Nebraska
Strategic eHealth Plan

Sept. 7, 2010

This edition of Nebraska's Strategic eHealth Plan lays out the state's vision, goals, and objectives, and strategies for implementing statewide health information exchange and supporting the meaningful use of health information technology. The plan focuses on the domains of adoption, governance, finance, technical infrastructure, business and technical operations. Key considerations and recommendations are also included. As the eHealth Council continues to address the development of health information exchange and the adoption of health IT, the plan will be updated. Frequent revisions are anticipated due the quickly changing health IT environment. Please check the Nebraska Information Technology Commission's website (www.nitc.nebraska.gov) for the most recent edition.

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Executive Summary

Health information technology (Health IT), often referred to as eHealth, promises to improve the quality of patient care and consumer safety as well as enhance public health efforts. Over the past several years, significant progress has been made in addressing many of the barriers which have limited the adoption of health IT. Additionally, the American Recovery and Reinvestment Act provides significant funding for health IT. The time is right to build upon the investments in health IT being made in Nebraska by health care providers, public health, and third party payers.

Nebraska is poised to become a leader in health information exchange. Significant progress is being made in the development of health information exchange in the state. The private sector has taken the lead in developing health information exchange. Nebraska has established a fully operational and sustainable health information exchange, the Nebraska Health Information Initiative (NeHII). As the statewide integrator, NeHII will serve two functions: (a) as an integrator for health providers, health organizations and health information exchanges requesting facilitation to connect to the NHIN and/or with each other, and (b) as a health information exchange offering services in its own right. NeHII will provide the technical infrastructure for the sharing of health information throughout the state. NeHII will also work with the state's other regional and specialty health information exchanges in various stages of implementation to leverage their success in ensuring a complete and sustainable business model. Active regional and specialty health information exchanges include the Southeast Nebraska Health Information Exchange (SENHIE) and Electronic Behavioral Health Information Network (eBHIN), and the Nebraska Statewide Telehealth Network. Additionally, the Western Nebraska Health Information Exchange (WNHIE) has built health IT capacity in the Panhandle, but has recently ceased organizational activities.

Coordination of eHealth activities in the state is facilitated by the Nebraska Information Technology Commission's eHealth Council. The Nebraska Information Technology Commission's eHealth Council has taken the lead in developing the state's eHealth Plan. NeHII-- in coordination with the state's regional and specialty exchanges and the eHealth Council--has developed both the stakeholder support and sustainable business plan necessary for statewide health information exchange.

This plan lays out the state's vision, goals, and objectives, and strategies for implementing statewide health information exchange and supporting the meaningful use of health information technology. The plan focuses on the domains of adoption, governance, finance, technical infrastructure, business and technical operations. Key considerations and recommendations are also included. This plan has been designed with explicit recognition that it will be updated frequently in order to be responsive to the dynamic healthcare and HIT environment, consumer health care interests, and emerging improvements in health information management.

Vision

Stakeholders in Nebraska will cooperatively improve the quality and efficiency of patient-centered health care and population health through a statewide, seamless, integrated consumer-centered system of connected health information exchanges. Nebraska will build upon the investments made in the state's health information exchanges and other initiatives which promote the adoption of health IT.

Goals

These goals will be achieved while ensuring the privacy and security of health information, which is an essential requirement in successfully implementing health information technology and exchanging health information:

- Using information technology to continuously improve health care quality and efficiency through the authorized and secure electronic exchange and use of health information.
- Improve patient care and consumer safety;
- Encourage greater consumer involvement in personal health care decisions;
- Enhance public health and disease surveillance efforts;
- Improve consumer access to health care;
- Improve consumer outcomes using evidence-based practices.

Health IT Adoption

Adoption of health IT by providers is a key building block for health information exchange. Health IT applications include electronic medical records (EMRs) and e-prescribing. Adoption of electronic medical records remains low. Nationally, 21% of physician offices and 10% of hospitals had implemented EMRs in 2008.[1] In 2007, approximately 30% of physicians in Nebraska routinely used an EMR. Encouragingly, half of the physicians in Nebraska planned to implement an EMR system.[2] The use of e-prescribing is also another important measure of health IT adoption. Although the use of

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[1]Office of the National Coordinator website, http://healthit.hhs.gov/portal/server.pt?open=512&objID=1152&parentname=CommunityPage&parentid=3&mode=2&in_hi_userid=10741&cached=true, accessed June 11, 2009.

[2] Galt, Kimberly; Drincic, Andjela; Paschal, Karen; Kasha, Ted; Bramble, James; Siracuse, Mark; Abbott, Amy; and Fuji, Kevin, Status of HIT In Nebraska: Focus on EHRs in Physician Offices, Creighton Health Services Research Program, March 2008, http://chrp.creighton.edu/Documents/EHR_Report/Status_of_Health_Information_Technology_in_Nebraska_March_2008.pdf, accessed on June 11, 2009, p. 6.

e-prescribing is growing, adoption still remains low. Only 4% of eligible prescriptions in the U.S. were routed to pharmacies electronically in 2008.[3] In Nebraska, less than 2% of eligible prescriptions were routed electronically. [4]

Although adoption of health IT remains low, an increasing number of healthcare providers are using e-prescribing and/or EMRs. Medicaid and Medicare incentives as well as assistance from the Regional Center serving Nebraska should help spur adoption. Additionally, NeHII offers an affordably priced, CCHIT-certified, web-based EMR which will meet the needs of many physicians in meeting meaningful use requirements to obtain Medicare and Medicaid incentives.

Objectives

- Encourage and support health IT in order to achieve meaningful use by providers.
- Build an appropriately-trained, skilled health information technology workforce.
- Encourage and support the adoption of personal health records.
- Improve health literacy in the general population.

Governance

In Nebraska, both the private and public sectors will share responsibilities for governance of health information exchange. Nebraska's governance structure needs to reflect the private sector's high level of leadership and investment in health information exchange. This type of relationship between state government and the private sector has been described as the Private Sector-Led Electronic HIE with Government Collaboration model. The State of Nebraska will support and collaborate with the industry. The state's eHealth advisory group, the NITC eHealth Council, will be directly involved in addressing and making recommendations regarding privacy and security, interoperability, fiscal integrity, business and technical operations, and universal access for Nebraska's statewide health information exchange. The State of Nebraska will act as the prime recipient and fiscal agent for the State Health Information Exchange Cooperative Agreement Program. As the statewide integrator and lead HIE, NeHII will assume the primary responsibility for directing and executing the State Health Information Exchange Cooperative Agreement program in Nebraska. NeHII will work cooperatively with the Nebraska Information Technology Commission (NITC) eHealth Council and the State

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[3] National Progress Report on E-Prescribing. 2009. SureScripts. http://www.surescripts.com/downloads/NPR/national-progress-report.pdf accessed June 11, 2009, p. 10.

[4] Nebraska: State Progress Report on E-Prescribing. 2009. SureScripts. http://www.surescripts.com/downloads/NPR/NE2009.pdf, accessed June 26, 2009.

Health Information Technology Coordinator to facilitate and coordinate the implementation of health information exchange in the state. As the State HIT Coordinator, Lieutenant Governor Rick Sheehy will coordinate health information exchange efforts within the State of Nebraska and will work with the eHealth Council to facilitate health information exchange efforts across the state. The roles and responsibilities of NeHII as the statewide integrator, the Health IT Coordinator, and the NITC eHealth Council will be further defined in a Memorandum of Understanding.

Objectives

- Address issues related to governance, oversight, and financing of health information exchange.
- Ensure transparency, accountability, and privacy.

Finance

The development of health information exchange in Nebraska will require financing to both build and sustain the infrastructure to support eHealth at state, regional, and local levels. Business models for health information exchange will need to deliver value to a wide variety of stakeholders. Nebraska has established a fully operational and sustainable health information exchange, the Nebraska Health Information Initiative (NeHII). Currently 13 hospitals, one health plan, and over 300 individual users provide the necessary license revenue to ensure the exchange operates in a financially secure manner. As the SDE, NeHII provides the technical infrastructure for Nebraska, providing a stable, sustainable architecture to facilitate the sharing of health information. Additional grant funding will allow Nebraska to speed implementation of the system in rural areas of the state and to resolve funding questions concerning the connection to regional and specialty exchanges.

Objectives

- Support the development of a sustainable business model for building and maintaining health information exchange in Nebraska.
- Leverage the state's role as a payer to support health information exchange.

Technical Infrastructure

Nebraska's technical architecture will be based upon a federation of health information exchanges and other providers, following national standards. NeHII will serve as the

integrator for Nebraska, providing the technical architecture and creating a statewide health information exchange. This type of architecture is simple and encourages innovation. Coordination will be provided through the NITC, the eHealth Council, and a technical infrastructure work group. The work group will include representatives of the health information exchanges and other stakeholders. The work group will be responsible for making technical recommendations to facilitate health information exchange within the state and across the U.S.

Objectives

- Support the development and expansion of health information exchanges to improve the quality and efficiency of care.
- Support the development of interconnections among health information exchanges in the state and nationwide.
- Promote the development of a robust telecommunications infrastructure.
- Ensure the security of health information exchange.

Business and Technical Operations

Business and technical operations will support meaningful use and will be delivered efficiently through collaboration, cooperation, and consolidation. The statewide health information exchange will provide the following services:

- Eligibility information from BlueCross BlueShield of Nebraska, Medicaid, and—in the future—other payers.
- Outcome and quality reporting
- Public health reporting and population health outcomes
- Electronic prescribing and refill requests
- Electronic clinical laboratory ordering and results delivery
- Prescription fill status and/or medication fill history
- Clinical summary exchange for care coordination and patient engagement

Objectives

- Support meaningful use.
- Encourage the electronic exchange of public health data.
- Encourage the integration of health information exchange with telehealth delivery.

Legal/Policy

Privacy and security is paramount to the successful exchange of health information. The Health Insurance Portability and Accountability Act of 1996, known as "HIPAA," provides federal protections for health information. Nebraska's health information exchange privacy and security policies have been developed to be in compliance with HIPAA. The NITC eHealth Council will coordinate with the Attorney General's Office, State HIT Coordinator, and the privacy and security officers of the state's HIEs to develop a framework for privacy and security enforcement.

Through the national Health Information Security and Privacy Collaborative, Nebraska has addressed minimum policy requirements regarding authentication and audit for interstate data exchange. Efforts have also been undertaken to ensure that Nebraska's laws do not present a barrier to the exchange of health information. Consumer needs and concerns have also been considered. Research indicates that Nebraskans have positive views about sharing health information electronically, but do have some privacy and security concerns. Additionally, consumer outreach materials are being developed.

Objectives

- Continue to address health information security and privacy concerns of providers and consumers.
- Build awareness and trust of health information technology.

Introduction

Promise of Health IT. Health information technology (Health IT), often referred to as eHealth, promises to improve the quality of patient care and consumer safety as well as enhance public health efforts. The push for improving the quality of health care began ten years ago. In 1999, a report on medical errors by the Institute of Medicine found that more Americans died from preventable medical errors in hospitals than from automobile accidents, breast cancer or AIDs. Health IT promises to:

- **Improve health care quality and efficiency.** Health care providers can better make clinical decisions and manage consumer care at the point of care with more complete consumer information. The need for duplicate tests will be reduced.
- **Improve patient care and consumer safety**. Medication and other errors may be reduced by the implementation of Health IT because providers have timely and complete information.
- **Improve consumer outcomes using evidence-based practices.** Electronic medical record systems can provide evidence-based knowledge to clinical decision makers quickly and accurately at the point of care.
- **Encourage greater consumer involvement in personal health care decisions.** Personal health records can help consumers track their progress, record observations of daily living, manage their health care, and improve their quality of life.
- **Enhance public health and disease surveillance efforts.** Public health reporting is often done manually, rather than electronically. Electronic reporting can provide more timely information to public health officials and reduce the reporting burden of providers, increasing the prospects for timely and accurate reporting.
- **Improve consumer access to health care.** Many of Nebraska's rural counties lack access to specialists. Two-way videoconferencing and other telehealth technologies can make specialist services (including consultation, consumer counseling, and diagnostic services) available to residents of rural areas.

National Initiatives. The importance of electronic health records in efforts to improve the quality of care was officially recognized in 2004 by President Bush when he called for Americans to have electronic health records by 2014. The Office of the National Coordinator for Health IT has provided leadership for health IT efforts since its creation in 2004 by publishing the *Federal Health Information Technology Strategic Plan*[5] in 2008. The National Governors Association (NGA) State Alliance for eHealth has provided information and recommendations to states. National bodies, including the Health Information Technology Standards Panel (HITSP), have worked to develop standards. The Certification Commission for Health IT (CCHIT) has begun certifying a

[5] *The Federal Health Information Technology Strategic Plan: 2008-1012* is available at: http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10731_848084_0_0_18/HITStrategicPlanSummary508.pdf .

variety of HIT solutions, including electronic medical records, e-prescribing systems, and personal health records.

Under President Obama, the push to adopt health IT and to reform health care has intensified. The American Recovery and Reinvestment Act established several programs to support the meaningful use of health information technology. Meaningful use of health information technology includes the use of electronic health records, e-prescribing, and connectivity to a health information exchange. A detailed definition of Meaningful Use is being developed by the Centers for Medicare and Medicaid Services.

Several Nebraskans are participants in these national initiatives. Three Nebraskans are participants in the NGA State Alliance for eHealth and its work groups. From the time HISP was first initiated, Nebraska has maintained an active presence on the technical committees and the HISP voting panel. At least six Nebraskans are currently participating in work groups of the Certification Commission for Health IT (CCHIT), including the Advanced Clinical Decision Support, Cardiovascular Medicine, Electronic Prescribing, Emergency Department, Health Information Exchange, and Long Term and Post Acute Care Work Groups.

Health IT Adoption and Barriers. Nevertheless, health IT adoption remains low. Nationally, 21% of physician offices and 10% of hospitals had implemented EMRs in 2008.[6] In 2007, approximately 30% of physicians in Nebraska routinely used an EMR. Encouragingly, half of the physicians in Nebraska planned to implement an EMR system.[7] Barriers to health IT adoption include cost, time required for implementation, privacy and security concerns, and technical issues.

Progress and Opportunities. Over the past few years, significant progress has been made in addressing these barriers. Many technical issues are being addressed by the continued development of standards and the certification of electronic medical record systems. Over 40 states, including Nebraska, have worked together through the national Health Information Security and Privacy Collaborative (HISPC) to address privacy and security issues.

Nebraska has also made significant progress in the development of health information exchange. The Nebraska Health Information Initiative (NeHII) is also one of the largest fully functional health information exchanges in the country and will serve as the statewide integrator. Other health information exchanges involved in the development

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[6]Office of the National Coordinator website, http://healthit.hhs.gov/portal/server.pt?open=512&objID=1152&parentname=CommunityPage&parentid=3&mode=2&in_hi_userid=10741&cached=true, accessed June 11, 2009.

[7] Galt, Kimberly; Drincic, Andjela; Paschal, Karen; Kasha, Ted; Bramble, James; Siracuse, Mark; Abbott, Amy; and Fuji, Kevin, Status of HIT In Nebraska: Focus on EHRs in Physician Offices, Creighton Health Services Research Program, March 2008, http://chrp.creighton.edu/Documents/EHR_Report/Status_of_Health_Information_Technology_in_Nebraska_March_2008.pdf, accessed on June 11, 2009, p. 6.

of the strategic plan include the Southeast Nebraska Health Information Exchange (SENHIE), Electronic Behavioral Health Information Network (eBHIN), and Western Nebraska Health Information Exchange (WNHIE).

The State Health Information Exchange Cooperative Agreement Program Funding Opportunity Announcement for the Office of the National Coordinator for Health Information Technology represents a unique funding opportunity to pursue health IT adoption. A requirement of this program is the submission of strategic and operational plans. This Strategic Plan addresses the vision, goals, objectives and strategies for continued statewide HIE implementation and adoption. The plan also addresses continuous improvements in the effective and secure exchange of health information across Nebraska.

Environmental Scan

Nebraska is poised to become a leader in health information exchange. Significant progress is being made in the development of health information exchange in the state, led by the private sector. Nebraska has established a fully operational and sustainable health information exchange, the Nebraska Health Information Initiative (NeHII). As the statewide integrator for Nebraska, NeHII will provide the technical infrastructure for the sharing of health information throughout the state. NeHII will also work with the state's other regional and specialty health information exchanges in various stages of implementation to leverage their success in ensuring a complete and sustainable business model. Nebraska's regional and specialty health information exchanges are the Southeast Nebraska Health Information Exchange (SENHIE), Electronic Behavioral Health Information Network (eBHIN), and Western Nebraska Health Information Exchange (WNHIE).

Statewide Health Information Exchange Integrator

The Nebraska Health Information Initiative (NeHII), the state's largest health information exchange, is a fully operational and sustainable health information exchange. NeHII will act as the integrator for the state, providing the technical infrastructure for the sharing of health information. NeHII is exchanging laboratory, radiology, medication history and clinical documentation information between hospitals throughout the state including recent additions in non-metropolitan Nebraska, ensuring full statewide coverage. In addition, insurance eligibility information is being sent and will be used to create a comprehensive patient summary. NeHII is providing e-prescribing functionality, linking hospitals and provider with pharmacy services. NeHII offers physicians a basic, web-based electronic medical record (EMR) that is CCHIT certified, so that providers who have not yet implemented electronic medical records can participate at an affordable price. Over 300 physicians and staff are currently participating in NeHII. Over one million patient records are available through the system. NeHII announced their statewide implementation at their Annual Meeting July 9, 2009. More information is available at www.nehii.org. The majority of the implementation funding or seed capital has been obtained through membership fees to the NeHII Collaborative. Partial funding for the pilot project was provided by a grant from the Nebraska Information Technology Commission.

Regional or Specialty Health Information Exchanges

The Electronic Behavioral Health Information Network (eBHIN) is currently developing an eHealth network to exchange behavioral health information among behavioral health providers in the Region V Service area, with the applications offered to other Regions in the State as time and resources allow. Participants include Blue Valley Behavioral Health Center, BryanLGH Medical Center, CenterPointe, Child Guidance Center, Community Mental Health Center, Cornhusker Place, Family Services, Heartland Health Alliance, Houses of Hope, Lincoln Council on Alcoholism and Drugs, Lincoln Medical Education Partnership, Lutheran Family Services, Mental Health Association, Region V Systems, and St. Monica's Home. eBHIN partners have received several grants including a planning grant from the U.S. Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ) in 2004, an AHRQ Ambulatory Care Grant in 2008, a three-year Rural Health Network Development Grant from the U.S. Department of Health and Human Services' Health Resources and Services Administration in 2008, Region V Systems, and a grant from the Nebraska Information Technology Commission. eBHIN will be participating in statewide health information exchange by connecting to NeHII.

The **Southeast Nebraska Health Information Exchange (SENHIE)** is improving the quality of care and increasing efficiency in Thayer County. Through a $1.6 million Critical Access Hospital Health Information Technology Grant, Thayer County Health Services has implemented the state's first health information exchange. Medical information on patients in Thayer County now flows seamlessly among providers, including physicians at satellite clinics or at Thayer County Health Services in Hebron, physicians and pharmacists at St. Elizabeth's Regional Medical Center, emergency responders, pharmacists, and long term care facilities. Thayer County Health Services is totally electronic, including eMAR (electronic medication administration record), CPOE (computerized physician order entry), and e-prescribing. Thayer County Health Services has significantly reduced medication errors and achieved 100% medication reconciliation among providers using e-prescribing. SENHIE achieved a HIMSS HIE benchmark score of 6.023 out of a possible 7 points, setting the bar for critical access hospitals. SENHIE is fully funded and has a sustainable business model. SENHIE has declined to participate in statewide health information exchange by connecting to NeHII.

The **Western Nebraska Health Information Exchange (WNHIE)** built health IT capacity in the Panhandle and developed plans to create a regional health information exchange. Partners include the Rural Nebraska Healthcare Network, Box Butte General Hospital, Chadron Community Hospital, Garden County Health Services, Gordon Memorial Hospital, Kimball Health Services, Memorial Health Center, Morrill County Community Hospital, Perkins County Health Services, Regional West Medical Center, Panhandle Public Health District, and Region I Mental Health and Substance Abuse. WNHIE has received several grants including a planning grant from the U.S. Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ) in 2004, a three-year implementation grant from AHRQ, a HRSA Rural Network Development Grant, a Rural Health Care Pilot grant from the FCC, and a grant from the

Nebraska Information Technology Commission. In early 2010, WNHIE ceased organizational activities.

The **Nebraska Statewide Telehealth Network** connects nearly all of the state's hospitals and all of the state's public health departments.[8] The Nebraska Statewide Telehealth Network is used for patient consultations, teletrauma, teleradiology, continuing medical education, and other applications. The network has been well-received by physiciansand consumers. On a 7-point scale, physicians using the network rated 6.69 on their future use of the system and 6.63 on their confidence in the network. The Nebraska Statewide Telehealth Network provides a critical emergency preparedness link between the Nebraska Division of Public Health and providers and facilities across the state. A secure audio/video connection can be made between state leadership and every end point for simultaneous live information exchange in an emergency situation.

Additionally, the **State of Nebraska Department of Health and Human Services** has several systems which will interface with health information exchanges. Nebraska has all the data repositories that most states currently have in place to track and manage communicable disease, infectious disease, and many other components that affect the health of Nebraska's citizens. Nebraska is making significant improvements in applications to bring these multiple and dissimilar data streams into a usable tool. Nebraska was one of the beta sites for the National Electronic Disease Surveillance System development and currently receives 90% of all reportable diseases through electronic information exchange. Nebraska has developed a centralized immunization registry, a Parkinson's registry, and a robust provider alerting and communication network. Through the e-Nebraska Ambulance Rescue Service Information System (e-NARSIS), EMS providers can submit reports electronically. The Statewide Trauma Data Collection System was created to gather trauma information more accurately and timely to improve performance of state trauma system and to reduce morbidity and mortality. The Public Health/eHealth Work Group is identifying opportunities to develop interfaces between health information exchanges and public health data systems.

[8] Information on the Nebraska Statewide Telehealth Network can be found at http://www.netelehealth.net .

Structured Laboratory Results

Approximately 1,800 labs are registered in Nebraska. Many of these are small labs which do limited kinds of tests. Approximately 90 labs in Nebraska perform the majority of tests for reportable diseases. Most of these are affiliated with hospitals. Fifteen hospital labs are currently submitting electronic lab reports to the Nebraska Department of Health and Human Services, Division of Public Health. Approximately 25 additional hospital labs have the capability to send structured lab results via HL7 standards.

As the statewide integrator for the State of Nebraska, NeHII has expanded its service area to the entire state, ensuring that urban and rural laboratories, including independent labs, have an option to receive and transmit electronic results through NeHII. NeHII is currently receiving structured lab results from labs affiliated with the following hospitals:

- Alegent Health (Omaha, NE)
    - Bergan Mercy Medical Center (Omaha, NE)
    - Community Memorial Hospital (Missouri Valley, IA)
    - Immanuel Medical Center (Omaha, NE)
    - Lasting Hope Recovery Center (Omaha, NE)
    - Lakeside Hospital (Omaha, NE)
    - Mercy Hospital (Council Bluffs, IA)
    - Mercy Hospital (Corning, IA)
    - Memorial Hospital (Schuyler, NE)
    - Midlands Community Hospital (Papillion, NE)
- Methodist Health System (Omaha, NE)
- The Nebraska Medical Center (Omaha, NE)
    - University Of Nebraska Medical Center (Omaha, NE)
    - Clarkson Hospital (Omaha, NE)
- Children's Hospital (Omaha, NE)
- Mary Lanning Memorial Hospital (Hastings, NE)
- Great Plains Regional Medical Center (North Platte, NE)

Through the participation of these organizations, NeHII currently has already reached a critical mass of laboratory result processing. As of August 27, 2010, NeHII has **9,548,464** unique lab results stored within the exchange, and are adding approximately **500,000** additional results each month. With plans to add additional major independent laboratories, that number is expected to increase over the course of the cooperative agreement program.

There are six major independent labs in Nebraska, and all have been contacted about participating in NeHII. Each of these independent labs contacted provide structured results via HL7 standards. These labs are:

- Pathology Services (North Platte, NE)
    - NeHII Board Member
- Physicians Laboratory (Omaha, NE)

    - NeHII Committee Member
- Laboratory Corporation of Nebraska (Lincoln, NE)
- Pathology Medical Services (Lincoln, NE)
- Nebraska LabLinc (Lincoln, NE)
- Quest Diagnostics (NE)

The following table summarizes the status of electronic lab reporting in Nebraska.

Lab Description	Estimated Numbers
Licensed labs in Nebraska	1,824
Major labs	Approximately 90
Major labs currently reporting lab results electronically to the Nebraska Department of Health and Human Services, Division of Public Health	15
Major labs currently connected to NeHII	15
Number of lab results sent to NeHII (as of July 16, 2010)	8,720,298
Major labs capable but not currently sending structured lab results to the NDHHS Division of Public Health	Approximately 25
Major labs which may not be capable of sending structured lab results	Approximately 50

Timeline and Targets

NeHII will also build upon its base of hospital participation. As hospitals join NeHII, their labs will also likely be connected. Hospitals which have invested in health IT systems, including their laboratory systems, will be initially targeted in 2010-2011. Efforts will also be made to connect independent labs. The following labs will be targeted for NeHII inclusion in 2010 – 2011:

- Creighton University Medical Center (Omaha, NE)
    - In Progress - 4th Quarter 2010
- Beatrice Community Hospital (Beatrice, NE)
    - In Progress - 4th Quarter 2010
- Physicians Laboratory Services (Omaha, NE and Surrounding Rural Communities)
    - 4th Quarter 2010
- Pathology Services PC (North Platte, NE and Surrounding Rural Communities)
    - 1st Quarter 2011
- LabCorp (Lincoln, NE and Surrounding Rural Communities)

- 2nd Quarter 2011

Implementation Process

The process of adding labs to NeHII is well defined, straight-forward, and has been executed multiple times throughout the project. The time to complete this process is 7 weeks with multiple labs able to connect simultaneously. The implementation process is as follows:

1) Execution of Participation Agreements and Business Associate Agreements
2) Execution of LOINC Code Crosswalk
    a. LOINC coding is available for 140 tests. The LOINC coding allows for test results to be graphed for trend analysis.
    b. This process ensures that local codes at each individual facility are translated to LOINC standards. NeHII will also support SNOMED as required. The crosswalk template is attached to this plan.
3) Vendor-specific HL7 coding is completed as needed
4) Network connections, including secure VPN communications, are completed
5) Data is loaded to the EdgeServer
6) Lab director and personnel test the exchange of data by comparing data on NeHII with data on their Laboratory Information System (LIS)
7) Upon approval, test data is deleted and production data flows begin

This implementation process is independent of rural or urban settings. Any laboratory that has an operational LIS system, regardless of size, can connect to NeHII through the execution of the above process.

Strategies to Provide and Encourage Statewide Participation

Throughout the implementation of NeHII, financial and competitive impacts have influenced the success of NeHII far greater than technical issues. The implementation process described above is simple, straight-forward, and vendor agnostic, ensuring that any willing laboratory in Nebraska can exchange data with any physician in Nebraska. With respect to adoption, however, NeHII has encountered, and mitigated, the financial and competitive impacts as well.

Previously, one of the hesitations was the NeHII pricing model for independent labs. In response to feedback received from labs, NeHII has recently created a new pricing model for early adopters which will facilitate participation by independent labs. The proposed pricing model offers participation in NeHII for the first six months at no cost and then for the following two years the labs will pay 50% of the current quoted monthly license fee. At the end of two years, the pricing model will be re-evaluated with the participating independent labs. A new pricing model will be offered which will correlate to the value the labs have realized by participating in the HIE. This special offer will be made available to the first two independent labs that commit to a two year participation in

NeHII as an enticement strategy. The independent labs are willing to discuss participation with the new pricing model.

Competitive influences also affect NeHII. Many independent labs in Nebraska already have proprietary electronic connections to physicians in Nebraska that are proprietary in nature. As more physicians join NeHII, they will lose that competitive advantage, hence the labs are not eager to be an early adopter and contribute to the success of NeHII. NeHII continues to review and adopt its connection and pricing strategies to address the concerns of Nebraska-based labs, and as a result has considered allowing these proprietary exchanges to connect to NeHII on a transaction-based model as opposed to annual license fees. Additional details will be provided following conversations with the independent labs.

E-Prescribing

Current status of e-prescribing

The use of e-prescribing in Nebraska continues to grow. In 2009, 650,069 prescriptions (or 7% of eligible prescriptions) were routed electronically. In comparison, 171,541 prescriptions (or 2% of eligible prescriptions were routed electronically in 2008. In 2009, 11% of physicians in Nebraska were routing prescriptions electronically and 78% of community pharmacies were activated for e-prescribing.[9]

E-prescribing statistics for Nebraska for 2007-2009 are presented in the table below.

Nebraska E-Prescribing Statistics

Measures	2007	2008	2009
Total prescriptions routed electronically[1]	44,060	171,541	650,069
% of eligible prescriptions routed electronically	0%	2%	7%
Prescription benefit requests	13,525	67,206	798,022
Rate of response to benefit requests at year-end	30.4%	47.5%	76.98%
% of total prescriptions represented by renewal response	9.38%	15.58%	22.36%
Total estimated responses to medication history requests	--	--	213,443
Physicians routing prescriptions at year end	34	148	296
% of physicians routing prescriptions electronically	1%	6%	11%
Community pharmacies activated for e-prescribing at year-end	220	260	321
% of community pharmacies activated for e-prescribing	53%	60%	78%

[9] Data from the 2009 Nebraska Progress Report on E-Prescribing available from www.surescripts.com.

% of patients with available prescription benefit/history information	46%	76%	87%

Data from the 2009 Nebraska Progress Report on E-Prescribing available from www.surescripts.com.

Between 2007 and 2009, Nebraska lagged the United States in most e-prescribing measures, including the percent of eligible prescriptions sent electronically, the percent of community pharmacies connected, and the percent of physicians routing prescriptions. The table below compares the 2009 figures for Nebraska and the United States on these measures.

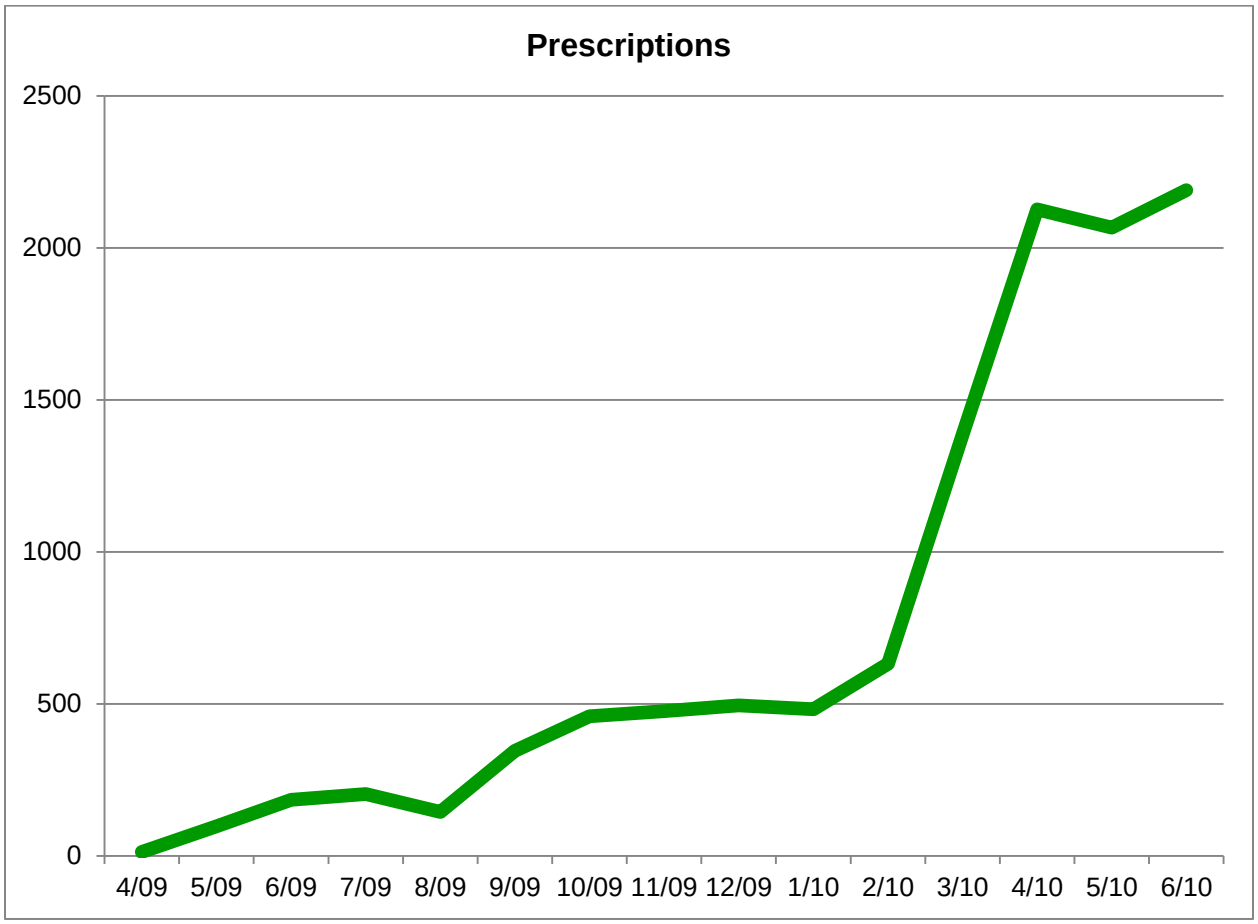
2009 Measures

Measure	Nebraska	U.S.
% of eligible prescriptions sent electronically	7%	12%
% of community pharmacies connected	78%	85%
% of physicians routing prescriptions	11%	25%

Data from the 2009 National Progress Report on E-Prescribing available from www.surescripts.com.

NeHII began offering e-prescribing to physician participants in 2009. The number of electronic prescriptions routed through NeHII has increased from less than 500 prescriptions per month in 2009 to over 2,000 a month. The following graph provides more detailed information.

E-Prescriptions through NeHII



E-Prescribing Work Group

Recognizing that e-prescribing is a complex process involving multiple stakeholders, the eHealth Council formed an E-Prescribing Work Group in 2008 to:

- Determine the current status of e-Prescribing, from both the prescriber and dispensing pharmacy point of view.
- Identify barriers to e-Prescribing.
- Make recommendations to promote the adoption of e-Prescribing by all parties involved in the e-Prescribing process.
- Identify and disseminate best practices.
- Study the start up and sustainability costs (e.g., hardware, software, and training costs), and potential sources of resources to support the essential needs of pharmacies in the state of Nebraska to participate and support e-prescribing.

Barriers

The E-Prescribing Work Group identified the following barriers a report published to the eHealth Council in the summer of 2009:

- Costs
- Changes to work processes
- Restrictions on e-prescribing controlled substances
- Lack of education and training
- Prior negative experiences
- Need for continued standards development

Costs

For both pharmacies and physicians, costs are a significant barrier to e-prescribing.

Pharmacies

- **Transaction fees ($0.20 - $0.35 per transaction).** Refills are free, so the transaction cost for prescriptions with multiple refills can be amortized over multiple dispensings. As the number of e-prescriptions grows, the cost per transaction may eventually be reduced. Transaction fees are charged by the pharmacy's software vendor. However, pharmacists argue that traditional methods of prescription generation and delivery have zero transaction fees for initial prescription fills and refill. Approximately half of the transaction fee goes to Surescripts, the intermediary e-prescribing network developed by the National Association of Chain Drug Stores (NACDS) and the National Community Pharmacists Association (NCPA). SureScripts merged with RxHub, a network founded by the nation's three largest PBMs.
- **Software fees.** Costs incurred by pharmacies include one time start-up fees to software vendor (~ $500) and monthly charges to software vendor ($30+ per month). Surescripts reports there are 35 – 40 e-prescribing packages available for pharmacies.
- **Additional optional fees.** Viewing patient information through NeHII or another health information exchange may involve additional fees.
- Fees mentioned above that are charged to pharmacies do not include costs incurred for pharmacy management software systems.

Physicians

E-prescribing software. Surescripts reports there are approximately 350 e-prescribing systems available for physicians. Examples include:

- A free stand-alone e-prescribing system is available through the National e-Prescribing Patient Safety Initiative (NEPSI).
- Through NeHII, physicians can subscribe to a bundle of services which include e-prescribing, an EMR lite, virtual health record, and the ability to push information to other providers for just over $50 a month. Lower cost options are also available through NeHII.
- Full electronic medical record systems which integrate e-prescribing can cost from $25,000 to over $100,000 per physician.
- Sam's Club has begun offering electronic medical record systems for $25,000 per physician, and $10,000 per additional physician.

Medicare Incentives. Costs for many physicians may be partially offset by Medicare incentives for e-prescribing.

- Physicians may be eligible to receive incentive payments on office fees charged for their Medicare Part B who are also enrolled in a Medicare Part D Prescription Drug Plan.
- Bonus incentives for Medicare Part B patients only are:
    - 2009 – 2010: 2%
    - 2011 – 2012: 1%
- Penalties for not adopting e-prescribing (Medicare Part B patients only):
    - 2012: -1%
    - 2013: -1.5%
    - 2014 and beyond: -2%
- Estimates of incentive payments resulting from e-prescribing for Medicare Part B patients are in the $1,500-$1,600 range per physician per year during 2009 – 2010.
- Additional incentives of up to $44,000 will be available to qualifying physicians for "meaningful use" of full electronic medical record systems beginning in 2011.

Changes to Work Processes

E-prescribing requires both physicians and pharmacists to make changes in their work processes, which can temporarily reduce productivity for some, cause others to return to traditional means of prescribing, and prevent others from adopting the technology.

Restrictions on Controlled Substances

The DEA currently allows electronic transmission of controlled substances. However, e-prescribing of controlled substances is very limited due to the security requirements. Until e-prescribing systems integrate the security requirements required for e-prescribing controlled substances, physicians and pharmacies will need to maintain dual processes.

Lack of Education and Training

Another barrier is a lack of education, training, and knowledge of the e-prescribing process. Adequate training can reduce errors and frustration. Discussions between pharmacists, physicians, and physician staff can improve understanding of the e-prescribing process and identify ways to improve the process. Past negative experiences with e-prescribing can also be a barrier.

Prior Negative Experiences

Past negative experiences with e-prescribing can also be a barrier.

Need for Continued Development of Standards

Although much progress has been made in developing standards for e-prescribing and certifying e-prescribing systems, further development is needed in order to reduce e-prescribing errors. The Certification Commission for Health IT (CCHIT) will begin certifying stand alone e-prescribing systems in 2009. Additional criteria will be incorporated into the certification process in 2010 and beyond. Electronic medical record certification by CCHIT includes many e-prescribing functions. Surescripts certifies both e-prescribing systems for physicians and pharmacy systems. The Healthcare Information Technology Standards Panel (HITSP) has developed a number of standards for e-prescribing.

Errors

E-prescribing is reducing some types of medication errors, but may not eliminate all sources of errors. E-prescribing errors include but are not limited to: 1) wrong patient; 2) wrong drug; 3) wrong strength; and 4) wrong directions. These errors have resulted in some pharmacists turning off the e-prescribing software function. An informal survey of Nebraska pharmacists conducted by the Nebraska Pharmacists Association found that 75% of those responding currently use e-prescribing in some form, and that 65% of those

responding that use e-prescribing experienced errors. Sources of errors identified included software functionality, untrained personnel in physician offices using the system, input errors by physicians, not being able to request refills via e-prescribing software, and system communication errors. A 2008 report from the Creighton Health Services Research Program funded through a Dyke Anderson Patient Safety Grant from the Nebraska State Board of Pharmacy (available at http://chrp.creighton.edu/) found that pharmacists reported both a reduction in some types of errors and new sources of errors due to e-prescribing. Pharmacists reported that e-prescribing reduced legibility problems and provided more accurate and complete information. New sources of errors included inaccurate information provided, system incompatibilities, and errors due to wrong drop down menu selections. It is believed that some of these new types of errors are due to incompatibilities that exist between physician e-prescribing software and pharmacy dispensing software.

Recommendations

The E-Prescribing Work Group made recommendations to the eHealth Council in 2009. The recommendations also included the following cautionary statement: The eHealth Council recognizes that patient safety is complex. While e-prescribing is an essential tool, it does not guarantee patient safety.

The Work Group's recommendations are listed below:

- Pharmacists, physicians, and the general public should be educated about the potential impact of e-prescribing with regard to:
    - Patient Safety – both recognized safety improvements and the newly emerging errors associated with the adoption of this technology;
    - Workplace efficiency in the pharmacy and physician's office – both improved efficiencies realized and new inefficiencies introduced in the local workplace context;
    - Workflow issues related to the migration of e-prescribing;
    - Costs to pharmacists and physicians of implementing e-prescribing.
- Training and education of physicians and pharmacists by professional associations, institutes of higher education and other venues about the proper use of e-prescribing technologies and processes in daily practice in order to reduce e-prescribing errors and optimize patient care quality should be encouraged.
- Pharmacist access to patient information should be encouraged either through NeHII or other health information exchanges.
- A forum to initiate a dialog among physicians, physician staff, pharmacists, vendors, and intermediaries on the e-prescribing process, costs involved, potential sources of errors, and best practices should be convened.

- The State of Nebraska should seek ways to provide resource support for participation in e-prescribing to independent pharmacies.
- Physicians should be provided information on incentive programs which support participation in e-prescribing and/or the implementation of EMRs.
- The integration of e-prescribing with the use of EMRs in physician offices should be encouraged. Although stand-alone e-prescribing systems can be used effectively, research has shown that integration of e-prescribing with an EMR system often leads to greater improvements in quality of care.
- The eHealth Council should establish a sustainable mechanism to identify and disseminate best practices related to patient safety and quality improvement in e-prescribing.
- The eHealth Council and other stakeholders should work together to identify sources of e-prescribing errors and to address those sources.
- The State of Nebraska and other stakeholders should support efforts to remove obstacles related to the e-prescribing of controlled substances.
- Stakeholders in Nebraska and in the United States should encourage further development of e-prescribing standards to reduce errors. This should include standards that require compatibility between prescribing software and pharmacy dispensing software.
- The State of Nebraska should explore connecting Nebraska's Medicaid program through its pharmacy benefit manager to Surescripts to provide benefit and prescription history information.

Meeting Meaningful Use Requirements

NeHII is committed to meeting all Meaningful Use requirements. Eligible providers in Nebraska may also be able to meet meaningful use requirements through other options. Four core and two menu set Meaningful Use requirements are related to e-prescribing and medication management.

Meaningful Use Objective	Meaningful Use Measure
A certified EHR (or eRx module) must be able, at a minimum, to generate and transmit permissible prescriptions electronically (core requirement).	In order for an eligible provider (EP) to meet the eRx core objective for meaningful use, more than 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology. Note that "permissible prescriptions" still exclude controlled substances.

Eligible providers/eligible hospital/Critical Access Hospitals must implement drug-drug and drug allergy interaction checks (core requirement).	The EP/eligible hospital/CAH must enable this functionality.
Eligible providers/eligible hospital/Critical Access Hospitals must maintain an active medication list (core requirement).	More than 80 percent of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.
Eligible providers/eligible hospital/Critical Access Hospitals must maintain an active medication allergy list (core requirement).	More than 80 percent of all unique patients seen by the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.
Eligible providers/eligible hospital/Critical Access Hospitals must implement drug-formulary checks (menu set).	The EP/eligible hospital/CAH must enable this functionality and must have access to at least one internal or external drug formulary.
The EP, eligible hospital or CAH who receives a patient from another setting of care or provider of care or believe an encounter is relevant should perform medication reconciliation (menu set).	The EP, eligible hospital or CAH performs medication reconciliation for more than 50 percent of transitions of care in which the patient is transitioned into the care of the EP or admitted to the eligible hospital's or CAH's inpatient or emergency department.

Strategies

The eHealth Council will be asked to reactivate the E-Prescribing work group to prioritize and flesh out strategies for encouraging the effective and efficient use of e-prescribing. The E-prescribing Work Group's recommendations will serve as the starting point for the group's work. Strategies that will be considered include:

- Identifying and making recommendations regarding statutory barriers to e-prescribing Schedule II drugs;
- Identifying issues related to e-prescribing Schedule II drugs and making recommendations;
- Working with stakeholders to develop a plan for communicating Meaningful Use requirements to pharmacists and physicians; and

- Discussing how pharmacists can participate in statewide health information exchange.
- Setting goals for e-prescribing adoption.

NeHII is expanding its Professional Network to include pharmacists, dentists, and chiropractors in addition. The Professional Network originally included physicians, nurse practitioners and midwives. Expanding the network should facilitate dialog with pharmacists on issues related to e-prescribing and medication management.

Summary Care Record Exchange

Today NeHII can take in the summary of care document and send it out as an image. In the fourth quarter of 2010, NeHII will be able to have automated updates. In 2011, the continuity of care document will be dynamically generated using the C32 format which is the standard and will be adhered to by NeHII.

The following table reflects the availability of this functionality:

Functionality	Availability
Automated Updates	Fourth Qtr 2010
Continuity of Care Document – C32 format	2011

Assessment of Current HIE Capacities

Nebraska is well-positioned to implement a statewide health information exchange through NeHII. Much of the ground work has already been laid. The following table summarizes the state's current status regarding health IT adoption, governance, finance, technical infrastructure, business and technical operations, and legal/policy issues.

Domain	Current Status	Requirement for Statewide HIE
Adoption	Low to moderate adoption of HIT	Universal adoption of HIT by providers
Governance	Governance structures are in process of being formalized	Formalized governance structure
Finance	Sustainable business models have been developed. Grant funding will accelerate and expand the development health information exchange.	Sustainable business models
Technical Infrastructure	A scalable technical infrastructure is in place. NeHII will provide the technical infrastructure for statewide health information exchange. Regional and specialty health information exchanges are at various stages in development.	Statewide health information exchange with connection to NHIN
Business and Technical Operations	Business and technical operations currently do not support all meaningful use objectives.	Business and technical operations which support all meaningful use objective.
Legal/Policy	Federal and state laws and policies have been examined. Business associate agreements have been developed. Consumer views and needs have been considered. A framework for privacy and security enforcement is in development.	DURSAs in place Minimum privacy and security policies in place Harmonization of business practices Framework for privacy and security enforcement in place

Adoption. While adoption of health IT among providers is currently low to moderate, health IT adoption is increasing. Medicaid and Medicare incentives and technical assistance from the Regional Center should help spur adoption. Additionally, NeHII is offering an affordably priced, CCHIT-certified EMR system which will provide an attractive option for providers.

Governance. The state's governance structure for health IT is in the process of being formalized. The governance structure is expected to be formalized by late 2009.

Finance. Sustainable business models have been developed. Grant funding will accelerate and expand the development of health information exchange. Expanded participation of providers in health information exchange will improve financial sustainability and should be encouraged.

Technical Infrastructure. NeHII will provide the technical infrastructure for statewide health information exchange. Regional and specialty health information exchanges are at various stages in development and will connect to NeHII. Connections to the National Health Information Network will be made through NeHII.

Business and Technical Operations. As meaningful use is defined, efforts will need to focus on the development and expansion of services which support meaningful use.

Legal/Policy. Much of the groundwork has been laid to address legal and policy issues. As the state moves toward statewide health information exchange, further work will need to be done in the development of trust agreements such as DURSAs, the adoption of minimum privacy and security policies, the harmonization of business practices, and the development of a framework for privacy and security enforcement.

Later sections of the plan address each of these domains in more detail.

Other HIT Resources and Collaborative Opportunities

HIT Resources

Several programs created and funded by the American Recovery and Reinvestment Act will provide additional support to Nebraska's eHealth efforts.

The **Medicare and Medicaid Health IT provisions in the Recovery Act** provide incentives and support for the adoption of certified electronic health records. Eligible professionals and hospitals participating in Medicare or Medicaid may receive bonus payments if they demonstrate meaningful use of certified EHRs. These bonus payments will significantly reduce the financial burden of adopting EHRS for many healthcare providers. The incentive bonuses will begin in 2011. Beginning in 2015, the Recovery Act mandates penalties under Medicare for eligible professionals and hospitals that fail to demonstrate meaningful use of certified EHRs. It should be noted that long term care facilities and behavioral health providers are not eligible for support through these provisions.

Through the **Health Information Technology Extension Program**, Regional Extension Centers will offer technical assistance, guidance and information on best practices to support and accelerate health care providers' efforts to become meaningful users of electronic health records. The regional centers will support primary care providers in achieving meaningful use of EHRs and enabling nationwide health information exchange. CIMRO of Nebraska is applying to be a regional center and has the support of key stakeholders in the state. On Sept. 29, 2009, CIMRO of Nebraska was invited to submit a full application to participate in the Health Information Technology Extension Program.

Collaborative Opportunities

The Nebraska Information Technology Commission (NITC) eHealth Council was formed in 2007 to facilitate collaborative opportunities to advance eHealth in the state. The eHealth Council has 25 members representing state and federal government, health care providers, eHealth initiatives, public health, employers, payers, and consumers. Involvement of stakeholders in meetings and work groups of the eHealth Council has been encouraged regardless of ethnicity, gender, or race. Various stakeholder groups have been invited to participate in panels and give presentations to the eHealth Council. All meetings of the eHealth Council are open to the public. Additionally, work groups have been created to address issues related to health information security and privacy, personal health records, e-prescribing, and public health. Work groups have included both eHealth Council members and other stakeholders.

Collaborative opportunities with the following stakeholders are being incorporated into Nebraska's strategic and operational plans for health information exchange:

- Medicaid
- Health information exchanges
- Public health
- Health care providers
- Nebraska Statewide Telehealth Network
- Department of Corrections
- Long Term Care
- Broadband Mapping

Medicaid. As a payer, Medicaid has the opportunity to participate in NeHII and/or the state's other health information exchanges. The Division of Medicaid and Long-Term Care will also administer Medicaid bonuses for meaningful use of electronic health records. The Director of the Division of Medicaid and Long-Term Care is a member of the NITC eHealth Council and a member of NeHII's Board of Directors.

Health Information Exchanges. The state's four health information exchanges participate in the NITC eHealth Council. Each of the four health information exchanges is unique in its approach and in the mix of providers and consumers served. By leveraging the investments of these entities, the state can better serve the needs of diverse consumers and providers.

Public Health. The NITC eHealth Council has formed a Public Health Work Group to identify ways to utilize health information exchange to enhance disease surveillance and other public health efforts. Participants in the work group include Nebraska's Chief Medical Officer and leaders from local public health organizations. The work group has prioritized electronic reporting of reportable diseases and use of the immunization registry as areas in which the state is most ready and which would support meaningful use.

Health Care Providers. The NITC eHealth Council includes representatives of several of the state's key provider associations. The Nebraska Medical Association, Nebraska Hospital Association, Nebraska Health Care Association, and Nebraska Pharmacists Association have been supportive of ehealth efforts in the state. Physician champions have been instrumental in both of the active health information exchanges in the state. As Nebraska moves toward the implementation of statewide health information exchange, the continued involvement of health care providers and physician champions will be required.

Nebraska Statewide Telehealth Network. The Nebraska Statewide Telehealth Network connects nearly all of Nebraska's hospitals and public health departments. It is used for patient consultations, teletrauma, teleradiology, and other applications. Health Information Exchange and telehealth are complementary technologies. Both can improve patient access to care and quality of care.

Department of Corrections. The Department of Corrections is in the process of purchasing an electronic medical record system and has indicated an interest in participating in health information exchange in the future. Representatives from the Department have met with NeHII to discuss future connectivity.

Long Term Care. There are currently approximately 500 Assisted Living and Nursing Facilities licensed in Nebraska. In many communities, they are a primary employer and are essential to sustainability of the community. Many of these companies are actively moving towards or have actively implemented electronic health records. Some facilities are now seeking or establishing connectivity to other providers such as pharmacies, medical directors or other providers. The issues they struggle with are as individual as the facilities themselves. Some facilities are connecting to local pharmacies but have difficulty connecting with other pharmacies due to the pharmacies' readiness to accept e-prescriptions. Others can connect with the Medical Director and the primary physician group but not with the laboratory for diagnostic test results as examples. Nye Senior Services, Vetter Health Services, Gold Crest Retirement Center, Tabitha Health Care Services, Good Samaritan Health Systems and Golden Living are all aggressively moving forward in EHR. Nursing facilities because of the federal requirement of transmitting Minimum Data Set information electronically via high speed internet are already accepting of the need for movement to EHR.

Golden Living, LLC is a nationwide Long Term and Post Acute Care (LTPAC) company with 310 skilled nursing facilities (SNFs) in 21 states including 24 in Nebraska, 16 in Kansas, and 17 in South Dakota. In addition to nursing homes, the Golden Living family of companies offer rehabilitation therapy, hospice care, home health and assisted living services. Golden Living is proposing a collaborative effort with Nebraska's rural and urban hospitals to develop electronic interconnectivity/interoperability for discharging patients from hospitals after acute care and the readmission and discharge of SNF and home health patients due to an episodic incident. Today, this function is mostly done by telephone, fax, and paper which can result in misinformation, lack of required information, duplicate diagnostic tests, medication mismanagement, and so forth.

Golden Living is prepared to partner with hospitals and physicians to develop this electronic interconnectivity/interoperability directly and also by utilizing telemedicine for rural hospitals. In most health information exchanges (HIEs) interconnectivity and interoperability between hospitals and LTPAC providers has not been accomplished due to the fact that LTPAC providers have not been included in ARRA for incentives. Yet an estimated 40 percent of discharges from hospitals go to LTPAC providers.

Golden Living, along with its acute care and ambulatory care partners, believes the best strategy is to develop a pilot program composed of urban and rural SNFs, a home care agency, and hospitals. The pilot would contain quality and efficiency metrics such as the reduction of re-hospitalization, medication reconciliation and management, and reduction of unnecessary duplicate diagnostic tests. The results of the pilot would be Nebraska scalable – meaning the information and metrics learned could be projected across the entire state. The pilot would provide Nebraska an efficient and cost-effective model for patient transition between acute and LTPAC across a continuum of care.

Broadband Mapping. While nearly all communities in Nebraska have broadband access, some health care providers may find that their broadband options are limited. The State of Nebraska has applied to participate in the NTIIA's Broadband Mapping program. Through a broadband planning component of the program, regional technology committees will be formed to identify areas in need of greater broadband capabilities and to develop technology plans. The regional technology committees can provide a vehicle for any underserved providers to address broadband issues.

Human Capital

Nebraska is investing in the human capital required to implement and support health information exchange. The Western Nebraska Health Information Exchange, in particular, has focused on developing human capital. Training sessions with nationally recognized trainers for becoming a Certified Professional in Health Information Technology (CPHIT) and Certified Professional in Electronic Health Records (CPEHR) have been held in the state's sparsely populated Panhandle. As a result, the Panhandle has the highest number of certified professionals in health information technology (HIT) and electronic health records (EHR) per capita in the United States. Training has also been offered in project management, vendor selection, process mapping, and skill training. A training academy developed in partnership with Western Nebraska Community College now offers training for college credit at participating hospitals.

The state's other health information exchanges are also investing in human capital. NeHII is working with the Peter Kiewit Institute to develop undergraduate and graduate programs for health IT and bioinformatics. NeHII has also provided a team of trainers to help providers learn to use the system. At SENHIE the development of human capital consists of providing staff with specialized training in electronic health records through CCHIT. Specialized training includes CPEHR and CPHIE. A Nurse Informatics was developed internally. In addition CPHIMS certification will be obtained by the IT Director. Network and Cisco certification will also be encouraged for IT staff. As a whole, the behavioral healthcare sector has not been able to afford ongoing investments in information technology, and this lack of investment has meant that many of the providers operate in cumbersome, paper based systems. Provider personnel are minimally trained in state of the art technology systems and face a steep learning curve in adopting the full scope of technology functionalities. Funding will help to provide training for provider personnel, and, in the long run, greatly improve health outcomes for consumers of behavioral healthcare.

Nebraska entities are also involved in a number of initiatives to build the state's health care work force. For example, a $500,000, two-year grant from the Robert Wood Johnson Foundation (RWJF) and the Northwest Health Foundation's (NWHF) Partners Investing in Nursing's Future grant program, will fund the Midwest Geriatric Nursing Quality Improvement program to improve care in regional long-term care facilities through furthering geriatric care education for registered nurses and leadership development for nurse managers. The Vetter Foundation of Nebraska is the lead foundation for the project and the UNMC College of Nursing is the lead organizational partner.

Consumer Views

As stakeholders, consumer needs and use of health IT should also be considered. Consumers include individuals accessing health care for themselves or acting as a decision maker for another person.

Consumer Views of Health IT. Nebraska consumers are generally receptive toward health IT and health information exchange. Research by the University of Nebraska Public Policy Center indicates that Nebraskans have positive views about sharing health information electronically, but do have some privacy and security concerns. Most participants in the deliberative discussion felt that the State of Nebraska had a role in ensuring the privacy and security of health information (100%), providing information to consumers about health information security and privacy (94%), regulating health information networks (91%), and facilitating public-private partnerships to exchange health information (88%).[10]

The support of Nebraska consumers toward health information exchange is also borne out by the high rate of consumers deciding to have their health information included in Nebraska's largest active health information exchange, the Nebraska Health Information Initiative (NeHII). Less than two percent of consumers have opted out of participating in NeHII. NeHII is also processing requests from consumers who initially opted out of the HIE and have now reconsidered and want to have their health information included in the HIE.

Consumers are extremely satisfied with telehealth services provided through the Nebraska Statewide Telehealth Network. Virtually all consumers indicated they would recommend its use to a family member. Use of the system saved consumers attending meetings and conferences over $1 million in mileage costs alone.

Privacy and Security Considerations. Many consumers do not have a good understanding of health information privacy laws such as HIPAA or how health information is exchanged. HIPAA allows for the sharing of personal health information for treatment, payment, and operations, without consumer consent. Providers are required to report incidences of certain diseases, births, deaths, trauma incidences, etc. to public health agencies, and may make other disclosures of consumer information for specified health and safety purposes. Certain types of health information receive additional protection under federal law. For example, Section 42 of the Code of Federal Regulations requires consent for the release of alcohol and drug abuse treatment facility information.

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[10] Abdel-Monem, Tarik, and Herian, Mitchel, Sharing Health Records Electronically: The Views of Nebraskans, University of Nebraska Public Policy Center, December 11, 2008,

http://ppc.unl.edu/userfiles/file/Documents/projects/eHealth/Sharing_Health_Records_Electronically_Final_Report.pdf, accessed on June 25, 2009.

Currently health information is often shared via fax or paper copies delivered by mail or courier. The use of health IT and electronic health information exchange changes the method of sharing information, making the sharing of information faster and more convenient. The use of electronic exchange also provides an accurate audit trail of those who have accessed the system and what information they have viewed.

Most health information exchanges use either opt-in or opt-out policies for consumer consent. The opt-in approach is one where consumers are required to sign an authorization acknowledging they are permitting their data to be released to other providers in the HIE. An opt-out policy for consumer consent simply stated means the health information is in the HIE unless the consumer takes a signature-required action to have their information excluded from the HIE. The default is set to include the information in the system unless the consumer takes action to opt-out of the health information exchange.

NeHII has developed extensive privacy and security policies with broad stakeholder representation using nationally recognized legal health IT experts to support the statewide health information exchange. Other states have expressed interest in purchasing the policies for use within their state health information exchange projects. The state's regional and specialty health information exchange have also developed privacy and security policies.

Health Literacy. Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.[11] Fourteen percent of adults (30 million people) lack basic health literacy, according to the National Assessment of Adult Literacy. Low health literacy has been linked to poor health outcomes and higher healthcare costs. Older adults, racial and ethnic minorities, people with less than a high school degree or GED certificate, people with low income levels, non-native speakers of English, and people with compromised health status are most likely to experience low health literacy.[12] If designed and used appropriately, health IT tools such as personal health records have the potential to improve health literacy.

Referral Patterns. Nebraskans, especially those in rural areas of the state, often travel for health care, sometimes crossing state lines. Medical trading areas are often regional

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[11] U.S. Department of Health and Human Services. 2000. *Healthy People 2010*. Washington, DC: U.S. Government Printing Office. Originally developed for Ratzan SC, Parker RM. 2000. Introduction. In *National Library of Medicine Current Bibliographies in Medicine: Health Literacy*. Selden CR, Zorn M, Ratzan SC, Parker RM, Editors. NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services.

[12] National Center for Education Statistics. 2006. *The Health Literacy of America's Adults: Results From the 2003 National Assessment of Adult Literacy.* Washington, DC: U.S. Department of Education.

or among specialty treatment providers with specific business needs. These needs can be addressed through an HIE that supports data exchange through an integrated approach to improve consumer access to care, improve quality, and reduce costs. The neighboring states of Iowa, Kansas, Wyoming, Colorado, and South Dakota have been mentioned as medical trading areas with Nebraska. Some consumers also travel to Minnesota and Texas for treatment. Additionally, some retirees winter in Arizona or other states with warmer climates. Where appropriate, the exchange of permitted patient information should be considered with adjacent regions and across the entire United States. NeHII is in conversation with neighboring states mentioned to lay the groundwork for regional multi-state health information exchange. NeHII will also participate and support all activities to develop the National Health Information Network (NHIN).

HIE Development and Adoption

The NITC eHealth Council has developed a vision, guiding principles, goals, objectives and strategies to guide Nebraska's implementation of statewide health information exchange.

Vision

Stakeholders in Nebraska will cooperatively improve the quality and efficiency of patient-centered health care and population health through a statewide, seamless, integrated consumer-centered system of connected health information exchanges. Nebraska will build upon the investments made in the state's health information exchanges and other initiatives which promote the adoption of health IT.

Guiding Principles

Statewide health information exchange in Nebraska will:

- Utilize national standards and certification to facilitate meaningful use and interoperability.
- Utilize solutions which are cost-effective and provide the greatest return on investment.
- Utilize a sustainable business model for both the development of infrastructure and operations.
- Leverage existing eHealth initiatives and investments in Nebraska.
- Support the work processes of providers.
- Encourage ongoing stakeholder engagement and participation in development of the state plan and throughout all stages of implementation.
- Support consumer engagement and ensure the privacy of health information.
- Encourage transparency and accountability.
- Measure and report goal- and consumer-centered outcomes of investments of public dollars.

Goals

These goals will be achieved while ensuring the privacy and security of health information, which is an essential requirement in successfully implementing health information technology and exchanging health information:

- Using information technology to continuously improve health care quality and efficiency through the authorized and secure electronic exchange and use of health information.
- Improve patient care and consumer safety;
- Encourage greater consumer involvement in personal health care decisions;
- Enhance public health and disease surveillance efforts;
- Improve consumer access to health care;
- Improve consumer outcomes using evidence-based practices.

Objectives

Adoption

- Encourage and support the adoption of health IT in order to achieve meaningful use by providers.
- Build an appropriately-trained, skilled health information technology workforce.
- Encourage and support the adoption of personal health records.
- Improve health literacy in the general population.

Governance

- Address issues related to governance, oversight, and financing of health information exchange.
- Ensure transparency,accountability, and privacy.

Finance

- Support the development of a sustainable business model for building and maintaining health information exchange in Nebraska.
- Leverage the state's role as a payer to support health information exchange.

Technical Infrastructure

- Support the development and expansion of health information exchanges to support meaningful use and to improve the quality and efficiency of care.
- Support the development of interconnections among health information exchanges in the state and nationwide.
- Promote the development of a robust telecommunications infrastructure.
- Ensure the security of health information exchange.

Business and Technical Operations

- Support meaningful use.
- Encourage the electronic exchange of public health data.
- Encourage the integration of health information exchange with telehealth delivery.

Legal and Policy

- Continue to address health information security and privacy concerns of providers and consumers.
- Build awareness and trust of health information technology.

Strategies

Adoption

- Partner with the Regional Center serving Nebraska to facilitate provider adoption of EMRs and attainment of meaningful use requirements.
- Work with eligible providers to utilize Medicaid and Medicare incentives.
- Encourage efforts to offer affordably priced and effective EMR options.
- Consider the needs and uses of all providers.
- Spread innovation by highlighting successful provider implementation models (i.e., physician practices, critical access hospitals, long term care facilities, and pharmacies).

Governance

- Formalize the relationships among and responsibilities of NeHII, the state's regional and specialty health information exchanges, the Nebraska Department of Health and Human services including Medicaid and public health, the State HIT Coordinator, and the NITC eHealth Council.
- Develop mechanisms to ensure accountability, transparency, and privacy.

Finance

- Encourage and support the effective use of investments to obtain meaningful use, including:
    - Leveraging existing and planned investments in health information exchange, public health, Medicaid, and other programs.
    - Leveraging Medicaid administrative funding for provider incentives.
    - Leveraging other programs which support health information exchange, workforce development, and broadband development.
    - Identifying sources of grant funding to fund start up costs and accelerate implementation.
- Determine where value is being delivered in the HIE network and tie the primary ongoing HIE revenue streams to value delivered.
- Market the benefits of health information exchange services to providers.

Technical Infrastructure

- Facilitate participation in existing health information exchanges to ensure statewide coverage.
- Coordinate the statewide technical architecture to support HIE integration.
- Assure the technical architecture meets the overall clinical and policy objectives of the state.
- Enumerate the critical environmental assumptions that the technical architecture must address, including interactions among HIEs and other partners.
- Address issues related to broadband access and affordability if necessary.

Business and Technical Operations

- Continuously assess and prioritize additional functionality to address meaningful use requirements.
- Support the development of effective analytics reporting for decision support and quality reporting.
- Encourage and support e-prescribing and refill requests.
- Provide prescription fill status and/or medication fill history.
- Encourage and support the provision of electronic health information to patients.
- Partner with payers and other stakeholders to develop strategies to improve care coordination and quality and efficiency of health care.
- Encourage electronic reporting and use of public health data.
- Provide electronic eligibility and claims transactions.
- Provide electronic clinical laboratory ordering and results delivery.
- Provide clinical summary exchange for care coordination and patient engagement.

Legal/Policy

- Coordinate with the Attorney General's Office, State HIT Coordinator, and the privacy and security officers of the state's HIEs to develop a framework for privacy and security enforcement.
- Continue to review and update privacy and security policies.
- Investigate statutory barriers to health information exchange.

- Provide information on privacy and security to providers and consumers through a statewide consumer education campaign, a privacy and security website, and a brochure for statewide distribution.
- Establish a collaborative infrastructure with the ongoing capacity to identify issues, consider options, and advance recommendations through a transparent and inclusive decision-making process.
- Encourage the harmonization of policies related to access, authentication, audit and authorization.

Health IT Adoption

Adoption of health IT by providers is a key building block for health information exchange. Health IT applications include electronic medical records (EMRs) and e-prescribing. Adoption of electronic medical records remains low. Nationally, 21% of physician offices and 10% of hospitals had implemented EMRs in 2008.[13] In 2007, approximately 30% of physicians in Nebraska routinely used an EMR. Encouragingly, half of the physicians in Nebraska planned to implement an EMR system.[14]

The use of e-prescribing is also another important measure of health IT adoption. Although the use of e-prescribing is growing, adoption still remains low. Only 4% of eligible prescriptions in the U.S. were routed to pharmacies electronically in 2008.[15] In Nebraska, less than 2% of eligible prescriptions were routed electronically. [16] Nationally, 76 percent of community pharmacies in the U.S. were connected for prescription routing at the end of 2008.[17] In Nebraska, pharmacy participation in e-prescribing is significantly lower. Approximately 61% of pharmacies accepted e-prescriptions.[18] Physician use of e-prescribing also remains low. A survey of 612 Nebraska physicians carried out by the Creighton Health Services Research Program and the Nebraska Medical Association in March 2008 found 8.7% of physicians were e-prescribing. Of these, 59% reported daily use of e-prescribing.[19]

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[13]Office of the National Coordinator website, http://healthit.hhs.gov/portal/server.pt?open=512&objID=1152&parentname=CommunityPage&parentid=3&mode=2&in_hi_userid=10741&cached=true, accessed June 11, 2009.

[14] Galt, Kimberly; Drincic, Andjela; Paschal, Karen; Kasha, Ted; Bramble, James; Siracuse, Mark; Abbott, Amy; and Fuji, Kevin, Status of HIT In Nebraska: Focus on EHRs in Physician Offices, Creighton Health Services Research Program, March 2008, http://chrp.creighton.edu/Documents/EHR_Report/Status_of_Health_Information_Technology_in_Nebraska_March_2008.pdf, accessed on June 11, 2009, p. 6.

[15] National Progress Report on E-Prescribing. 2009. SureScripts. http://www.surescripts.com/downloads/NPR/national-progress-report.pdf accessed June 11, 2009, p. 10.

[16] Nebraska: State Progress Report on E-Prescribing. 2009. SureScripts. http://www.surescripts.com/downloads/NPR/NE2009.pdf, accessed June 26, 2009.

[17] National Progress Report on E-Prescribing. 2009. SureScripts. http://www.surescripts.com/downloads/NPR/national-progress-report.pdf accessed June 11, 2009, p. 15.

[18] Data from Surescripts website (http://www.surescripts.com, accessed April 28, 2009).

[19] Galt, Kimberly; Drincic, Andjela; Paschal, Karen; Kasha, Ted; Bramble, James; Siracuse, Mark; Abbott, Amy; and Fuji, Kevin, Status of HIT In Nebraska: Focus on EHRs in Physician Offices, Creighton Health Services Research Program, March 2008, http://chrp.creighton.edu/Documents/EHR_Report/Status_of_Health_Information_Technology_in_Nebraska_March_2008.pdf, accessed on June 11, 2009, p. 6.

Although adoption of health IT remains low, an increasing number of healthcare providers are using e-prescribing and/or EMRs. Medicaid and Medicare incentives as well as assistance from the Regional Center serving Nebraska should help spur adoption.

Key considerations and recommendations are listed below:

- Some health care providers—especially in the most rural areas of the state—may require both financial and technical support to adopt health information technologies. Systems need to be scaled to optimal use given the size and scope of physician practices and institutional settings.
- In Nebraska, physicians wishing to participate in NeHII also have the option of using a CCHIT-certified EMR Lite or a viewer. Both of these options are less expensive and easier to implement than full EMR systems.
- The Regional Extension Center serving Nebraska will facilitate provider adoption of EMRs.
- Medicaid and Medicare incentive programs should reduce the financial burden for qualified providers. Some providers including long term care facilities and behavioral health providers are not eligible for these incentives. Special consideration may need to be given to providers ineligible for incentives. NeHII will offer a cost effective CCHIT-certified EMR to the medical directors of long term care facilities.
- Information technology applications have to include improvements in management that generate a fair return on investment to the organization adopting the new technology.
- It is critical that provider plans to adopt health information technology include a focus on safety and continuous quality improvement as part of their health IT implementation plan. Without a culture of safety and continuous quality improvement, health IT adoption will have limited impact on improving quality of patient care and consumer safety.
- When implementing new technologies, efforts should be made to identify new sources of errors and to address those errors.
- Physician practices, critical access hospitals, and pharmacies which have successfully implemented health IT can serve as models.
- Barriers to increased use of telehealth should be identified and addressed. These include statutory and regulatory issues as well as limitations on bandwidth.
- Colleges and universities should be encouraged to create and enhance existing HIT and bioinformatics curriculums for undergraduate and graduate degree programs.

- The involvement of all stakeholders in health IT implementation should be encouraged.
- Consumers are an important stakeholder group. They must be included in any advisory body.

Objectives

- Encourage and support health IT in order to achieve meaningful use by providers.
- Build an appropriately-trained, skilled health information technology workforce.
- Encourage and support the adoption of personal health records.
- Improve health literacy in the general population.

Strategies

- Partner with the Regional Center serving Nebraska to facilitate provider adoption of EMRs and attainment of meaningful use requirements.
- Work with eligible providers to utilize Medicaid and Medicare incentives.
- Encourage efforts to offer affordably priced and effective EMR options.
- Consider the needs and uses of all providers.
- Spread innovation by highlighting successful provider implementation models (i.e., physician practices, critical access hospitals, and pharmacies).

Medicaid Coordination

Current status

The Nebraska Medicaid Program (Medicaid) is a member of the state-wide e-Health Council. Medicaid intends to be a fully contributing member of the statewide HIE, for data exchange in the same manner as any other member HIE. The Director of Medicaid holds a seat on the NeHII Board of Directors.

Medicaid is undertaking a significant revision of its approach to the development and implementation of system support that places it in an ideal position to design the development and ultimate adoption of a system suite to accommodate the various components of the e-health objectives and to enhance its contributions to the state-wide HIE effort under this grant request.

Cooperation with Statewide Integrator

Medicaid intends to become fully interoperable with the statewide HIE. In that regard, Medicaid will submit a HIT Planning APD (Advanced Planning Document) to the Centers for Medicare and Medicaid Services (CMS) to initiate the process to access funds available only through state Medicaid agencies. In the short term, these planning funds will allow Medicaid to plan the approach to development of the Medicaid role in both supporting the statewide HIE in achievement of their stated goals, and to explore the possibilities for Medicaid in reaching its goals to fully adopt electronic capabilities commensurate with national HIT/HIE objectives. In the longer term, additional HIT/HIE funds are available through CMS to Medicaid agencies that will considerably further the development and implementation of e-health capabilities.

Funding Sources

There are multiple federal funding stream distribution mechanisms available for HIT/HIE development in each state. Medicaid planning effort will produce a concise definition of the activities that will be conducted under each funding stream and, while not duplicating effort, ensuring that all dependencies, along with technical and operational relationships, are considered.

The Medicaid HIT/HIE planning will be conducted with federal financial participation under ARRA separately from its direct contribution to activities funded under this grant request. Federal matching funds obtained outside this grant request will be targeted to develop enhanced and additional Medicaid technical abilities. The separately funded activities will directly support and enable the objectives and requirements of the statewide HIE.

Planning and investment in the study of technical solutions that support HIT activities requires Medicaid to apply critical analysis to the chronology and funding of all HIT/HIE components and activities. Additionally, federal matching funds are available through

CMS, specifically for state Medicaid agencies, to use in the operation of their program and the development of system tools. In that regard, Medicaid fully subscribes to the MITA (Medicaid Information Technology Architecture) principles, and the application of these and their alignment with information and systems within and without Medicaid control will govern the development of technical capability and support Medicaid uses for in-house systems and for support of the state-wide HIT/HIE objectives.

Meaningful Use

The criteria to establish and measure meaningful use are at present suggested in the broadest terms. The ONC and CMS have indicated that guidelines for the definition of meaningful use will be forthcoming by the end of calendar 2009; however, these are not readied and published prior to the due date for this grant request. CMS is also establishing requirements for State responsibilities to track "meaningful use" of certified EHR technology by providers, and Nebraska like other states will engage in planning to ensure that such use may be tracked and reported in a manner consistent with the federal guidelines.

Medicaid is beginning to draw its plans for the administrative control of ARRA funds. CMS has advised Medicaid that "Section 4201 of the Recovery Act requires that incentive payments be used for the adoption and use of "certified EHR technology," which (pursuant to section 1903(t)(3)(A) of the Social Security Act (the Act) and by definition) must be certified as meeting standards adopted under section 3004 of the Public Health Service (PHS) Act. Section 3004(b)(1) of the PHS Act requires the Secretary to adopt, which may be through an interim-final rule, an initial set of standards, implementation specifications, and certification criteria."

All final Medicaid planning will occur during the imminent development of the State Medicaid HIT Plan (SMHP), which is supported under ARRA Section 4201. This plan, which is contained in an Advance Planning Document to CMS, is expected to be complete within a few months of this writing.

Consequent of the information contained in any forthcoming rule, Medicaid must ensure that EHR software is certified, providers are eligible for the incentive program, and a reportable, continual increase in the percentage of providers who adopt the technology into their practices is documented. Further, Medicaid must ensure that incentives paid to providers are not duplicative of those paid by Medicare, and encourage providers to not only adopt and implement but upgrade the software when appropriate. Medicaid understands that coordination at the operational level will be required with Regional Extension Centers (RECs) as established under PHS 3012 Title XXX for technical support and guidance. Additional coordination procedures must be developed and put into place with Medicare and other entities for the administration of the ARRA HIT provisions, as well as the continuance of interaction with both the ONC and CMS in the development and implementation of strategic administrative and procedural plans that address the HIT and MITA plans for the next five years and beyond.

Medicaid will be required to devise metrics, and the associated reporting capabilities, that demonstrate value has been obtained from the adoption and use of EHR pertaining to reduced prescribing errors, reduced duplication of services, and possibly timeliness and accuracy measurement of provider submitted data.

Medicaid's participation in the development of a specific State roadmap for HIT adoption and use as it relates to Medicaid as well as the State's overall plan for electronic health information exchange as specified under section 3013 of the Public Health Service Act. Participating in Statewide efforts to promote interoperability and meaningful use of electronic health records will help define the Medicaid-specific performance goals related to EHR technology adoption, use, and expected outcomes required under 4201.

CMS expects any State Medicaid program to include in their SMHP the vision for Medicaid to become part of existing or planned Federal, regional, statewide, and/or local health information exchanges (HIE) with projected dates for achieving objectives of the vision where appropriate. Medicaid will build off of existing efforts to advance regional and State-level HIE, facilitate and expand the secure, electronic movement and meaningful use of health information according to nationally recognized standards, and move towards nationwide interoperability. The State must also consider the types of changes that may be needed to transform its current MMIS into one capable of accommodating this future vision in a manner consistent with the MITA Framework 2.0.

ARRA Section 4201 also requires Medicaid to:

- Establish leadership accountability for assuring return on investment and provider public reporting on clinical quality measures and outcomes. Quality measures must be designed to allow more stringent criteria be added over time.
- Arrange or provide technical assistance and training of Medicaid providers in the planning, adoption and use of EHRs, and inform providers about other resources such as the Regional Extension Centers.
- Provide forums and opportunities for input from stakeholders, including advocacy organizations, other public social service agencies, and safety net providers.
- Collaborate and coordinate with other HIT initiatives in the public and private sector, such as those being conducted by a State designated entity, community health centers, safety net hospitals, public health, behavioral health, VHA, DoD, CDC, IHS, HRSA, AHRQ, SAMHSA, and other States (where appropriate).
- Continue to bring successful Medicaid Transformation Grant initiatives and projects to scale.
- Initiate, where appropriate, State legislation as necessary to create the legal and regulatory authorities for Health Information Exchange/EHR.
- Ensure that existing quality reporting processes are aligned.

HIT/HIE/EHR/EMR Activities

Medicaid is launching comprehensive planning activities spanning all funding sources. Medicaid objectives are being developed that will encompass the contribution to the statewide HIE, establish and define Medicaid requirements, and describe the increasing development and use of electronic health information exchange in support of e-eligibility, e-claims expansion, and e-prescribing, and identification of the Medicaid stakeholder provider community members that qualify for inclusion in HIE and associated EMR/EHR initiatives and incentives.

Page limits in this grant request do not allow a full accounting of the many activities Medicaid will undertake in the HIT/HIE arena. The following paragraphs discuss a few:

- Medicaid will be charged by CMS with proving the eligibility of all parties that receive HIT incentive equipment, funding, and training, as well as with definition of meaningful use and associated metrics that will be used to gauge the compliance with HIT provisions and the outcome objectives of increased e-health information exchange, clinical outcomes, and administrative and health care delivery efficiencies. The challenge to Medicaid is the potential detail and complexity of HIT/HIE requirements.
- Federal regulations are, as of this writing, unpublished regarding the definition and measurement of meaningful use, a cornerstone objective of the HIT program. However, it is to be anticipated that in context of the forthcoming regulations and federal guidance, quality and timeliness of e-health information must be proven. Over time, Medicaid must refine the data sets from EMR and EHR data and use these data sets for internal and external purposes. Privacy and security measures that meet state and federal standards will be imposed on all data and the transmission and use thereof.
- Medicaid plans to eventually use the EMR and EHR data to identify providers who demonstrate increased efficiencies, reduce overuse of services, reduce the duplication of services, and produce improved clinical health outcomes in not only the Medicaid population, but in general practice.
- Medicaid may continue to use the data collected to develop clinical practice guidelines and provide clinical decision support tools, supplemented by web-based client health pages for feedback to physicians, to be used for, as an example, medication compliance.
- Medicaid, under CMS HIT funding, will ensure certified EMR and EHR technology is employed and will provide our stakeholder users with training and support. It is anticipated that this training and support will encourage the use of information e-exchange to improve quality and care coordination, reported with measures of clinical quality that Medicaid will develop to illustrate both access and successful application.

- Medicaid will plan the distribution of incentive funds and structure federally-required audit procedures to remain eligible for the matching funds. Audits will be related to assessments of e-health penetration into the Medicaid provider and client populations.

NHIN

As the NHIN network and functions are developed and evolve, Medicaid will comply to the extent possible with appropriate exchange capabilities and EHR data, including associated data sets contributed to and maintained by Medicaid, the Nebraska SDE, and other HIE/HIO/RHIO entities with whom Medicaid has or will establish an exchange relationship. Should the NHIN utilize exchange protocols that are different than the HIE methods in place with Medicaid's HIE partners, conversions or interfaces will be accommodated to accomplish the provision of data to the NHIN.

It is likely that Medicaid may set as a HIT goal the collection and study of ever-expanding EHR data as the SMHP is completed. Recognizing that the NHIN access to data from all payors and providers may be leveraged to provide results from the compilation of vast continuum of care studies that will in turn support any local or state payor or HIO in their efforts to improve care outcomes and quality improvements as well as contribute to the local provision of clinical decision support intelligence, Medicaid expect to be able to accommodate a direct relationship with NHIN for the provision of any additional data as requested.

In conclusion, Medicaid will support the statewide HIE and its business model pro forma to the extent reasonable and possible under ARRA and CMS regulations, and take every advantage to achieve e-health information-based innovations throughout the Medicaid program, its operation, and its system support suite.

Coordination of Medicare and Federally Funded, State-based Programs

Efforts are being made to coordinate with Medicare and other federally funded, state-based programs.

Epidemiology and Laboratory Capacity Cooperative Agreement Program (CDC). The Epidemiology and Laboratory Capacity Cooperative agreement between CDC and the State of Nebraska is a primary funding source for the surveillance, collection, analysis and intervention in public health disease situations. There are a number of electronic data sources that are supported, including the Nebraska Public Health Lab, the water lab, the NEDSS system, West Nile Surveillance and the Arbonet system. Currently about 90% of laboratory results for reportable diseases are being reported electronically through the NEDSS system. Most other epidemiology and surveillance systems will be recipients of improved quality and efficiency of data achieved through the HIEs.

The above systems are funded through CDC and use Public Health Information Network (PHIN) standards to communicate with CDC. Nebraska has been working with CDC, ASTHO and other public health organizations to standardize reporting and integration requirements for public health data. Much of the work Nebraska does in this area is coordinated by the Public Health Data Standards Consortium, of which Nebraska has membership on the Board of Directors.

Assistance for Integrating the Long-Term Care Population into State Grants to Promote Health IT. Electronic medical records (EMR), and by extension, the Electronic Health Record (EHR) contain data that to be useful must adhere to standards that all users will recognize and utilize. Providers that are not directly incented under the provisions of ARRA funding will be beneficiaries of any payor expansion of the EMR/EHR technology and subject to the same sorts of data analysis.

Long-Term Care is an example of a provider group that will be affected by the expansion of EHR, in that the format of the EMRs at use in such facilities will be required to be interoperable in the larger health information exchange models. The American Health Information Management Association and the Reigenstreif Institute will contribute to the development of coding standards for EHR with their Logical Observation Identifier Names and Codes Terminology.

The ONC, as it establishes regulations for interoperability in the HIT initiatives, will work in concert with these and other standards organizations to develop and promulgate rules that will extend to all electronic health records and the exchange thereof.

Medicaid will accommodate the development work of the ONC and private organizations into its overall State Medicaid HIT Plan (SMHP), and ensure the flexibility to incorporate developing standards into the HIT operation.

HIV Care Grant Program Part B States/Territories Formula and Supplemental Awards/AIDS Drug Assistance Program Formula and Supplemental Awards (HRSA). The Ryan White Part B Program provides medications to persons living with

HIV disease through the AIDS Drug Assistance Program (ADAP) as well as to provide emergency assistance for rent, utility, transportation, food and insurance premium payments. The ADAP is funded through a contract between the State of Nebraska and the University of Nebraska Medical Center. The ADAP also provides Medicare Part D premiums for patients who meet the eligibility requirement, including the Low Income Subsidy (LIS) program. This collaboration ensures that the Ryan White Program funds are utilized as a payer of last resort for any services that are provided to patients/clients.

Nebraska receives formula (base), ADAP earmark and in FY 2009, supplemental funds to assistance with the provision of medication therapy. The Program is funded by HRSA under the Ryan White Care Act and continues under the reauthorization of the 2006 Ryan White Modernization Act. The Program has been funded since continuously 1993 and works collaboratively with federal and community partners to ensure that services are provided. The Ryan White program Manager is the authority for administering all funds distributed by HRSA for the Ryan White Part B Program in Nebraska.

State Office of Rural Health Policy (HRSA). The mission of the Nebraska Office of Rural Health is to define and promote the development of a health care system that assures the availability and accessibility of quality health care services to meet the needs of people living in rural Nebraska. Programs and activities are designed to assist rural Nebraskans get high quality health care through a variety of efforts. The Office of Rural Health was instrumental in HISPC and is represented on the eHealth Council. The Office of Rural Health provided significant support for the Southeast Nebraska Health Information Exchange in Thayer County. The Office of Rural Health is heavily involved in workforce development for rural Nebraska, telehealth access, and broadband technologies. Access to health care and personal electronic health care data are critical components to improved rural health.

State Office of Rural Health Primary Care Office (HRSA). The Primary Care Office defines underserved areas and populations for health care services. Efforts are made to enhance the access to health care services and health care providers in these underserved areas. The Primary Care Office collaborates with the National Health Service Corps to place primary care, mental health and dental health providers in underserved areas. The State Office of Rural Health Primary Care Office has an agreement with the University of Nebraska Medical Center's Health Professions Tracking System to monitor and assure timely information regarding health care provider practice locations and availability. There are a variety of federal and state programs which require a shortage area designation for one to be eligible to participate. Federal shortage area designations which are submitted by the State Office of Rural Health Primary Care Office are made by the federal Office of Shortage Designation. State shortage area designations are set by the Nebraska Rural Health Advisory Commission which is manned by the State Office of Rural Health.

State Mental Health Data Infrastructure Grants for Quality Improvement (SAMSHA). The Nebraska Department of Health and Human Services Division of Behavioral Health Services (DBHS) is responsible for submitting data to the Substance

Abuse and Mental Health Service Administration (SAMSHA). The primary data that is required by SAMHSA includes the Treatment Episode Data Set (TEDS) and the National Outcome Measures (NOMs). Currently, The State utilizes the Magellan Health system as a central data system for storing the Nebraska TEDS/NOMs data as well as for utilization management services. This is a web-based application that allows providers to manually enter the TEDS/NOMs data directly into the Magellan system.

The State contracts with six regional behavioral health authorities which oversee approximately 150 providers. Each provider has their own process for data collection and reporting. Data is entered into a provider's local system every time a client is admitted for service and upon discharge. The providers are also responsible for re-keying the TEDS/NOMs data into the Magellan system.

Of the six regions, only one has an automated solution for entering data directly into the Magellan system. Providers in the other five regions use a manual data entry process to load the data in the Magellan system. The State is currently reviewing options on reducing the re-keying issues and improving quality of data collection and reporting.

The Division of Behavioral Health Services requested technical assistance to develop strategies to address the data re-keying issue. Although the final report is yet to be released, the eBHIN system concept was included as part of the technical assistance research, and preliminary information indicates that the eBHIN architecture for data capture and upload to the Magellan system is consistent with the recommended strategies in the technical assistance report to the Division.

IHS and Tribal Activity The Indian Health Service (IHS), an agency within the Department of Health and Human Services, is responsible for providing federal health services to American Indians and Alaska Natives. IHS services are administered through a system of 12 Area offices and 161 IHS and tribally managed service units. The tribes in Nebraska fall under the Aberdeen Area Indian Health Service Area Office, which cover the states of Nebraska, Iowa, South Dakota, and North Dakota. However, the majority of the tribes in Nebraska are operated under the authority of the Indian Self-Determination and Education Assistance Act (Public Law 93-638, as amended), Titles I and V. This provides the tribes with the authority to manage their own health care and information technology decisions for their tribe.

The IHS IT infrastructure includes staffing, hardware, communications, and security that support every aspect of the IHS mission. The Resource and Patient Management System (RPMS) is the IHS enterprise health information system. The RPMS consists of more than 60 software applications and is used by a variety of healthcare providers at approximately 400 IHS, tribal, and urban locations. Client data is gathered through the RPMS system and the aggregate data is used to report on clinical performance measures to Congress. The IHS also maintains a national data warehouse (NDW) of patient encounter and administrative data for statistical purposes, performance measurement for accreditation, and public health and epidemiological studies.

Approximately 400 IHS, tribal and urban facilities providing medical services are utilizing the RPMS system for their clinical and reporting needs. However, 58

percentage of the federally recognized tribes are self-governed and are not required to utilize RPMS. Thirty-two percent of IHS budget is allocated to tribes that have exercised their self-governance option. In Nebraska, the majority of tribal programs providing behavioral health services have exercised their right for self determination and are utilizing an off-the-shelf product (AccuCare) agreed to by the Aberdeen Area Alcohol and Drug Program Directors. Orion Healthcare Technology, a Nebraska based company, collaborates with the Aberdeen Area IHS and the tribes to provide AccuCare for their behavioral health clinical, reporting and outcome needs. Orion Healthcare Technology has consulted with the State of Nebraska and IHS to develop a data exchange for the tribal programs.

Emergency Medical Services for Children Program (HRSA). Early EMS systems were designed to provide rapid intervention for sudden cardiac arrest in adults and rapid transport for motor vehicle crash victims. There was limited recognition that children required specialized care. Pediatricians and pediatric surgeons, identifying poor outcomes among children receiving emergency medical care, became advocates on behalf of their patients. They sought to obtain for children the same positive results that EMS had achieved for adults.

The Nebraska Department of Health and Human Services, Division of Public Health, Credentialing Division is a regulatory agency that establishes initial training and renewal requirements leading towards certification of emergency medical care providers and services. The Emergency Medical Services (EMS) Program is responsible for continuing education and for the implementation of a statewide system of emergency care inclusive of pediatrics.

Over the past ten years, Nebraska's EMS Program has significantly improved its response to critically ill and injured children. This is due in large part to the leadership of the Nebraska Emergency Medical Services for Children (EMSC) and Trauma Program. However, much work remains to be done to encourage program growth and bring various statewide, regional, and national initiatives to fruition.

The Nebraska EMS Program contracts with Image Trend for the electronic data collection system, E-NARSIS. To date, 259 Emergency Medical Services have been trained on ENARSIS and 171 are actively using the system to electronically record patient care documentation. The ENARSIS data system is immediate, efficient, and accurate. This patient care documentation is web-based, and therefore is report generated, for immediate access to physicians, medical directors, and hospitals. Nebraska EMSC Program staff will use these results to expand and improve on existing program activities and to help meet EMSC program objectives Performance Measures. In addition, the Nebraska EMSC Program is very committed to participating in the National Repository and continues to promote Pediatric Education for the Pre-hospital Provider, Pediatric Advanced Life Support, and Emergency Nurses Pediatric Course national curriculum.

Participation with Federal Care Delivery Organizations

Nebraska is interesting in participating in health information exchange with federal care delivery organizations. Discussions enabling health information exchange to coordinate care and improve health outcomes of veterans have been held with local leadership of the Veterans Administration. Follow up discussions will likely be held in the future. Future discussions will also be held with local tribal leadership, Indian Health Services, local military health care leadership, and the Department of Defense.

Coordination of Other ARRA Programs

Regional Centers. The NITC eHealth Council and the state's health information exchanges welcome the opportunity to partner with the Regional Center serving Nebraska.

A collaborative of Nebraska organizations has submitted a Cycle 1 application to establish a Health Information Technology Extension Program that will serve providers throughout the state. CIMRO of Nebraska, the Medicare Quality Improvement Organization (QIO) for the state of Nebraska, is serving as a lead applicant for the proposed program. The mission of CIMRO of Nebraska is to ensure the quality, effectiveness, efficiency and economy of healthcare services provided to Nebraska Medicare beneficiaries. CIMRO of Nebraska has been invited to submit a full application.

The Nebraska Regional Center will furnish education, outreach, and technical assistance, to help Nebraska providers select, successfully implement, and meaningfully use certified EHR technology to improve the quality and value of health care. The Nebraska Regional Center will also help Nebraska providers achieve, through appropriate available infrastructures, exchange of health information in compliance with applicable statutory and regulatory requirements, and patient preferences. Pursuant to requirements of the HITECH Act, priority shall be given to providers that are primary-care providers (physicians and/or other health care professionals with prescriptive privileges, such as physician assistants and nurse practitioners) in any of the following settings:

- Individual and small group practices (ten or fewer professionals with prescriptive privileges) primarily focused on primary care;
- Public and Critical Access Hospitals;
- Community Health Centers and Rural Health Clinics; and
- Other settings that predominantly serve uninsured, underinsured, and medically underserved populations

Each of the four Nebraska Health Information Exchanges and numerous other healthcare organizations have provided letters of support for the Nebraska Regional Center application. The Regional Center will collaborate with NeHII, the other HIEs, the Telehealth Network, and other related initiatives to ensure that providers receive the most comprehensive information to meaningfully adopt EHR technology.

The eHealth Council and NeHII as the SDE will explore how to include the Regional Center into their governance structures. Planning meetings to accomplish partnership activities are in process.

Work Force Development Initiatives. Efforts are being made to coordinate with health related work force development initiatives. Two health-related proposals are under development for submission in October. One proposal for Lincoln and Southeast Nebraska specifically includes a health IT component. The NITC eHealth Council will work with Nebraska Workforce Development to coordinate efforts on work force

development initiatives. As programs to promote a health IT workforce are developed and announced, efforts will be made to encourage local entities to apply and to coordinate efforts with any grantees.

Broadband Programs. The State of Nebraska has applied to participate in the NTIIA's Broadband Mapping program. Through a broadband planning component of the program, regional technology committees will be formed to identify areas in need of greater broadband capabilities and to develop technology plans. The regional technology committees can provide a vehicle for any underserved providers to address broadband issues. The Nebraska Information Technology Commission is involved in this effort and can facilitate coordination.

Governance

It is critical that governance structures be put in place to assure accountability for both the privacy and security of health care information shared through electronic HIE and public/private investments in statewide health information exchange. Governance structures should address privacy and security, interoperability, fiscal integrity, and universal access.

Governance Model

In Nebraska, both the private and public sectors will share responsibilities for governance of health information exchange. Nebraska's governance structure needs to reflect the private sector's high level of leadership and investment in health information exchange. This type of relationship between state government and the private sector has been described as the Private Sector-Led Electronic HIE with Government Collaboration model. The State of Nebraska will support and collaborate with the industry. The state's eHealth advisory group, the NITC eHealth Council, will be directly involved in addressing and making recommendations regarding privacy and security, interoperability, fiscal integrity, business and technical operations, and universal access for Nebraska's statewide health information exchange. The State of Nebraska will act as the prime recipient and fiscal agent for the State Health Information Exchange Cooperative Agreement Program. As the statewide integrator, NeHII will assume the primary responsibility for implementing the State Health Information Exchange Cooperative Agreement program in Nebraska. NeHII will work cooperatively with the Nebraska Information Technology Commission (NITC) eHealth Council and the State Health Information Technology Coordinator to facilitate and coordinate the implementation of health information exchange in the state. As the State HIT Coordinator, Lieutenant Governor Rick Sheehy will coordinate health information exchange efforts within the State of Nebraska and will work with the eHealth Council to facilitate health information exchange efforts across the state. The roles and responsibilities of NeHII, the Health IT Coordinator, and the NITC eHealth Council will be further defined in a Memorandum of Understanding.

eHealth Council

Lt. Governor Rick Sheehy and the Nebraska Information Technology Commission formed the eHealth Council in 2007 to foster the collaborative and innovative use of eHealth technologies through partnerships between public and private sectors, and to encourage communication and coordination among eHealth initiatives in Nebraska. The eHealth Council is responsible for developing the state's eHealth plan, coordinating stakeholders, and providing oversight and accountability. The eHealth Council will also be directly involved in making recommendations regarding privacy and security, interoperability, fiscal integrity, business and technical operations, and universal access

for Nebraska's statewide health information exchange. Monthly newsletters are provided to all stakeholders and made publicly available to ensure accountability and transparency of all activity, and encourage feedback and input.

Members include representatives of the following groups:

- The State of Nebraska
- Health Care Providers
- eHealth Initiatives
- Public Health
- Medicaid, Private Payers and Employers
- Professional Associations
- Consumers
- Resource Providers, Experts, and Others

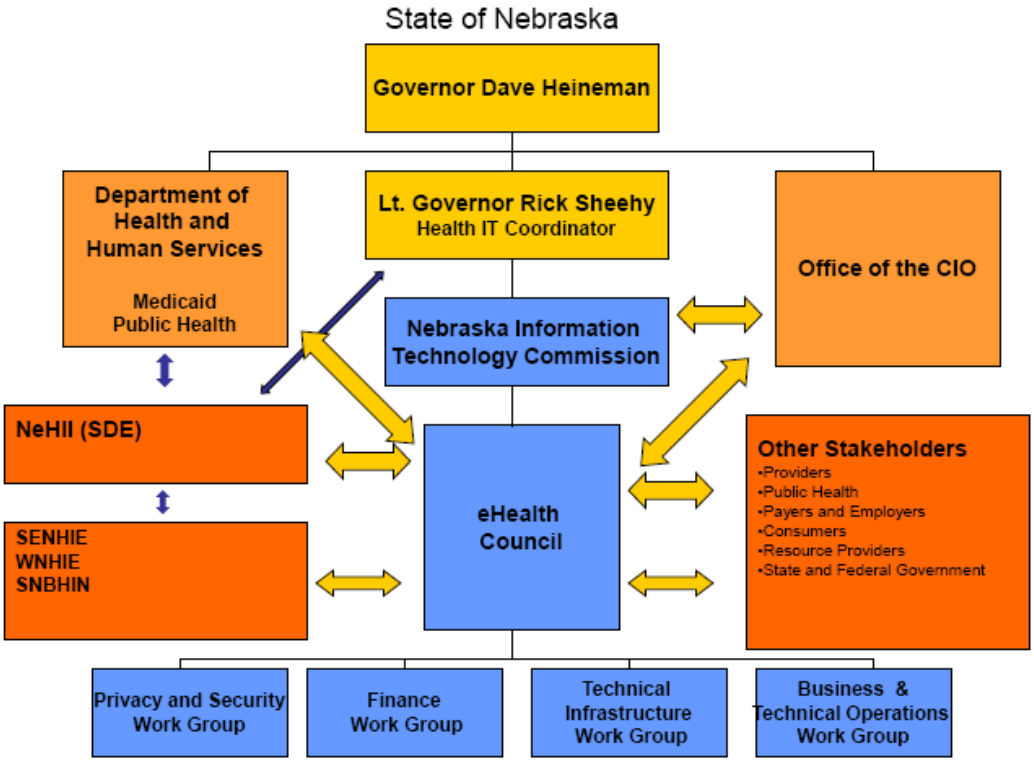
A list of eHealth Council members is included in the appendix.

The NITC and NITC eHealth Council, in cooperation with NeHII and the State Health Information Technology Coordinator, will be responsible for:

- Developing the state's Strategic and Operational eHealth Plans and application for the State Health Information Exchange Cooperative Agreement Program.
- Coordinating activities with the statewide integrator, the Health Information Technology Regional Extension Center, the state's health information exchanges, and other stakeholders.
- Working with the NeHII to support implementation efforts of the State Health Information Exchange Cooperative Agreement Program.
- Assisting the state Health Information Technology Coordinator in providing oversight over implementation of the State Health Information Exchange Cooperative Agreement Program.
- Establishing a framework for governance and oversight of health information technology in the state.
- Developing work groups to address privacy and security, fiscal integrity, interoperability, and business and technical operations.
- Making policy recommendations related to health information technology.
- Monitoring programmatic progress through scheduled reports, using approved reporting criteria and measures.
- Complying with all reporting requirements and the terms and conditions of the cooperative agreement to ensure the timely release of funds.
- Ensuring expenses and matching contributions meet all federal requirements.

- Maintaining a fiscal control and monitoring system that meets requirements for federal audits and through which fund expenditures may be tracked in accordance with federal requirements.
- Receiving, reviewing, and monitoring requests for fund advance or reimbursements from subcontractors or other end recipients of funding.
- Delivering disbursements to subcontractors or other end recipients of funding in a timely manner.

The following figure illustrates the relationships among the NITC eHealth Council, state Health IT Coordinator, statewide integrator (NeHII), and the state's health information exchanges.



State HIT Coordinator

Lieutenant Governor Rick Sheehy will serve as the State HIT Coordinator. As Chair of the NITC, he works closely with the NITC eHealth Council. He also works with the State's Medicaid program, public health programs, and the Office of the CIO. He will coordinate health information exchange efforts within the State of Nebraska and will work with the eHealth Council to facilitate health information exchange efforts across the state. He will be supported by the NITC's Community and Health IT Manager.

Responsibilities of the State HIT Coordinator include:

- Coordinating state government participation in health information exchange.
- Coordinating activities with the statewide integrator, the NITC eHealth Council, the state's health information exchanges, the Regional Health Information Exchange Cooperative Agreement Program, and other stakeholders.
- Assisting the NITC eHealth Council in the development of the state's eHealth Plan and the state's application for the State Health Information Exchange Cooperative Agreement Program.
- Assisting the NITC eHealth Council in the development of recommendations for a framework for governance and oversight of health information technology in the state and on other policy issues related to health information technology.
- Providing oversight over the implementation of the State Health Information Exchange Cooperative Agreement Program with the assistance of the NITC eHealth Council.

Statewide Integrator

As the statewide integrator, NeHII will assume the primary responsibility for implementing the State Health Information Exchange Cooperative Agreement program in Nebraska. NeHII is a Nebraska corporation organized under the Nebraska Nonprofit Corporation Act. It was formed by a collaboration of not-for-profit Nebraska hospitals, private entities, state associations, healthcare providers, independent labs, imaging centers and pharmacies. Representatives of these entities and the Lt. Governor sit on the Board of Directors of NeHII. Members of the NeHII Board of Directors are listed in the Appendix. In 2007, a Decision Accelerator meeting, with representatives of health organizations from across the state, jump started the endeavor. NeHII expects to receive its 501(c)3 tax exempt status within the next 30 days.

NeHII's responsibilities include:

- Overseeing implementation of the eHealth Plan and the cooperative agreement.
- Complying with all current and future requirements of the project, including those in the approved state eHealth plan, guidance on the implementation of meaningful use, certification criteria, and standards (including privacy and security) specified and approved by the Secretary of Health and Human Services.
- Collaborating with critical stakeholders, the NITC eHealth Council, the state Health Information Technology Coordinator, and the Office of the National Coordinator.
- Making regular reports on the fiscal and programmatic progress of the program to the eHealth Council and the state Health Information Technology Coordinator.

- Collaborating with the Medicaid Director to assist with monitoring and compliance of eligible meaningful use incentive recipients.
- Collaborating with the Regional Centers to ensure that the provider connectivity supported by the Regional Centers is consistent with the state's plan for health information exchange.
- Cooperating with the national program evaluation.
- Participating in the State Health Information Exchange Forum and Leadership Training.
- Monitoring programmatic progress through scheduled reports, using approved reporting criteria and measures.
- Working with the NITC eHealth Council and State HIT Coordinator to comply with all reporting requirements and the terms and conditions of the cooperative agreement to ensure the timely release of funds.

Nebraska Department of Health and Human Services

Successful implementation of statewide health information exchange requires coordination with the state's Medicaid program and public health programs. The Nebraska Department of Health and Human Services includes both the Division of Medicaid and Long-Term Care and the Division of Public Health. The NITC eHealth Council has three members representing the Nebraska Department of Health and Human Services, including the Medicaid Director. Inclusion of the Medicaid Director in the governance structure of NeHII is also being explored.

Transparency and Accountability

The State of Nebraska will act as the prime recipient and fiscal entity for the State Health Information Exchange Cooperative Exchange Agreement program. The State of Nebraska is committed to transparency and accountability in its handling of all funds, including ARRA funds. The State Health IT Coordinator is working closely with the State Budget Director who has also been designated as the point person for ARRA funding to make sure that all federal requirements for transparency and accountability will be met. As the SDE, NeHII will conduct an initial review of requests for payment from subrecipients to ensure that the requests are aligned with the state's eHealth Plan. Requests for payment will then be presented to the Nebraska Information Technology Commission for a final review. With approval from the NITC, funds can then be drawn down.

Key Considerations and Recommendations

- Stakeholder input should be solicited when developing policies and recommendations, including future versions of the state eHealth plan.
- Mechanisms must be put in place to ensure accountability of any funds received through the American Recovery and Reinvestment Act.

Objectives

- Address issues related to governance, oversight, and financing of health information exchange.
- Ensure transparency, accountability, and privacy.

Strategies

- Formalize the relationships among and responsibilities of NeHII as the statewide integrator, the state's health information exchanges, the Nebraska Department of Health and Human services including Medicaid and public health, the State HIT Coordinator, and the NITC eHealth Council.
- Develop mechanisms to ensure accountability and transparency.

Finance

The development of statewide health information exchange in Nebraska will require financing to both build and sustain the infrastructure to support eHealth at state, regional, and local levels. Developing and implementing interoperable HIE is a complex, multi-year process which involves a complex array of funding sources, mechanisms, recipients, and revenue sources for financing.

Nebraska has developed an initial sustainability model, based on a variety of funding mechanisms. The Nebraska Health Information Initiative (NeHII) is a fully operational and sustainable health information exchange. Currently 13 hospitals, one health plan, and over 300 individual users provide the necessary license revenue to ensure the exchange operates in a financially secure manner. Licenses are purchased from the software vendor and resold to participants based on organizational structure. The margin from the licenses is used for operating expenses. The volume of committed participants ensures operational sustainability into the future. As the SDE, NeHII provides the technical infrastructure for Nebraska, providing a stable, sustainable architecture to facilitate the sharing of health information.

Funding from the State HIE Cooperative Agreement Program will be used to accelerate and expand the development of health information exchange statewide. Grant funds will be used for start up costs for health care providers and regional and specialty health information exchanges to connect to the statewide health information exchange. This includes using funds to make these regional and specialty exchanges operational. The use of grant funds for operations, however, undermines the sustainability of health information exchange. In Nebraska grant funds will be directed toward implementation costs rather than operational costs to the extent possible. A work group of the NITC eHealth Council will be formed to monitor fiscal integrity and to make recommendations related to funding.

Ensuring Sustainability

The federal stimulus funding is designed to last four years at which time the Office of the National Coordinator will hold HIEs accountable for sustainable revenue generating business models. The HIE business models will need to deliver value to a wide variety of stakeholders. Nebraska has identified where value is being delivered in the HIE network and is tying the primary ongoing HIE revenue streams to value delivered. Nebraska will continue to explore numerous revenue models that in combination will create sustainability for the state's health information exchanges. Funding sources and programs which may be utilized include, but will not be limited to, the following:

> **Regional Extension Centers** are Technical Assistance Organizations which will provide assistance for health information technology adoption. They will have a primary care focus, but will be able to provide financial and technical assistance to many provider groups.

Medicaid and Medicare Incentives will deliver financial incentives to the states provider groups. Initially the incentives are financial rewards for meeting "meaningful use" requirements. The incentives eventually turn to penalties for not meeting meaningful use requirements.

Medicaid Administration. Administrative funds to State Medicaid Agencies can be used for administering incentive payments, conducting oversight including tracking meaningful use attestations and reporting mechanisms, and pursuing initiatives to encourage adoption of electronic medical records to promote health care quality and to exchange data. Medicaid can support activities which support health information exchange. Eligible activities can receive a 90/10 federal match.

Provider Remittance Fees. There will be numerous fee-based plans for providers to integrate with the state-level HIE and exchange health information. Nebraska's health information exchanges are exploring both subscription and transaction based fee models.

Payer Adjudication Fees. Appropriate fee-based models for the state's payers will be explored. The fee structures could range from subscription fees to per member fees or some combination.

New Technology Development. The Peter Kiewit Institute (PKI) in Omaha, Nebraska, an innovative, state-of-the-art information technology and engineering program, is working with the state of Nebraska to deliver precise formulas for determining return on investment (ROI) to each segment of health information exchange stakeholders through the use of their simulation labs.

The research capabilities and the simulation labs of PKI are eager to work in conjunction with Nebraska to develop individualized formulas for each segment of stakeholders who play a role in the HIE so they will be able to use their budget numbers, apply the formula, and determine their own individualized ROI.

Establish Models that Utilize Information on Points of Patient Care. Using the NeHII engine to identify points of care, within the confines of a patient consent model, has the potential for establishing productive business opportunities that benefit both patients and business concerns through cost savings and increased efficiencies. NeHII is currently pursuing this model with a major business organization and is under a non-disclosure agreement.

Strategic Advisory Services. NeHII is being sought after by states throughout the U.S. to provide services in the planning, development, implementation, and delivery of additional HIE functionality. This need represents significant future revenue opportunities that have the potential to benefit HIE in the State of Nebraska.

It is expected that HIE inside and outside of Nebraska will continue to benefit from expertise surrounding the development of new functionality, stakeholder capital, establishment of revenue models, modifications to operational and strategic plans, and

assistance with the implementation of additional HIE members. The resulting revenue stream is likely to grow as HIE in the U.S. continues to expand and develop.

The proposed services are wide-ranging and include:

- Personal Health Record (PHR) development and implementation
- OCR of Paper Records to HL7 formats
- Development of products providing functionality surrounding Home Healthcare
- Incorporating Spiritual Requirements in patient transfer and referral for faith-based partners of the HIE
- Claims communication and administration
- Quality analytics and biomedical research

NeHII will develop this opportunity in cooperation with the Regional Extension Center, and will rely heavily on its existing partnerships with area educational facilities to reduce costs and increase efficiencies. By working with educational facilities, NeHII will be able to create the next generation of healthcare technology professionals through internships, classroom work, and post-graduate study.

NeHII professionals will work with students to gather requirements and design technical solutions to problems using real-world methodologies and processes. Invaluable as they begin their health technology careers, students will take an active role in solution development and will build benefit from mentor relationships with professional developers to foster the dynamics of collaboration and development of new knowledge.

In return, NeHII will be active in the development of the next generation of healthcare technology leading to reduced costs and greater throughput. NeHII will make the functionality available to its own participants, and create potential revenue streams by offering it to other exchanges and healthcare technology vendors around the country. This plan allows NeHII to operate the exchange in a sustainable and efficient manner, and provides a significant revenue source that will benefit Nebraska HIE members, their patients, and the community as a whole.

Objectives

- Support the development of a sustainable business model for building and maintaining health information exchange in Nebraska.
- Leverage the state's role as a payer to support health information exchange.

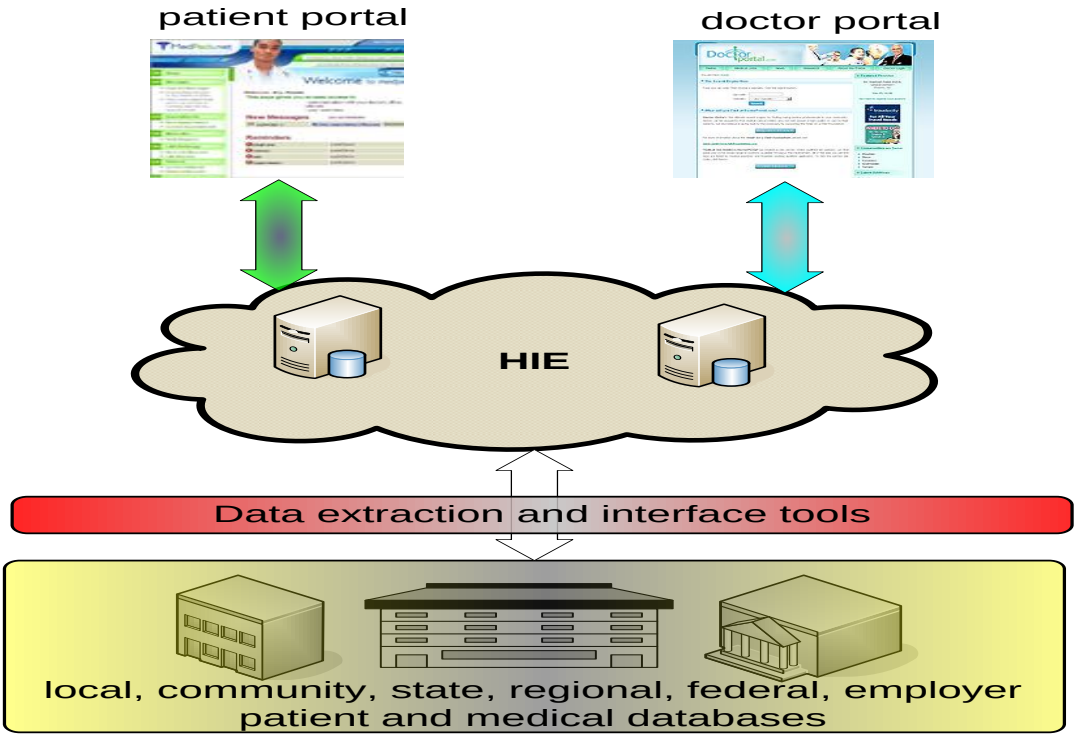
Strategies

- Encourage and support the effective use of investments, including:
    - **Leveraging existing and planned investments in health information exchange, public health, Medicaid, and other programs.** The state has four health information exchanges. The state has invested also invested in an immunization registry and electronic reporting of reportable diseases. These systems can be utilized to support meaningful use. The State is also undertaking a significant revision of its approach to development and implementation of system support for the Nebraska Medicaid Program.
    - **Leveraging Medicaid administrative funding for provider incentives.** States are authorized to receive a 90 percent federal match for administrative expenditures related to provider incentive payments for meaningful use of EHRs.
    - **Leveraging other programs which support health information exchange, workforce development, and broadband development.** The proposed Regional Center serving Nebraska is engaged as a partner in Nebraska's efforts to develop statewide health information exchange. Workforce development and broadband development programs will also be leveraged.
    - **Identifying sources of grant funding to fund start up costs and accelerate implementation.** The State Health Information Exchange Collaborative Agreement program is one source of funding for start up expenses for health information exchange efforts. Other potential sources of funding will also be identified.
- Determine where value is being delivered in the HIE network and tie the primary ongoing HIE revenue streams to value delivered.
- Market the benefits of health information exchange services to providers.

Technical Infrastructure

A statewide HIE is a "system of systems" in which participating health information systems work together within a defined architecture. The architecture consists of a set of principles, patterns and processes used to guide the design and construction of technical systems. Nebraska's technical architecture will be based upon a federation of health information exchanges and other providers, following national standards. The architecture will provide interoperability within the state. Interoperability with other states and federal care delivery providers will be made through a connection to the National Health Information Network (NHIN).

NeHII will serve as the integrator for Nebraska, creating a statewide health information exchange. The following diagram graphically represents the Nebraska HIE.



Review of the overall process is best explained beginning at the bottom of the diagram and proceeding upward. The following discussion is a high level recap of how health information is collected and then displayed.

1. Source data is originally created and maintained at various participating organizations. These include a variety of organizations such as hospitals, labs, clinics, and government organizations.
2. An interface process is established to extract and capture the necessary data which is then cleansed and normalized (a staging process) for insertion into patient datasets.

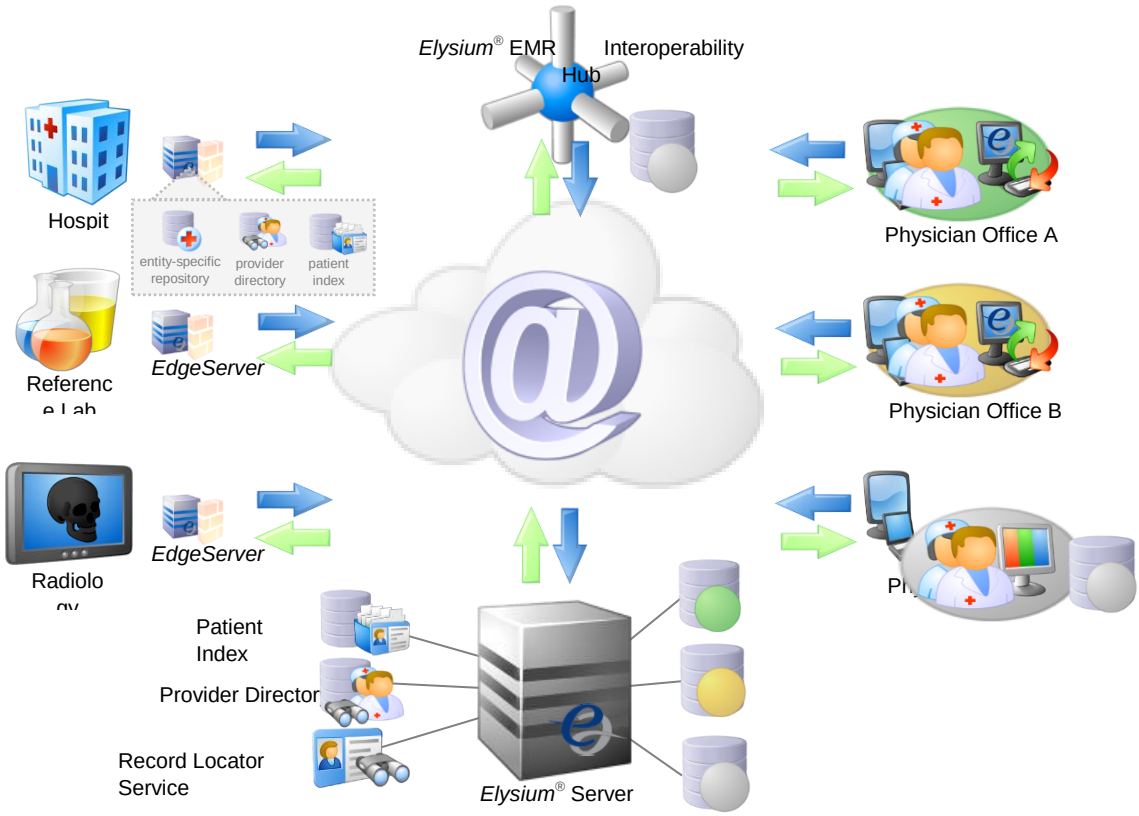
3. As a part of the staging process, the Master Patient Index (MPI) and the Record Locator Service (RLS) which indicates that a patient has medical information available at the corresponding participating organization.
4. The MPI stores limited patient demographics along with other Meta data on the patient provided by the participating organization. Using an algorithm, an automatic link is made between the associated record to the records of other connected and participating organizations for that patient.
5. After the MPI is updated with the necessary information, patient information can be securely accessed as needed – via the portal.
6. In addition to being able to obtain patient information, the portal allows the user access to data (lab results) specific to the addressee – clinical messaging.

Nebraska's statewide health information exchange will initially utilize a hybrid federated model. In this phase, the system will use a peer-to-peer network to connect all participants without maintenance of a central repository. In this model, participating providers send all clinical data messages to the HIE, which then routs the clinical message to the intended recipient. Recipients are identified when the providers indicate the recipient in the message or result header.

The process outlined above describes a hybrid method of data exchange which is a mix of both the federated and centralized models. The hybrid model uses a system of networks connected through the Internet. Participants submit clinical data to edgeservers responsible for the data management of patient identification, storage, system management, security, and privacy. The edgeservers are interconnected via a centralized Master Patient Index (MPI) or Record Locator Service (RLS). This type of architecture is simple and encourages innovation.

Advantages of this model include improved public health disease surveillance, improved communication, and the empowerment of consumers through access to healthcare information.

The servers are all located in a secure environment with complete backup and disaster recovery capability. Additionally, the information on each server is kept separately by each data provider to prevent comingling of data. The diagram below illustrates NeHII's architecture.



A phased implementation of the identified HIE services will reduce risks and help ensure success. The initial phase will involve deployment of network infrastructure as well as the clinical messaging service. Successive phases will involve deployment of medication history and finally, immunization registry.

Coordination will be provided through the NITC, the eHealth Council, and a technical infrastructure work group. The work group will include representatives of the health information exchanges and other stakeholders. The work group will be responsible for making technical recommendations to facilitate health information exchange within the state and across the U.S.

Recommendations and Conclusions

- National standards and certification processes will be used to facilitate interoperability.
- Interoperability solutions selected should be cost-effective and provide the greatest return on investment to all engaged parties, and all who benefit contribute to the cost of the investment.

Objectives

- Support the development and expansion of health information exchanges to improve the quality and efficiency of care.
- Support the development of interconnections among health information exchanges in the state and nationwide.
- Promote the development of a robust telecommunications infrastructure.
- Ensure the security of health information exchange.

Strategies

- **Facilitate participation in existing health information exchanges to ensure statewide coverage.** With NeHII and the regional and specialty health information exchanges, providers in all areas of the state have the opportunity to participate in health information exchange. Statewide health information exchange is only possible if providers choose to participate. Provider participation should be encouraged, monitored and evaluated. Provider participation can be encouraged by partnering the professional organizations to publicize successful provider implementation models. If participation rates are less than expected, efforts should be made to identify and address barriers to participation.
- **Coordinate the statewide technical infrastructure to support HIE integration.** NeHII will act as the integrator for Nebraska's regional and specialty HIEs.
- **Assure the technical architecture meets the overall clinical and policy objectives of the state.** The eHealth Council ensure the technical architecture meets the needs of the state. A work group composed of representatives of the state's HIEs will be formed to set necessary specifications and to resolve technical issues.
- **Enumerate the critical environmental assumptions that the technical architecture must address, including interactions among HIEs and other partners.** A work group composed of representatives of the state's HIEs will be tasked with enumerating the critical environmental assumptions that the technical architecture must address.
- **Address issues related to broadband access and affordability if necessary. Nebraska has a robust telecommunications infrastructure.** Nevertheless, some providers in rural areas of the state may face barriers related to broadband availability and affordability. The State of Nebraska has applied to participate in the National Telecommunications Information Administration's Broadband Mapping program. Through the program, regional technology teams will be developed to identify and address issues related to broadband availability,

affordability, and use. The program will provide a vehicle for health care providers to address any broadband-related issues.

Business and Technical Operations

Business and technical operations will support meaningful use and will be delivered efficiently through collaboration, cooperation, and consolidation. The statewide health information exchange through NeHII will provide the following services:

- Eligibility information from BlueCross BlueShield of Nebraska, Medicaid, and in the future other payers;
- Outcome and quality reporting;
- Public health reporting and population health outcomes;
- Electronic prescribing and refill requests;
- Electronic clinical laboratory ordering and results delivery;
- Prescription fill status and/or medication fill history; and
- Clinical summary exchange for care coordination and patient engagement.

Efforts will be made to collaborate and cooperate in the delivery of these services with the state's regional and specialty exchanges. As initial capability has been established, additional functionality to address meaningful use requirements is being assessed and prioritized. Funding from operational overhead and grant opportunities will be leveraged to meet the meaningful use requirements as the majority of technical issues have been successfully completed by NeHII.

The matrix on the following page illustrates how Nebraska's statewide health information exchange will address meaningful use.

Achieving meaningful use will require more than just the provision of technical services. It will also likely involve:

- Training and supporting users
- Developing a culture of patient safety
- Redesigning workflows
- Identifying and addressing new sources of errors
- Addressing legal or regulatory barriers

The eHealth Council and NeHII will work with stakeholders to discuss meaningful use objectives and identify any issues that need to be resolved. The eHealth Council formed work groups to address public health reporting and population health outcomes, e-prescribing and refill requests, and PHRs. These work groups developed conclusions and recommendations which will facilitate the widespread achievement of related meaningful use objectives. Links to the recommendations and reports of these work groups can be found in the appendix. The Business and Technical Operations Work Group of the eHealth Council will be charged with making recommendations related to achieving meaningful use and universal access.

Meaningful Use Matrix		
Nebraska eHealth Health Outcomes	**Functionality** **What functions will the HIE systems perform that will improve health outcomes?**	**Strategic Plan Related Objective**
Improve healthcare quality and efficiency	1. Aggregate reporting is available to study and improve quality of care. 2. Authorized healthcare providers have easy access to up-to-date consumer data essential to the provision of treatment. 3. Convenient and efficient communication is possible across the delivery network between provider locations. 4. Automated upload of consumer data required decreases staff data entry time due to a single point of data entry. 5. Access to a centralized Nebraska database allows efficiency in collecting historical treatment information necessary to provide quality healthcare. 6. Collection and access to aggregate data to meet Federal reporting requirements is simplified and data integrity improved. 7. Over time, a decrease in the cost to provide care will occur. 8. The system will experience collective ability to leverage overall reduced costs of healthcare. 9. Providers are able to retrieve and act on electronic prescription fill data i.e. pick-up. 10. Providers can perform medication reconciliation at each transition of care from one healthcare setting to another. 11. Reduction in the number of duplicative lab tests conducted.	Adoption 1. & 2. Governance 1. & 2. Finance 1. & 2. Technical Infrastructure 1. & 2.
Improve consumer care and consumer safety	1. Providers can manage chronic conditions using consumer lists and decision support. 2. Providers can produce an electronic summary care record for every transition in care (place of service, consults, discharge, etc.). 3. Providers can access comprehensive consumer data from all available sources. 4. Immediate access to up-to-date complete medical records in an emergency situation improves treatment outcome. 5. Known individual consumer adverse treatment reactions are readily available. 6. The timeliness and coordination of treatment improves through electronic transmittal of lab results. 7. Provider notification of need for regular lab tests. 8. Timeliness of lab tests improved.	Technical Infrastructure 4. Business and Technical Operations 1. Legal and Policy 1.

Meaningful Use Matrix		
Nebraska eHealth Health Outcomes	**Functionality** **What functions will the HIE systems perform that will improve health outcomes?**	**Strategic Plan Related Objective**
Improve consumer outcomes using evidence-based practices	1. Providers have easy access to up-to-date consumer medical records increasing evidence-based treatment decisions. 2. Providers have access to evidence-based order sets reducing treatment errors.	
Encourage greater consumer involvement in personal health care decisions		Adoption 3. & 4. Legal and Policy 2.
Enhance public health and disease surveillance efforts	1. Summarized or de-identified data, when sufficient to satisfying a data request for population health purposes is readily available. 2. Timely reporting to external disease or device registries is possible.	Business and Technical Operations 2.
Improve consumer access to health care	1. Systematic identification of healthcare disparities is possible. 2. Consumers experience timely access to services due to centralized management of referral and wait list data. 3. Ability to effectively utilize telehealth/telemedicine due to availability of on-line access to consumer information is increased. 4. Duplication of consumers on multiple wait lists for services is eliminated which increases timely consumer access to appropriate level of care.	Technical Infrasturcture 3. Business and Technical Operations 3.

Nebraska will implement statewide health information exchange using an incremental approach based on readiness and investments in health IT. NeHII's infrastructure is in place and is scalable. Hospitals, physician practices, and other health care providers can connect to NeHII whenever they are ready. The operational plan will detail the implementation schedule to connect to the state's regional and specialty exchanges. Nebraska also intends to connect to the National Health Information Network (NHIN). The timing of that connection will be determined by both the state's readiness to connect and the participation of other states or federal care delivery systems in NHIN.

The state will leverage existing and planned efforts in order to spur statewide expansion of health information exchange. NeHII and the state's regional and specialty exchanges

will partner with the Regional Center to support providers in their efforts to achieve meaningful use. Efforts will also be made to partner with the professional medical associations in the state.

Nebraska has been represented in national discussions regarding meaningful use. NeHII has a representative on the HIT policy workgroups to develop meaningful use criteria.

Objectives

- Support meaningful use.
- Encourage the electronic exchange of public health data.
- Encourage the integration of health information exchange with telehealth delivery.

Strategies

- Continuously assess and prioritize additional functionality to address meaningful use requirements.
- Support the development of effective analytics reporting for decision support and quality reporting.
- Encourage and support e-prescribing and refill requests.
- Provide prescription fill status and/or medication fill history.
- Encourage and support the provision of electronic health information to patients.
- Partner with payers and other stakeholders to develop strategies to improve care coordination and quality and efficiency of health care.
- Encourage electronic reporting and use of public health data.
- Provide electronic eligibility and claims transactions.
- Provide electronic clinical laboratory ordering and results delivery.
- Provide clinical summary exchange for care coordination and patient engagement.

Legal/Policy

Privacy and security is paramount to the successful exchange of health information. The Health Insurance Portability and Accountability Act of 1996, known as "HIPAA," provides federal protections for health information. Nebraska's health information exchange privacy and security policies have been developed to be in compliance with HIPAA. The NITC eHealth Council will coordinate with the Attorney General's Office, State HIT Coordinator, and the privacy and security officers of the state's HIEs to develop a framework for privacy and security enforcement.

Through the national Health Information Security and Privacy Collaborative, Nebraska has addressed minimum policy requirements regarding authentication and audit for interstate data exchange. Efforts have also been undertaken to ensure that Nebraska's laws do not present a barrier to the exchange of health information. Consumer needs and concerns have also been considered. Research indicates that Nebraskans have positive views about sharing health information electronically, but do have some privacy and security concerns. Additionally, consumer outreach materials are being developed.

Federal and State Laws

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) is the most important federal law affecting health information sharing. The HIPAA Privacy Rule provides federal protections for personal health information held by covered entities and gives patients an array of rights with respect to that information. The Privacy Rule is also balanced so that it permits the disclosure of personal health information needed for patient care and other important purposes. HIPAA allows for the sharing of personal health information for treatment, payment, and operations, without consumer consent. Providers are required to report incidences of certain diseases, births, deaths, trauma incidences, etc. to public health agencies, and may make other disclosures of consumer information for specified health and safety purposes. The HITECH Act introduced new security and privacy requirements, extending HIPAA requirements to business associates of covered entities and requiring notification of breaches. The HITECH Act also authorized State Attorney Generals to enforce HIPAA provisions. Certain types of health information receive additional protection under federal law. For example, Section 42 of the Code of Federal Regulations requires consent for the release of alcohol and drug abuse treatment facility information.

The Legal Work Group of the Nebraska Health Information Security and Privacy Committee (HISPC) reviewed Nebraska health information disclosure laws to identify laws more stringent than HIPAA. Neb. Rev. Stat. 71-8403 stipulates that authorizations for release of medical records are valid for a maximum period of 180 days. The group recommended deleting the 180-day restriction. HIPAA requirements would then apply, allowing consumers to state an expiration date or expiration event. Legislation will likely be introduced next year to eliminate the 180-day limit. The eHealth Council and E-Prescribing Work Group also identified a potential barrier to e-prescribing in a Nebraska

statute that requires pharmacists to keep paper copies of prescriptions. LB 195, which was signed into law this year, included a change to this statute which would allow pharmacists to keep copies of prescriptions in a readily retrievable format. A more extensive legal review was conducted to identify Nebraska laws, regulations and statutes that govern the specific areas of behavioral health information and predictive genetic testing. A link to findings from this review is available in the appendix.

Policies

Nebraska's statewide health information exchange has developed security and privacy policies. NeHII uses an opt-out policy for consumer consent. The default is set to include the information in the system unless the consumer takes action to opt-out of the health information exchange.

Through the national Health Information Security and Privacy Collaborative, Nebraska addressed minimum policy requirements regarding authentication and audit for interstate data exchange. The Adoption of Standards Collaborative conducted an in-depth analysis of security and privacy policies related to authentication and audit. Nebraska's health information exchanges participated in a review of their policies as part of this project. Participation in the national HISPC initiative has also facilitated communication with other states regarding health information security and privacy. As an extension of the HISPC 3 work, Nebraska has completed work on three different but related challenges: 1) Consumer Education, 2) Provider Education, and 3) Authentication and Access Control for the Nebraska immunization registry.

The Health Information Security and Privacy Work Group will recommend minimum and security and privacy policies for the state and will address harmonization of business practices related to authentication, audit, authorization and access.

Trust Agreements

In order to ensure health information security and privacy, health information exchanges must put in place signed trust agreements which allocate responsibilities and accountability. Trust agreements establish common agreement on essential policies. Each health information exchange must have trust agreements with end users which address compliance with applicable law, cooperation with other health information exchanges, requirements to the health information network only for "permitted purposes," limitation on the future use of data received through the health information exchange, and security measures regarding password protection. A Data Use and Reciprocal Support Agreement (DURSA) is a comprehensive, multi-party trust agreement that must be signed by health information exchanges wishing to exchange data with other exchanges. Nebraska's health information exchanges have developed trust agreements with their end users. The state's Health Information Security and Privacy Work Group, consisting of the privacy and security officers of the state's health information exchanges and other stakeholders, will facilitate the develop of DURSAs for

Nebraska exchanges.

Coordination, Oversight and Enforcement

The NITC eHealth Council will establish a collaborative infrastructure with the ongoing capacity to identify issues, consider options, and advance recommendations through a transparent and inclusive decision-making process. A Privacy and Security Work Group of the eHealth Council will be formed, consisting of the privacy and security officers of the state's health information exchanges as well as other stakeholders. The work group will be charged with:

- Continuing to review and update privacy and security policies;
- Investigating statutory barriers to health information exchange;
- Facilitating the development of trust agreements;
- Recommending minimum and security and privacy policies for the state; and
- Addressing the harmonization of business practices related to authentication, audit, authorization and access.

The NITC eHealth Council will coordinate with the Attorney General's Office, State HIT Coordinator, and the privacy and security officers of the state's HIEs to develop a framework for privacy and security enforcement.

Consumer Research and Education

The University of Nebraska Public Policy Center conducted a deliberative discussion and survey on sharing health information electronically on Nov. 17, 2008, building upon the consumer research conducted by the Creighton Health Services Research Program for the Nebraska HISPC. The deliberative discussion and survey indicated that Nebraskans have positive views about sharing health information electronically, but do have some privacy and security concerns. Most participants in the deliberative discussion felt that the State of Nebraska had a role in ensuring the privacy and security of health information (100%), providing information to consumers about health information security and privacy (94%), regulating health information networks (91%), and facilitating public-private partnerships to exchange health information (88%). [20]

Additionally the Education Work Group is working with the Creighton Health Services Research Program to develop a website and consumer education brochure in conjunction with the national HISPC program. NeHII is also funding a statewide consumer education campaign beginning August 2009 utilizing public service announcements, town hall

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[20] Abdel-Monem, Tarik, and Herian, Mitchel, Sharing Health Records Electronically: The Views of Nebraskans, University of Nebraska Public Policy Center, December 11, 2008,

http://ppc.unl.edu/userfiles/file/Documents/projects/eHealth/Sharing_Health_Records_Electronically_Final_Report.pdf, accessed on June 25, 2009.

meetings, television and radio interviews, brochures for distribution etc. to address this identified need.

NeHII has been tracking the opt-out rates since pilot implementation in March 2009. The percentage of consumers opting out of the health information exchange has ranged consistently between 1 and 2%.

Key Considerations and Recommendations

- Privacy and security are key requirements for the exchange of health information exchange.
- Privacy and security policies and practices will continue to evolve in response to changes in the legal environment and technological changes.
- Nebraska's privacy and security laws may need to be further reviewed in light of the HITECH ACT. Compliance may require ongoing monitoring and policy changes.
- Although consumers are generally supportive of the use of health information technology, efforts should be made to educate consumers on how their health information is used, how it is protected, and what privacy rights they have.
- Providers may also need information and training on privacy and security laws and practices.
- A mechanism for consumers to confidentially report concerns about the handling of personal health information and their health data should be established independently from the statewide integrator. Information for consumers about this mechanism should be widely disseminated by the state and publicly accessible.

Objectives

- Continue to address health information security and privacy concerns of providers and consumers.
- Build awareness and trust of health information technology.

Strategies

- Coordinate with the Attorney General's Office, State HIT Coordinator, and the privacy and security officers of the state's HIEs to develop a framework for privacy and security enforcement.
- Continue to review and update privacy and security policies.
- Investigate statutory barriers to health information exchange.

- Provide information on privacy and security to providers and consumers through a statewide consumer education campaign, a privacy and security website, and a brochure for statewide distribution.
- Establish a collaborative infrastructure with the ongoing capacity to identify issues, consider options, and advance recommendations through a transparent and inclusive decision-making process.
- Encourage the harmonization of policies related to access, authentication, audit and authorization.

Appendix A

eHealth Council and Work Group Members

eHealth Council Members

The State of Nebraska/Federal Government

- Steve Henderson, Office of the CIO
- Senator Annette Dubas, Nebraska Legislature
- Dennis Berens, Department of Health and Human Services, Office of Rural Health
- Congressman Jeff Fortenberry, represented by Marie Woodhead

Health Care Providers

- Daniel Griess, Box Butte General Hospital, Alliance
- Dr. Delane Wycoff, Pathology Services, PC
  - Dr. Harris A. Frankel (alternate)
- Joni Cover, Nebraska Pharmacists Association
- September Stone, Nebraska Health Care Association
- John Roberts, Nebraska Rural Health Association

eHealth Initiatives

- Donna Hammack, Nebraska Statewide Telehealth Network and St. Elizabeth Foundation
- Ken Lawonn, NeHII and Alegent Health
- Harold Krueger, Western Nebraska Health Information Exchange and Chadron Community Hospital
- Wende Baker, Electronic Behavioral Health Information Network and Region V Systems

Public Health

- David Lawton, Department of Health and Human Services, Public Health Assurance
- Jeff Kuhr, Three Rivers Public Health Department, Fremont
  - Rita Parris, Public Health Association of Nebraska, alternate
- Kay Oestmann, Southeast District Health Department
  - Shirleen Smith, West Central District Health Department, North Platte, alternate
- Dr. Keith Mueller, UNMC College of Public Health

Payers and Employers

- Susan Courtney, Blue Cross Blue Shield
- Ron Hoffman, Jr., Mutual of Omaha
- Vivianne Chaumont, Department of Health And Human Services, Division of Medicaid and Long-Term Care

Consumers

- Nancy Shank, Public Policy Center
- Alice Henneman, University of Nebraska-Lincoln Extension in Lancaster County

Resource Providers, Experts, and Others

- Joyce Beck, Thayer County Health System
- Kimberly Galt, Creighton University School of Pharmacy and Health Professions

PHR Work Group Members

- Henry Zach, HDC 4Point Dynamics
- Marsha Morien, UNMC
- Ellen Jacobs, College of St. Mary
- Anne Skinner, UNMC
- Dan Griess, Box Butte General Hospital
- Clint Williams, Blue Cross Blue Shield of Nebraska
- Lisa Fisher, Blue Cross Blue Shield of Nebraska (alternate)
- Dr. James Canedy, Simply Well
- Michelle Hood, Nebraska Department of Health and Human Services, Immunization Registry
- Kevin Fuji, Creighton University
- Roger Wilson, State of Nebraska, Human Resources
- David Lawton, Nebraska Department of Health and Human Services
- Karen Paschal, Creighton University

E-Prescribing Work Group Members

- Mark Siracuse, E-Prescribing Work Group Chair, Creighton University
- Wende Baker, Electronic Behavioral Health Information Network
- Deb Bass, Bass and Associates
- Joyce Beck, Thayer County Health System and Southeast Nebraska Health Information Exchange
- Kevin Borcher, Nebraska Methodist Health System & Nebraska State Board of Pharmacy
- Anne Byers, Nebraska Information Technology Commission
- Gary Cochran, UNMC
- Kevin Conway, Nebraska Hospital Association
- Joni Cover, Nebraska Pharmacists Association
- Eric Gall, RP
- Kimberly Galt, Creighton University
- Dave Glover, Family Practice Associates, Kearney
- Chris Henkenius, Bass and Associates
- Tony Kopf, Nebraska State Board of Pharmacy
- David Lawton, Nebraska Department of Health and Human Services
- Dale Mahlman, Nebraska Medical Association
- Marcia Mueting, Nebraska Pharmacists Association
- Carey Potter, National Association of Chain Drug Stores
- September Stone, Nebraska Health Care Association
- Clint Williams, Blue Cross and Blue Shield of Nebraska (also representing NeHII)

Public Health/eHealth Work Group Members

Nebraska Department of Health and Human Services

- Public Health Informatics & Biosecurity--David Lawton
- Administration--Dr. JoAnn Schaefer
- Public Health Data--Dave Palm and Colleen Svoboda (alternate)
- Immunization Registry--Michelle Hood
- Epidemiology--Tom Safranek
- EMS—Doug Fuller
- Licensure—Helen Meeks and Joann Erickson (alternate)
- Vital Stats—Stan Cooper or Mark Miller

Local Health Departments or Districts

- Douglas County Health Department— Anne O'Keefe
- Lincoln-Lancaster County Health Department—Bruce Dart and Kathy Cook (alternate)
- Nebraska SACCO/Two Rivers Public Health Department—Terry Krohn
- Three Rivers Public Health Department--Jeff Kuhr

Health Information Organizations

- NeHII (Nebraska Health Information Initiative)—Kevin Conway
- eBHIN (Electronic Behavioral Health Information Network)--Wende Baker
- WNHIE (Western Nebraska Health Information Exchange)--Kim Engel and Kim Woods (alternate)

UNMC College of Public Health

- Chair: Keith Mueller and Li-Wu Chen (alternate)

Other Key e-Health Public Health Entities with Decision-making Authority

- Public Health Association of Nebraska--Rita Parris

Providers and Provider Associations

- Nebraska Health Information Management Association—Kim Hazelton
- Douglas County Community Mental Health Center—John Sheehan
- UNMC—Dr. James Campbell

NITC Staff

- Anne Byers

Appendix B

Reports, Recommendations, and Related Research

Adoption

Related Research

- Creighton Health Services Research Program Report: Status of Health Information Technology In Nebraska: Focus on Electronic Health Records in Physician Offices (2008)
- Creighton Health Services Research Program Report: State of Patient Safety in Nebraska Pharmacy (2008)

Work Group Reports and Recommendations

- E-Prescribing Work Group Report and Recommendations (2009)
- PHR Work Group Report and Recommendations (2009)

Interoperability

Work Group Reports and Recommendations

- HIE representatives recommendations (pending)

Privacy and Security

Related Research

- Baird Holm Legal Review (2009)
- University of Nebraska Public Policy Center Report: Sharing Health Records Electronically: The Views of Nebraskans (2008)
- Creighton Health Services Research Report: Survey of Health/Licensure/Certification and Facilities Oversight Board Managers (2007)
- Creighton Health Services Research Report: Survey of Health Professions Organizations Leadership (2007)
- Creighton Health Services Research Report: Study of Consumer View Points on Health Information, Security, and Privacy (2007)

Work Group Reports and Recommendations

- HISPC Summary Report—Executive Summary Only (2009)
- HISPC Summary Report (2009)
- HISPC: Security and Privacy Barriers to Health Information Interoperability (2007)
- HISPC: Recommendations Summary (2007)

See http://www.nitc.nebraska.gov/eHc/plan/reports/ for the latest list of reports, recommendations and related research.

Appendix C

Health Information Exchanges

NeHII

NeHII is the state's largest health information exchange. As the statewide integrator, NeHII will assume the primary responsibility for implementing the State Health Information Exchange Cooperative Agreement program in Nebraska.

Governance. NeHII is a Nebraska corporation organized under the Nebraska Nonprofit Corporation Act. It was formed by a collaboration of not-for-profit Nebraska hospitals, private entities, state associations, healthcare providers, independent labs, imaging centers and pharmacies. Representatives of these entities and the Lt. Governor sit on the Board of Directors of NeHII. Members of the NeHII Board of Directors are listed in the Appendix. In 2007, a Decision Accelerator meeting, with representatives of health organizations from across the state, jump started the endeavor. NeHII expects to receive its 501(c)3 tax exempt status within the next 30 days. NeHII's Board of Directors is listed below.

NeHII Elected Directors

- **President:** Harris Frankel, MD, Goldner, Cooper, Cotton, Sundell, Frankel, Franco Neurologists, Omaha, NE
- **Vice President:** Ken Lawonn, Alegent Health System, Omaha, NE
- **Secretary:** George Sullivan, Mary Lanning Memorial Hospital, Hastings, NE
- **Treasurer:** Steve Martin, Blue Cross and Blue Shield of Nebraska
- Delane Wycoff, MD - Pathology Services PC, North Platte, NE
- Michael Westcott, MD - Alegent Health System, Omaha, NE
- Lisa Bewley - Regional West Medical Center, Scottsbluff, NE
- Dan Griess - Box Butte General Hospital, Alliance, NE
- Roger Hertz - Methodist Health System, Omaha, NE
- Bill Dinsmoor - The Nebraska Medical Center, Omaha, NE
- Ken Foster – BryanLGH Health System, Lincoln, NE
- Gary Perkins – Children's Hospital & Medical Center, Omaha, NE
- Vivianne Chaumont, Director of Medicaid and Long-Term Care, Lincoln, NE

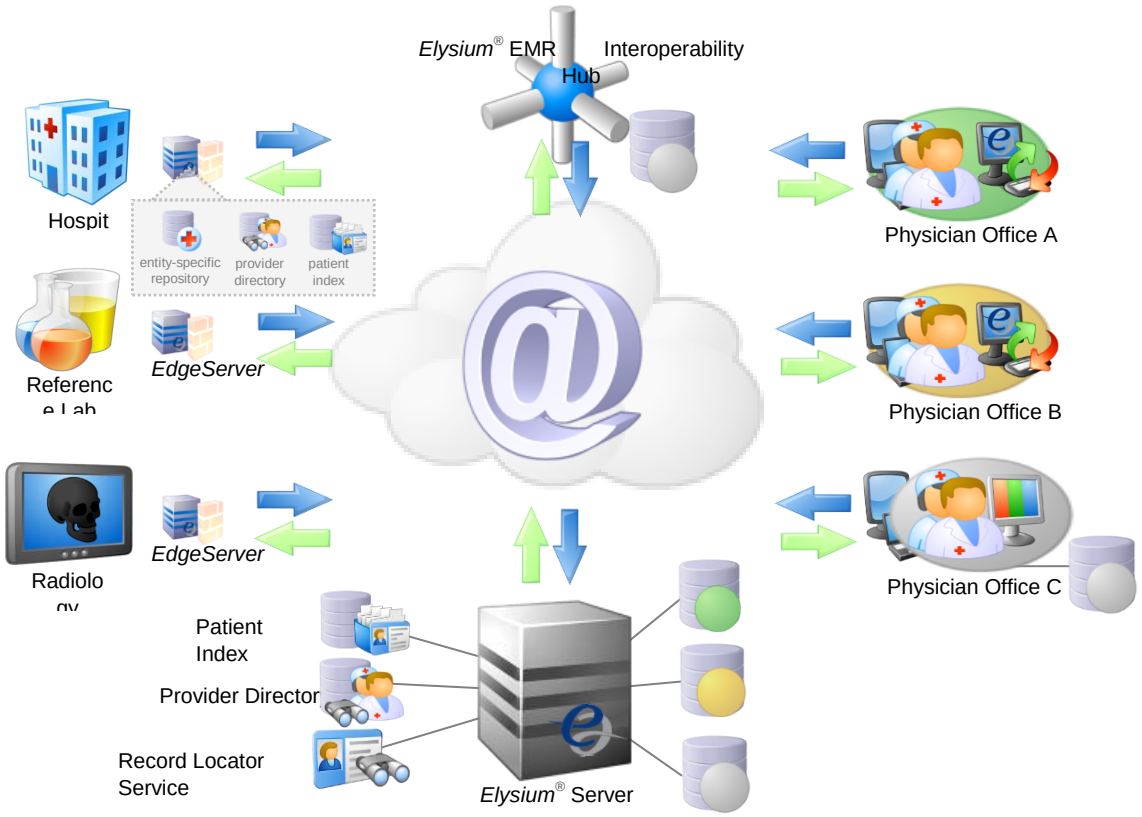
NeHII Appointed Directors

- Lt. Gov. Rick Sheehy
- Kevin Conway - Professional Organizations, Nebraska Hospital Association, Lincoln, NE
- Deb Bass - Executive Director, Bass & Associates Inc., Omaha, NE
- Sandy Johnson, Consumer Representative

Business Model. The business model for NeHII is structured to be fully sustainable through the issue of operating licenses. NeHII purchases licenses from the software vendor and sells them to participants based on organizational structure. The margin from the licenses is used for operating expenses.

Technical Infrastructure and Business Operations. NeHII is a hybrid federated model in which providers send data to unique Edge Servers in standard transaction formats through VPN. Providers access the interoperability hub through the internet to access information using a master patient index and record locator service.

The servers are all located in a secure environment with complete backup and disaster recovery capability. Additionally, the information on each server is kept separately by each data provider. The diagram below illustrates NeHII's architecture.



Business and technical operations will support meaningful use and will be delivered efficiently through collaboration, cooperation, and consolidation. The statewide health information exchange through NeHII will provide the following services:

- Eligibility information from BlueCross BlueShield of Nebraska, Medicaid, and possibly other payers.
- Outcome and quality reporting

- Public health reporting and population health outcomes
- Electronic prescribing and refill requests
- Electronic clinical laboratory ordering and results delivery
- Prescription fill status and/or medication fill history
- Clinical summary exchange for care coordination and patient engagement

As initial capability has been established, additional functionality to address meaningful use requirements is being assessed and prioritized. Funding from operational overhead and grant opportunities will be leveraged to meet the meaningful use requirements as the majority of technical issues have been successfully completed by NeHII.

NeHII has been involved in national discussions on the definition of meaningful use and has a representative on the HIT policy workgroups to develop meaningful use criteria.

Legal/Policy. NeHII has developed extensive privacy and security policies with broad stakeholder representation using nationally recognized legal health IT experts to support the statewide health information exchange. Other states have expressed interest in purchasing the policies for use within their state health information exchange projects.

SENHIE

The Southeast Nebraska Health Information Exchange (SENHIE) was formed as a result of Thayer County Health Services (TCHS) receiving a Critical Access Hospital-HIT grant enabling them to create an electronic health information exchange across the continuum of care for the patients of TCHS. Health information exchange occurs between EMS, clinics, hospital, nursing homes, assisted living pharmacy and tertiary hospital for the patients of TCHS. Exchange members include Thayer County Health Services, Blue Valley Lutheran Home, Blue Valley Care Home, The Gardens, Parkview Haven Nursing Home, Meadowlark Heights, Priefert's Pharmacy, St. Elizabeth Regional Medical Center, Hebron Fire and Rescue, Deshler Fire and Rescue, and Thayer County Ambulance.

Governance..The governance is currently the responsibility of Thayer County Health Services. The CEO together with the Board of Directors for Thayer County Health Services is responsible for the oversight of SENHIE.

Business Model. SENHIE has strong community support and has developed a sustainable business model for sustaining operations. SENHIE used grant funds for initial development of the project.

Techncical Infrastructure and Business Operations. The project goals will include enhancing interoperability between Thayer County Health Services and the six long term care facilities, St. Elizabeth Regional Medical Center and Priefert Pharmacy. Currently long term care in Thayer County has portal accessibility to medical records. In the future we would enhance the connectivity and allow an exchange of information between TCHS and afore mentioned entities. This enhancement would allow long term care facilities in Thayer County to have access to their residents' clinic EMR at Thayer County Health Services. Allowing this access would enable long term care facilities to obtain necessary lab and radiology results. Long term care nurses would message physicians with care concerns and in turn TCHS physicians would message long term care with physician orders. Medication orders would be placed electronically through E-prescribing software which automatically updates the clinic EMR as well as the hospital retail pharmacy. The hospital retail pharmacy would then produce the e-mar for the long term care facility to access/use. The long term care facility would use the e-mar as their medication administration record providing administration records back to the hospital retail pharmacy. This system would allow for medication reconciliation between the long term care facilities, the clinic EMR, and hospital retail pharmacy. The other piece of information that would be exchanged would be updated allergy information. Medication reconciliation and the exchange of current allergy information greatly impacts patient safety. This enhanced interoperability would be made possible through Mirth Corporation.

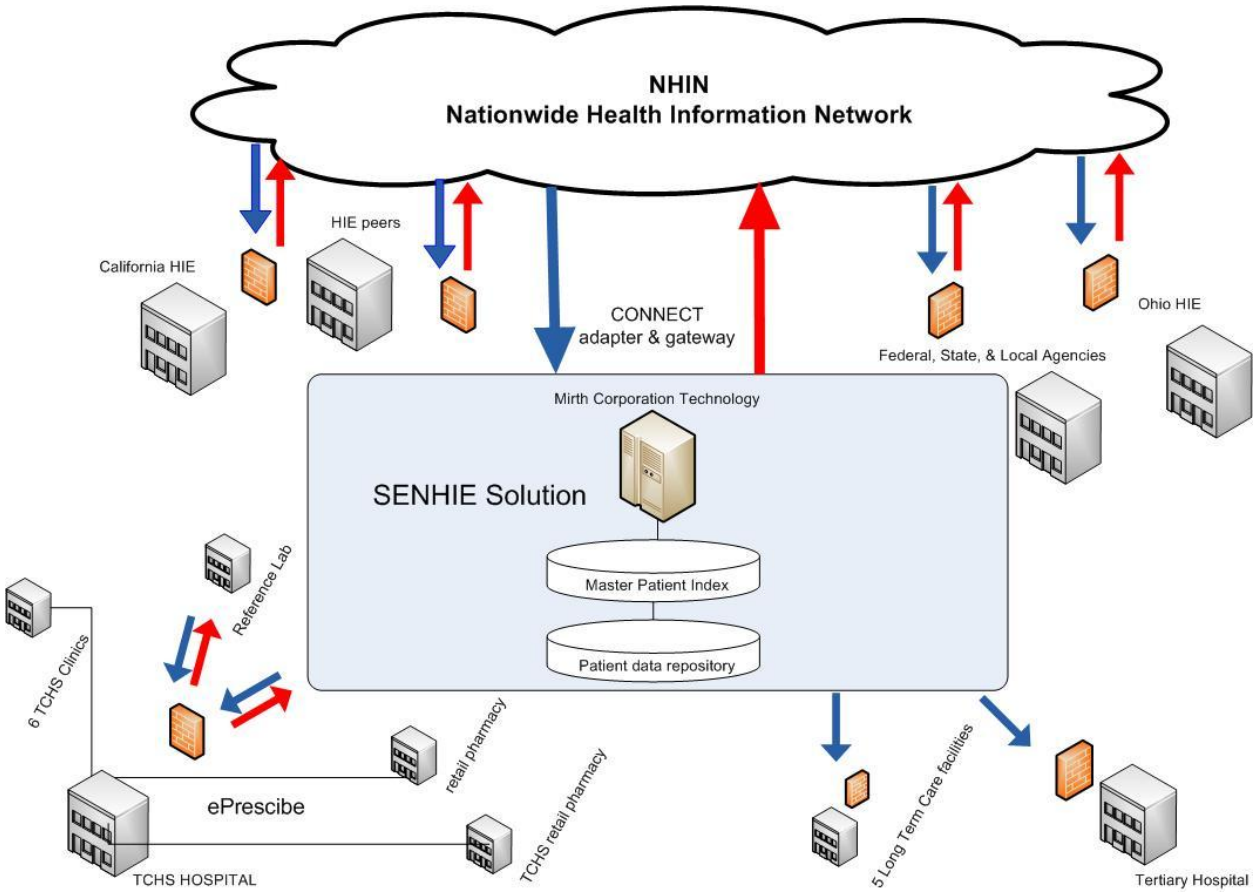
In addition the same technology would be utilized to allow lab results to be available to long term care facilities at the same time it is available to Thayer County Health Services. Mirth technology would be utilized for communication to take place between Nebraska LabLinc and Thayer County Health Services. The same technology would then be used to communicate long term care residents' lab results to their respective facility making the necessary information available to all entities involved in the care of the resident. In house lab results would also be

available to the long term care facilities through Mirth technology. This would allow results to be available to the long term care facilities as it is available to TCHS.

Also included in future projects will be an enhanced connection with Priefert Pharmacy. Currently hospice patients receive medications from Priefert Pharmacy. This medication information would be made available between Priefert Pharmacy and the retail pharmacy at TCHS through a QS1 to QS1 connection between the two facilities. This would again allow for proper medication reconciliation and current allergy information.

In addition connectivity to the tertiary facility SERMC would allow for patient information exchange to TCHS. This exchange would utilize Mirth technology to enhance current electronic communication. This would greatly benefit the shared patient base at the time of transfer.

SENHIE's architecture is illustrated below.



Legal/Policy. SENHIE'**s** privacy and security regulations are up to date with current regulations and meet all regulations with the use of secure data, filtering information and allowing access to those that need access by segregating the patient population for the entity they reside. Agreements such as business associate agreements have been put in place.

eBHIN

The Electronic Behavioral Health Information Network (eBHIN) will connect behavioral health providers in Southeast Nebraska.

Governance. eBHIN is a tax exempt 501(c)3 private, non-profit corporation that serves as a Regional Health Information Organization (RHIO) for providers of Behavioral Health services in southeast Nebraska. The governing Board of Directors is made up of stakeholder representatives who have been working together since 2003 to promote health information exchange as a means to improve patient care, integrate with primary care and improve efficiency of behavioral health care service delivery. The RHIO serves as the primary governing body providing oversight for the financing, development, and implementation of a Health Information Exchange (HIE) among behavioral health providers in southeast Nebraska. eBHIN will offer HIE services to other Behavioral Health regions in Nebraska as made possible by time and resources. eBHIN Board Members are listed below:

eBHIN Board Members

- Ken Foster, BryanLGH Medical Center & Heartland Health Alliance
- C.J. Johnson, Region V Systems
- Dean Settle, Community Mental Health Center of Lancaster County
- Shannon Engler, BryanLGH Medical Center Mental Health Services
- Jon Day, Blue Valley Behavioral Health
- Julie Fisher-Erickson, Lutheran Family Services
- Joleen TenHulzen Huneke, Southeast Rural Physicians Alliance
- Jonah Deppe, National Alliance for the Mentally Ill
- Kevin Karmazin, Lutheran Family Services/Community Mental Health Center

Network Members

- Blue Valley Behavioral Health Center
- CenterPointe
- Child Guidance Center
- Community Mental Health Center of Lancaster County
- Cornhusker Place
- Houses of Hope
- Lincoln Council on Alcoholism and Drugs
- Lincoln Medical Education Partnership
- Lutheran Family Services
- Mental Health Association
- Region V Systems
- St. Monica's

Business Model. Fund development for system sustainability will include the establishment of provider maintenance fees and the pursuit of other funding sources including local, state, and

federal support. The recruitment of additional providers will also be a focus To address disparities in provider capacity, eBHIN is subsidizing the maintenance fees initially with incremental increases in member contributions of maintenance and membership fees over the five years of the project to help providers to transition resources.

Technical Infrastructure and Business Operations. The eBHIN HIE will include software with true enterprise architecture for the six Behavioral Health Regions of the state and the behavioral healthcare providers contracting with the Regions. Accessible via web portal, this enterprise architecture is a software solution that operates on a single database or Central Data Repository (CDR) that supports the unique requirements of multiple organizations, multiple provider organizations, and multiple locations. The CDR proposed for this HIE system will include a centralized data base with the functional capability of maintaining wait list/referral management coordination functionality, easy access to centralized consumer data, cost efficiencies, e-prescribing and lab results .

eBHIN is using a hybrid Federated model, also known as a Blended model. The Central Data Repository will contain data which is common and relevant to all behavioral healthcare providers in the RHIO. The Document Locator Service will be used to share other data and documents among providers for those consumers who haven't excluded themselves. It is an index of the location of documentation held by participating organizations. The CDR proposed for this HIE system will include a centralized data base with the functional capability of maintaining wait list/referral management coordination functionality, easy access to centralized consumer data, cost efficiencies, e-prescribing and lab results .

Legal/Policy. A special consideration for the **eBHIN** project is that in addition to the requirements specified through the Health Insurance Privacy and Portability Act, The Code of Federal Regulations (CFR) Subpart 42 defines additional privacy constraints governing mental health and substance abuse medical records. The code specifically outlines the requirement for Patient Authorization to be obtained in order to share treatment information between providers. For this reason, the "opt-in" system of record sharing authorization will be employed. All access to consumer records is driven by consumer consent, but also by the "need to know" role based access to records will limit the viewing of consumer information specific to the task performed by the person viewing it. In addition to system design, these issues will be addressed in both the Participation Agreements and Network Policies and Procedures.

WNHIE

Governance. The Western Nebraska Health Information Exchange (WNHIE) built health IT capacity in the Panhandle and developed plans to create a regional health information exchange. The Western Nebraska Health Information Exchange (WNHIE) is a collaborative effort of the major healthcare providers in the Panhandle. Partners who have developed the Exchange have been working together since 2004. The operating body, the Western Nebraska Health Information Exchange is an LLC organized under Nebraska State law. The Rural Nebraska Healthcare Project is its "parent" organization. A seven-member board is responsible for overseeing the planning and implementation of the Exchange. The Exchange Managers are listed below:

Exchange Managers

- Lisa Bewley, President - Regional West Medical Center (CIO)
- Kim Engel - Panhandle Public Health District (Executive Director)
- Danielle Gearhart - Memorial Health Center (CEO)
- Dan Griess - Box Butte General Hospital (CEO)
- David Griffiths - Regional West Medical Center (CFO)
- Jeff Tracy, Vice President - Panhandle Community Services Health Clinic (Director)
- Sharyn Wohlers, Secretary-Treasurer - Panhandle Mental Health Center (Regional Administrator)

Appendix D

Document History

October 2010—The Strategic Plan was completed and submitted to the Office of the National Coordinator with the State's application for the State HIE Cooperative Agreement program.

April 2010—Updates were made to the status of HIEs and NeHII's role as statewide integrator and lead HIE was clarified. The revised strategic plan and operational plan were submitted to the Office of the National Coordinator.

July 2010—Information on structured laboratory results and summary care record exchange were added to the environmental scan in response to comments from the Office of the National Coordinator

Sept. 2010—Additional information on structured laboratory results and e-prescribing were added to the environmental scan in response to comments from the Office of the National Coordinator. The Electronic Behavioral Health Information Network's name was updated.