlus to provide excellent support services in an industry focused on providing world-class care and support.

NMHIC provides comprehensive 24X7 Help Desk services that offers a single point of contact for all IT problems and inquiries. An efficient and effective problem management process is used for the tracking and reporting of all problems. A full communication model is used to provide information to network subscribers/users regarding IS activities. Our approach to comprehensive Help Desk and dispatch services includes, but is not limited to, hardware and software troubleshooting from a command center facility, diagnostics, installation support, and application support.

By leveraging our best practice toolsets, NMHIC and MedPlus manage all network subscriber IS problems through our centralized customer service center, utilizing our combined automated call distribution (ACD), Help Desk, and knowledgebase systems. This consolidated single point of contact supports provision of a consistently high service offering to all network subscribers/users.

Within our centralized service center, NMHIC and MedPlus leverages our broad skill base to achieve a high level of first call resolution. This promotes increased problem resolution timeframes across the full spectrum of issues, including clinical and financial application support. Escalations are used to intensify the attention and expertise given to a particular event, based on severity and time elapsed since the trouble ticket was created. The escalation level is used to communicate clearly the stage of the escalation over technical bridges and in communications about an escalation. This notification process continues during the event until the trouble ticket is resolved.

The software provides the functionality that alerts management when a Service Level Agreement (SLA) is in danger of being missed. With a built-in escalation process, the software lets us create milestones or thresholds to trigger actions such as notifications, escalations, and reassignments that are initiated when service standards and commitments are at risk. NMHIC specifies when to escalate an issue, to whom, and how frequently notifications should be delivered. These actions can be performed discretely or in a recurring manner until appropriate actions are taken to make sure that the commitments are met.

### Ticket Tracking

The end-user support environment involves three core technologies for service delivery:

- Interaction Management
- Service Management

- Knowledge Management.

MedPlus provides NMHIC with best-of-breed technologies to address each of those segments of the support model.

Interaction Management means the capture and presentation of all forms of end-user communication in a single interface for the NMHIC/MedPlus staff. MedPlus presents these communications seamlessly to the NMHIC/MedPlus staff. Voice calls, voicemail messages, e-mail messages, web chats, web call-backs, and faxes are presented through a single queue structure to NMHIC/MedPlus professionals.

Interactions are then be translated into new or existing service requests in the help desk system. This facilitates the logging and tracking of all forms of service requests, and will allow for each support group participating in the system to track their efforts and others' efforts to achieve end-user resolution. NMHIC/MedPlus will facilitate escalation procedures, manage asset information, track SLA performance, and generate a wealth of reporting information.

The solutions entered in help desk system for each incident will ultimately be entered and reused through NMHIC's utilization of knowledge base tools. This will provide a repository for solutions presented to clients. The knowledge base tools capture information through the workflow by the staff providing the end-user solutions. The entire process of information capture, approval, improvement, use, and reuse is tracked within the tool, which will enable NMHIC and MedPlus to measure all aspects of its utilization. Further, we will be able to run reporting on solutions used to provide our clients with specific issues within the environment to best target organizational improvements.

### Level 1 Support

Each Level 1 transaction can be received via telephone, e-mail, fax, or web chat. The Level 1 support team will document the problem the user is experiencing in the ticketing system and then proceed to troubleshoot and resolve the problem. The Level 1 support team will leverage knowledge base(s), remote control tools, and other customer-provided tools to resolve the problem. If the problem cannot be resolved, it will be escalated as appropriate to Level 2, Desktop Support Area, or other appropriate customer groups.

As transactions are received, we will perform the following required steps:

- Document problem in ticketing system
- Troubleshoot and document troubleshooting
- Use knowledge base to identify solution
- Resolve and document solution
- Escalate and document as appropriate

The call handling process assists in defining the time taken by Level 1 support before escalation. The Level 1 analyst first confirms the end user's information and opens a new ticket in help desk system for the incident. The analyst then asks the end user to describe the reason for their call and enters this information into the ticketing system. The information describing the problem is then linked into the knowledge base system and begins to immediately search for a solution. While often the analyst might already know the solution or know the issue needs to be escalated, our support capabilities are always evolving, and issues that once needed escalation can, with documentation, be resolved on the initial call.

We will enter both technical support solution information, as well as process-specific information into the knowledge base system. Therefore, if certain applications or systems are defined as “Level 2 only” issues, the knowledge base system will quickly respond to the analyst with the appropriate escalation instructions. Otherwise, once the knowledge base system has presented its first selection of potential solutions, the analyst continues to ask some basic troubleshooting questions of the end user to refine the search. The analyst works through the existing solutions to attempt resolution. If there are no knowledge base system solutions available at this point in the search to resolve the issue, then our process will direct the analyst to escalate the issue to the appropriate next level of support.

Our approach works best when a feedback loop can be established between all support elements. That feedback loop becomes our knowledge base toolset. Whenever another group resolves an issue for an end user, that group should document the resolution into the knowledge base. By doing so, it further enables the Help Desk staff to resolve issues at the front lines, and allows all aspects of the support team to procedurally improve the quality and speed of support.

In addition, we will also work through our transition process to identify and classify each application within the environment. That process will examine the current environment, the processes in place, the escalation procedures, the current sources of support information, and the support resources to populate the knowledge base and to establish the specific client procedures. This information will be documented in our knowledge base for all elements of the support organization to leverage and maintain.

#### Level 2 and Level 3 Support

Each Level 2 transaction can be received via ticketing system or transferred from Level 1. The Level 2 support team will troubleshoot the problem with the customer. If the problem cannot be resolved, the Level 2 support team will arrange a callback and research the problem to identify a solution. If a solution cannot be identified, it will be escalated as appropriate to Level 3, NMHIC’s Technical support.

As transactions are received, we will perform the following required steps:

- Troubleshoot with proper documentation
- Research the problem to identify solution
- Resolve and document solution
- Escalate and document as appropriate

The knowledge base system will serve as our solution repository for all applications supported. MedPlus will work aggressively to identify all existing sources of support information about the NMHIC support environment. MedPlus will use this information to seed the knowledge base with NMHIC-specific support knowledge to augment its existing content. MedPlus’s approach is to leverage the knowledge base across all support groups to continuously improve the content, and as such, the ability of the Help Desk to resolve issues at the front line.

#### Reporting and Trend Analysis

NMHIC will utilize state-of-the-art reporting tools for reporting and trend analysis. With this combination of best-of-breed technologies, NMHIC will always know where they



stand with their Help Desk operations. NMHIC and MedPlus network operations center will monitor NMHIC servers and each node on the network. Using standard reporting schema, MedPlus will be able to report uptime and any issues related to the network or NMHIC hardware via the Internet. Beyond just reporting what is going on at the Help Desk level, MedPlus will also build a knowledge base into NMHIC with MedPlus tools, so that over time, NMHIC's end-users will become more sophisticated in the use of the applications. The focus of reporting will be in the following areas:

- Monthly Service Level Reports
- Performance Trends
- Asset Reporting
- Open Problems and Requests

## Appendix F: HIE Network Technologies/Capabilities

### NMHIC System Architectural Overview

The Lovelace Clinic Foundation (LCF) deployed the MedPlus FirstGateways products to support NMHIC operations. FirstGateways is a web enabled, n-tier, thin client solution based on a federated data model.

FirstGateways' implementation of a federated model is done through the VLink™ engine. VLink's architecture deploys an instance of a database and interface engine on a server behind the firewall of each organization – this is referred to as an edge server or service. The edge service captures data by tapping into a site's existing electronic data streams. This data flows into and is permanently stored on the organization's edge server. While we store the clinical information at the edge, specific demographic data elements are sent for processing to the centralized master person index.

When a user logs into FirstGateways and selects a patient, the FirstGateways clinical data service (CDS) is called and a query is sent to the sites containing patient data. The patient data is gathered and returned in an encrypted XML format. The multiple XML messages are then organized into a single XML document and sent to the FirstGateways' application and web servers. Once formatted, it is forwarded to the requestor's desktop.

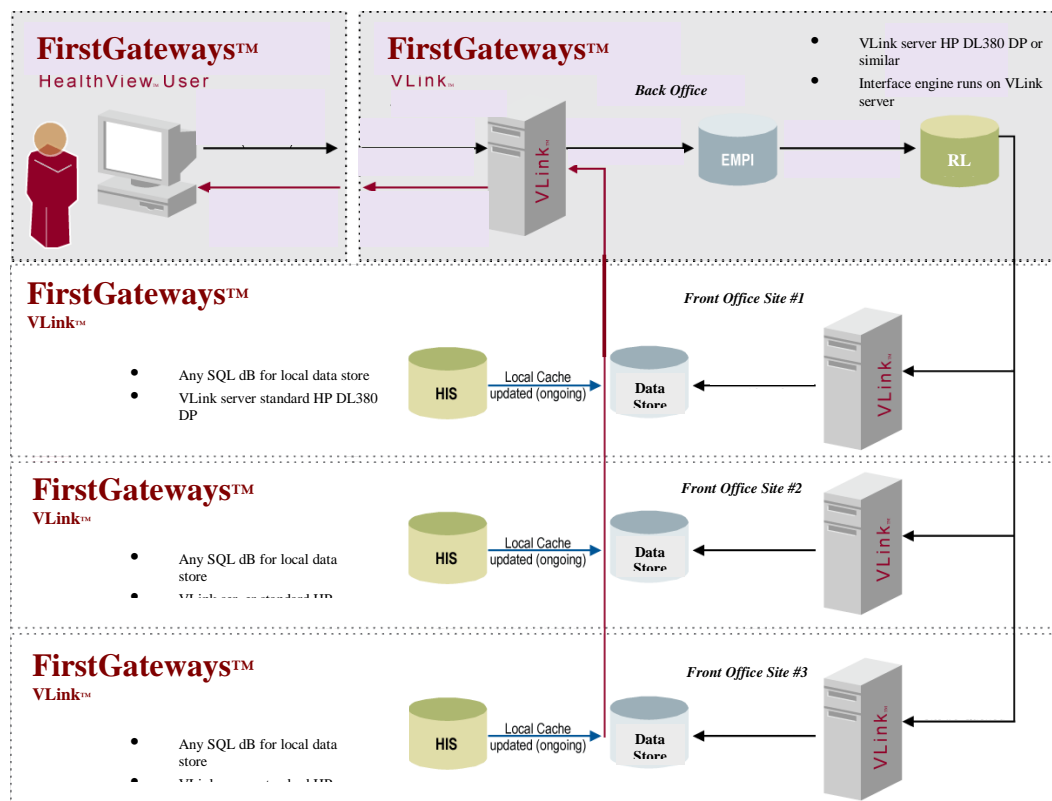


Figure 1 – FirstGateways Architecture

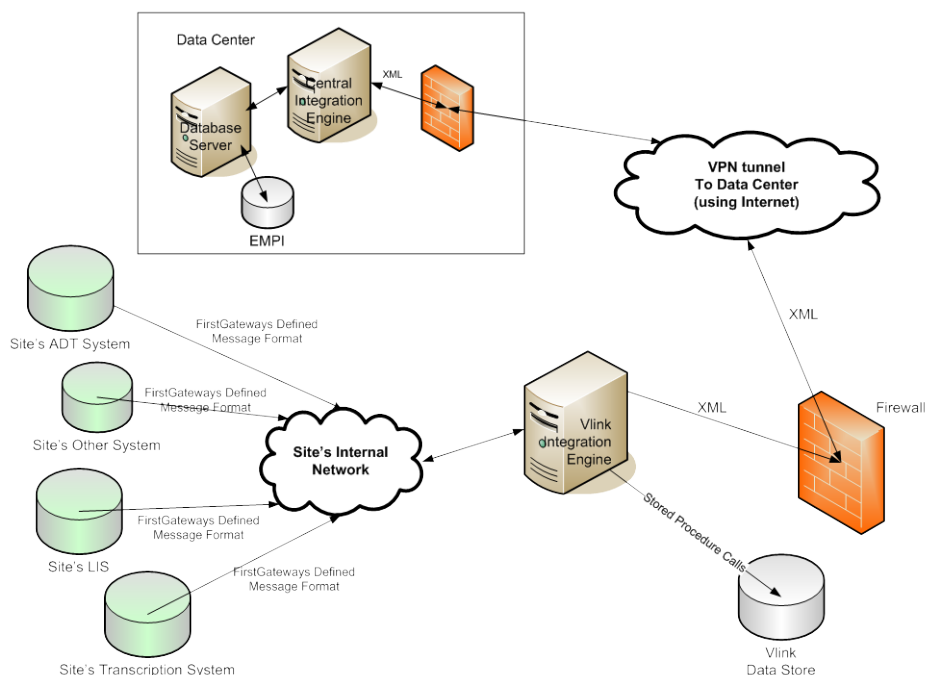
## Components of the NMHIC System

The NMHIC System is comprised of the following components:

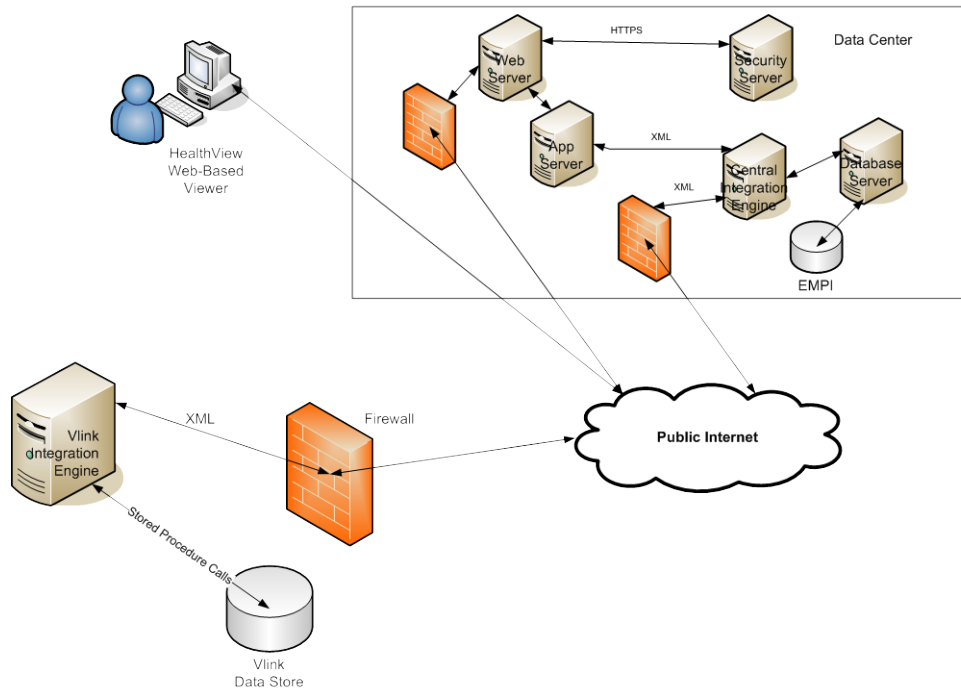
- FirstGateways Clinician (web based viewer)
  - String Templates (web screen customization tool)
  - Home Page Content Manager (web site content customization tool)
- FirstGateways VLink (edge services):
  - FirstGateways Clinical Data Store (relational database Data Repository)
  - FirstGateways Integration Engine (interface engine)
- FirstGateways VLink (central services)
  - Patient Identification - Master Patient Index (MPI) and Record Locator Service (RLS)
  - Web and Application Server (processing and formatting data requests and responses)
  - Auditing Services (logging of data requests, user activity and events)
  - Security Service (authorization and authentication services)
  - Clinical Data Service (accepts the clinical data requests, traverses the federated architecture and returns the appropriate data)

## NMHIC System Data Flow

Figures 2a and 2b below illustrate the high level data flow for the NMHIC System. Figure 2a shows the data flow for data acquisition. This diagram uses one edge server and one central service. This data flow will work in a significantly similar fashion at all NMHIC constituents. Figure 2b shows the data flow for a data request. Similar to Figure 2a, this diagram uses one edge server and one central service. This data flow will work in a significantly similar fashion at all NMHIC constituents.



**Figure 2a – Data Acquisition Data Flow**



**Figure 2b – Data Retrieval Data Flow**

### Scalability

NMHIC is building the Health Information Exchange for scalability. This means that adding users will not require much increase of absolute cost. The infrastructure hardware and software is architected to enable storage and other technical components to be added at small incremental cost and will not require costly wholesale change out. While the HIE is designed for scalability, adding data providers to the exchange will require additional expense to develop data exchange interfaces.

## Appendix G: Assumptions Affecting NMHIC Expenditures

### Assumptions Regarding NHIN Base-Year Contract through Jan. 23, 2009

- NMHIC feels confident that we will meet all of the requirements of the NHIN contract, including implementation of network services and demonstrating the ability to communicate interoperably with other HIE networks within the NHIN.

### Assumptions Regarding Network Services Implementation and Commercial Availability

- Interfaces for the first four NMHIC network services have already been implemented and commercial availability of these network services for viewing on the NMHIC portal will be available by July 2009. The initial set of network services will be available on the NMHIC Clinician portal. They include: Lab Results Reports, Radiology and Imaging Reports, NHIN Summary Patient Record, and Discharge Summaries. In addition, users will have access to patient information on the Veterans' health system, the DoD military health system, the Indian Health Service and other healthcare organizations connected to the NHIN.
- Sending Laboratory Results in the form of an HL-7 message will be implemented by July 2009, and transformed into a commercial offering by September 2009.
- Access to medication eligibility, formulary and history information via RxHub, will be implemented by September 2009 and commercially available by November 2009.
- The sending of Emergency Responder Reports to DOH will be implemented by October 2008 and will be made commercially available by September 2009.
- NMHIC plans to implement four additional network services in January 2010, including:
  - patient insurance eligibility
  - e-prescribing
  - quality
  - biosurveillanceThese four network services will be commercially available by March 2010.

### Assumptions Regarding Additional Data Providers

- NMHIC plans to sign network subscription agreements with four leading healthcare providers by July 2009. The candidates for these NSAs include: Presbyterian Health Services, ABQ Health Partners, University of New Mexico and Eye Associates of New Mexico.
- NMHIC plans to sign network subscription agreements and implement interfaces with several additional health care providers from September 2009 through December 2009.
- NMHIC plans to sign network subscription agreements and implement interfaces to two local health plans by January 2010.

## Appendix H: National Savings Estimate Table

<b>CITL - INTEROPERABILITY BENEFITS</b>	<b>National Savings</b>	<b>National Savings</b>	<b>New Mexico %</b>	<b>Total New Mexico Savings</b>	<b>Total New Mexico Savings 10%</b>
Programmatic period	Study year 2003	Adjusted to 2008	(% health \$)		
Dollar valuation	billions of 2003 \$	billions of 2008 \$		millions of 2008 \$	
Outpatient Providers & Laboratories					
- Reduced tests	4.00	4.8	0.55%	26.17	2.62
- Efficiencies on remaining tests	26.10	30.8	0.55%	169.35	16.94
Outpatient Providers & Radiology Centers					
- Reduced tests	8.60	10.2	0.55%	56.09	5.61
- Efficiencies on remaining tests	16.20	19.1	0.55%	105.00	10.50
Providers & Other Providers					
- Physicians	8.40	9.9	0.55%	54.50	5.45
- Hospitals	4.10	4.9	0.55%	26.83	2.68
Providers & Public Health Depts					
- Physicians	0.10	0.1	0.55%	0.67	0.07
- Public Health Departments	0.10	0.1	0.55%	0.67	0.07
<b>Total Interoperability Savings</b>	<b>67.70</b>	<b>79.9</b>	<b>0.55%</b>	<b>439.28</b>	<b>43.94</b>

## Appendix I: Total Annual Benefit to Payers Table

<b>Total Annual Benefit to Payers by HIEI Level 4</b>						
<b>Payer Benefit from:</b>	<b>Level 2</b>	<b>Level 3</b>	<b>National Savings to Payers Level 4</b>	<b>New Mexico %</b>	<b>NM Savings to Payers</b>	<b>NM Savings to Payers 10% Savings</b>
			<b>billions</b>	<b>(% health \$)</b>	<b>millions of 2008 dollars</b>	<b>millions of 2008 dollars</b>
Provider-Lab	\$0.74	\$1.09	\$3.76	0.55%	\$20.70	\$2.07
Provider-Radiology	\$1.59	\$1.96	\$8.04	0.55%	\$44.20	\$4.42
Provider-Payer	\$0	\$0	\$9.84	0.55%	\$54.10	\$5.41
<b>Total</b>	<b>\$2.32</b>	<b>\$3.06</b>	<b>\$21.60</b>	<b>0.55%</b>	<b>\$119.00</b>	<b>\$11.90</b>

## Appendix J: Savings to NMHIC Stakeholders Based on Local Estimates

### Laboratory Services

A local executive estimated New Mexico laboratory expenditures by using data from his organization, the largest reference laboratory in the state, and extrapolating the expenditure of other competing laboratories based on knowledge about their volume. He compared the numbers with census data and found that he had derived very similar estimates of expenditures. He applied calculations of waste to those summations based on literature other than the CITL study, and he calculated the ability of the HIE network to reduce that waste.

He estimated total laboratory expenditures for the state of New Mexico to be \$326 M, and 18.4% of that as being “unnecessary,” based on literature assessing when tests are redundant or ineffectual. The annual local savings from the reduction in laboratory tests would be approximately \$60 M per year. If we take only 10% of this savings estimate, the result is nearly **\$6 M** savings, which is comparable with national estimates.

### Radiology Services

Executives from the three largest radiology groups were interviewed for LCF/NMHIC’s business planning. They agreed on one specific HIE service which was of high value to all 3 groups contacted: exchanging the actual images (not reports) that are needed when one radiology group conducts a new study and needs prior, related studies for comparison. One group of 30 radiologists estimated that they devoted 1-2 full time people, and significant courier services, to finding and acquiring the prior images needed for their operations. Extrapolating that to other radiology practices, LCF/NMHIC estimates that at least 10 employees across the state’s radiology groups could be replaced with HIE services. The estimated savings would be 10 x \$30,000 or **\$300,000** of radiology support staff time.

LCF/NMHIC did not have the local data to estimate the savings from reduction of redundant radiology services, which were very substantial in the national estimates.

### Using NMHIC Clinician Portal to View Key Patient Information

These estimates are based on data obtained by contacting medical records department and emergency department staff at the 3 main hospital systems in Albuquerque (PHS, Lovelace, UNM). The transfer of records between major hospital systems for emergency care, follow up outpatient care or transfer of care are potential HIE services calculated to save the community in the neighborhood of \$500,000 per year.

#### A. Responding to a request for a Discharge Summary copy

Medical records staff members were contacted to estimate the number of discharge summary records which are requested by clinicians who are not part of the original distribution of that summary at the time of discharge.

Presbyterian = 12/day, including emergency department requests

Lovelace = 3/day but emergency department requests add several more, and each

Lovelace medical records department is separate, so multiply any estimate by 3.

UNM = 20/day



Result for Albuquerque hospitals = 50/day for 253 working days annually, or 50,600 summaries for offices or emergency departments per year.

Processing time = \$3/summary based on medical records department employee at \$12/hour (including benefits), 15 minutes to receive request, exchange authorization or accept medical office assertions, locate record, print copy of discharge summary and fax.

Total = \$3 x 50,600 = \$151,800 per year for the 3 hospitals.

If all remaining acute care hospitals in New Mexico equal the same volume, that total is \$300,000 annually.

A fully functionally exchange involving all hospitals could be expected to save 50% of that amount or \$150,000.

#### B. Routine Discharge Summary Distribution

Albuquerque hospital discharge summary volume for 2007:

Lovelace HS (all hospitals)	22,474
UNM	15,844
Presbyterian	49,800
Total	88,118

Estimated cost of routine discharge summary distribution to physicians who are indicated to receive copies at the time of discharge was \$1 each. (This is consistent with the \$.75 estimate received from HealthBridge in Cincinnati for their cost for any document exchange prior to the HIE, including any hospital document results and laboratory data).

Therefore, routine distribution costs would be ~ \$90,000, and probably closer to \$150,000 annually for the entire state. HealthBridge reduced the cost of summary distribution to \$.12 each. If we estimate 50% savings through NMHIC distribution, that would equal \$75,000.

#### C. Emergency Department Requests for Summaries or Other Record Information.

Presbyterian = Two 10 to 12 hour shifts, so  $5 \times 2 \times 365 = 3,650$ . The time invested in these is greater than medical records staff processing a standard request, because they usually involve multiple calls, identifying which information is needed/available, tracking receipt and matching reports with the emergency department record. Some of this time will be clerical at \$12/hour and some will involve PA, RN, or MD, so LCF/NMHIC estimated \$4 of clerical time plus \$4 (5 minutes of someone more expensive), thus \$8 of staff time per request. For 3,650 requests/year, this results in \$29,200 of employee time spent in obtaining outside medical information.

LCF/NMHIC assumed the request volume to be similar for UNM, and less for Kaseman and the three separate Lovelace emergency departments, but the total is at least \$100,000 for Albuquerque, and an equal amount for acute care/emergency department hospitals elsewhere in the state, for a total of \$200,000 for the state.

A fully functionally exchange involving all hospitals could be expected to save 50% of that amount or \$100,000.

**The total of A, B, and C is an estimated \$325,000 reduction of staff time for New Mexico hospitals and emergency departments.**

D. Transfer of complete medical records

The estimate for compiling a complete copy of a medical record in one hospital and medical system and sending it to another system is between \$25-50 per record (estimates obtained from Presbyterian and Lovelace medical record department staff, varying depending on size of record and need to acquire data in storage).

The volume of such transfers is unknown. A reasonable estimate would be that 10,000 New Mexicans have sufficient past medical information to garner a \$25-\$50 compilation and transfer fee on an annual basis, thus \$250,000-\$500,000 potential reduction in record handling costs could be gained, and a fully functional exchange involving all hospitals could be expected to save 50% of that amount or \$125,000-\$250,000.

**To substitute HIE services for the current manual processes in A, B, C and D could save \$450,000 - \$575,000 annually.**