eHealth Council
October 12, 2009
9:30 AM CT – 12:00 noon CT

- **Lincoln—**Nebraska Educational Telecommunications, 1800 N. 33rd, Board Rm., 1st Floor, Lincoln, NE

Meeting Documents: Click the links in the agenda or click here for all documents

Tentative Agenda

9:30	**Roll Call** **Notice of Posting of Agenda** **Notice of Nebraska Open Meetings Act Posting** **Approval of August 14, 2009 minutes*** **Public Comment**
9:35	**Updates and Reports** Public Health Work Group • Public Health/eHealth Work Group Report Updates on Recovery Act Funding for Health IT • Health Information Technology Extension Program • State Health Information Exchange Cooperative Agreement Program
10:00	Nebraska Strategic eHealth Plan Nebraska's Application for the State HIE Cooperative Agreement Program Nebraska Operational eHealth Plan
11:30	**Adjourn**

Meeting notice posted to the NITC and Public Meeting Website on Sept. 1, 2009. The agenda was posted on Oct. 8, 2009.

EHEALTH COUNCIL
August 14, 2009 1:30–4:00 p.m. (CT)
Technology Park Auditorium
4701 Innovation Drive, Lincoln, Nebraska
PROPOSED MINUTES

MEMBERS PRESENT
Dennis Berens, Dept. of Health and Human Services, Office of Rural Health
Dan Griess, Box Butte General Hospital
Donna Hammack, St. Elizabeth Foundation
Steve Henderson, Office of the Chief Information Officer
Alice Henneman, University of Nebraska-Lincoln Extension
C.J. Johnson, Alt. for Wende Baker
Jeff Kuhr, Three Rivers Public Health Department
Ken Lawonn, NeHII and Alegent Health
David Lawton, Dept. of Health and Human Services, Public Health Assurance
Jennifer Roberts Johnson, Alt. for Vivian Chaumont
Nancy Shank, Public Policy Center
September Stone, Nebraska Health Care Association
Dr. Delane Wycoff, Pathology Services, P.C.

MEMBERS ABSENT:
Susan Courtney, Joni Cover, Senator Annette Dubas, Marie Woodhead, Kimberly Galt, Ron Hoffman, Harold Krueger, Keith Mueller, Kay Oestmann, and John Roberts

ROLL CALL NOTICE OF POSTING OF AGENDA NOTICE OF NEBRASKA OPEN MEETINGS ACT POSTING

Co-Chair, Dan Greiss called the meeting to order at 1:30 p.m. There were 13 members at the time of roll call. A quorum existed to conduct official business. It was stated that the meeting notice posted to the NITC and Public Meeting Website on August 4, 2009 and the agenda was posted August 6, 2009.

APPROVAL OF MAY 29, 2009 MINUTES

Ms. Stone moved to approve the May 29, 2009 minutes as presented. Mr. Berens seconded. Roll call vote: Berens-Yes, Griess-Yes, Hammack-Yes, Henderson-Yes, Henneman-Yes, Johnson-Abstain, Kuhr-Abstain, Lawonn-Abstain, Lawton-Yes, Roberts Johnson-Abstain, Shank-Yes, Stone-Yes, and Wycoff-Yes. Results: Yes-8, No-0, Abstain-4. Motion carried.

PUBLIC COMMENT

There was no public comment.

UPDATES AND REPORTS - HIE GROUPS

Western Nebraska Health Information Exchange (WNHIE), Nancy Shank. Negotiations are underway with a vendor. The first vendor did not meet the RFP requirements and needs of the project.

Nebraska Health Information Initiative (NeHII),Ken Lawonn. The board held elections in July. Mary Lanning Hospital in Hastings has signed on to participate in NeHII. The State of Nebraska is being looked at as a national model and has been receiving national attention.

Southeast Nebraska Behavioral Health Information Network (SNBHIN), C. J. Johnson. An RFP was issued. Vendor presentations are occurring to narrowed down the selection. They will be doing presentations on the behavioral health component.

There were no other reports.

UPDATES AND REPORTS - HISPC

David Lawton reported that HISPC III, a 10 state collaborate effort, was completed on July 31st. The program had been extended. The extension required that develop consumer and provider educational materials. A Brochure and a Website have been developed. Council members received these documents electronically prior to the meeting. A review of state laws in relation to genetic testing has been conducted.

Ms. Byers will be in contact with the council members regarding the number of printed copies that will be available. Council members were impressed with the brochure and website.

UPDATES AND REPORTS - TELEHEALTH MEETING

On July 21st, a delegation of Telehealth Committee representatives met with eHealth Council representatives. Some of the issues discussed included reimbursement and the Universal Service Fund. Ray Golden from AET Medical and Dr. Lusk from Boys Town representative were also in attendance. Boys Town wants to use telehealth to do adjustment for cochlear implants, but is having problems with reimbursement from Medicare. Joyce Beck invited Dr. Lusk to do a demo when Medicare representatives visit Thayer County Health Services.

UPDATES AND REPORTS - PUBLIC HEALTH WORK GROUP

Jeff Kuhr gave an update on the Public Health Work Group. A written report was distributed to council members. The Work Group explored and reviewed what was currently available and then began to develop a staged approach strategy between public health and electronic medical record systems based on maturity of the public health system, immediate benefit to physical provide practice and the federal priorities related to meaningful use and types of exchange.

Stage one includes the Nebraska Immunization Registry, Reportable Diseases and Syndromic Surveillance.

Stage two includes the Birth Registry, Death Registry, Cancer Registry, Trauma Registry, Nebraska Ambulance Rescue Service Information System, and Smaller disease specific registries: Parkinson's; Head, Brain and Spinal Injury Registry; Human Immunodeficiency Virus Registry. The second phase would include the various other well-establish public health registries that are mature and are capable or potentially capable of receiving information electronically for example hospitals. This group of registries target specific types of providers or specific populations. They are less likely to be applicable to the majority of ambulatory care physical providers.

The third stage would be the development of a chronic disease registry through the collaboration of public and provide health care entities. The registry will provide information critical to community chronic diseases prevention initiatives focused.

UPDATES (IF ANY) FROM THE OFFICE OF THE NATIONAL COORDINATOR

There was no report.

EHEALTH PLAN
Anne Byers, I.T. Community Manager

Ms. Byers commended the Work Group for all the work it has accomplished in such a short timeframe. Phase I of the plan is a great starting point that covers the mission and goals. If approved by the Council today, it will be posted for public comment. After which time, it will go to the NITC for final approval. The term "patient" versus "consumer" was discussed. Council members were asked to send their input and recommendation to Ms. Byers.

Since there are a lot of issues to discuss and address, some member felt the word "Draft" should remain on the document. Rather than keeping "Draft" on the document, Ms. Byers suggested including wording such as Version 2, Version 2, etc. It was recommended that a comment be included about this document being a living document, and to include a chart of the historical changes since it is inception or possibly use updated dates. After discussion, the group agreed to the following:

- To included wording in the Executive Summary that the plan is a living document, as well as in first inside page, and
- To include a historical update of the changes

State Designated Entity. Ms. Byers stated that Governor Heineman announced his intent for NeHII to be the state designate entity. If the state were to receive funding, NeHII would be the grantee. Henderson stated that that a Memorandum of Understanding between the parties regarding responsibilities will need to be developed.

Some council members had concerns regarding the designation of NeHII as the state's designated entity. Ms. Shank stated that the Work Group met with the Lt. Governor. After this meeting, the members felt that their issues were heard.

Mr. Lawonn moved to approve the eHealth Plan with the recommended changes. Dr. Wycoff seconded. Roll call vote: Berens-Yes, Griess-Yes, Hammack-Yes, Henderson-Yes, Henneman-Yes, Johnson- Yes, Kuhr-Yes, Lawonn-Yes, Lawton-Yes, Roberts Johnson-Yes, Shank-Yes, Stone-Yes, and Wycoff-Yes. Results: Yes-13, No-0, Abstain-4. Motion carried.

The Work Group will be meeting on Wednesday to finalize the wording.

Next Steps: Developing Phase II of the Plan and Application for Funding
Nancy Shanks, Public Policy Center

The Office of the National Coordinator has not release the federal road map regarding what components or requirements need to be included in the state eHealth plan. The guidelines should be out this summer. The Work Group has decided to forge forward in hopes the State of Nebraska's eHealth Plan meets federal guidelines.

The Work Group is focusing on:

- Prioritization of Goals
- Eligibility requirements for end recipients of state health IT funds
- Timeline
- Application form
- Review process

These are very broad guidelines per the stimulus monies information received so far. The work group conducted a group activity where each member got to spend $100 on what they would like prioritize and

focus. To assist with the development of state's eHealth plan and to get council members input, the Work Group would the whole Council to do this activity. An e-mail will be sent to Council members asking them to prioritize goals.

The Work Group has been meeting weekly. If council members are interested in learning more about what the Work Group has done, the minutes from the August 6 and July 31 meetings were included in the meeting materials.

MEMBERSHIP

The Council has several vacant positions. Jim Krieger from Gallup has resigned. Kimberly Galt has resigned as co-chair but still wants to be on the Council. Members were asked to send Ms. Byers names of interested persons.

NEXT MEETING DATE AND ADJOURNMENT

With no further business, Mr. Griess adjourned the meeting at 4:00 p.m.

Meeting minutes were taken by Lori Lopez Urdiales and reviewed by Anne Byers, Office of the CIO/NITC.

Public Health Work Group Report
October 2009

Current environment

Population and Public Health are related and overlapping concepts. The Public Health Work Group is using working definitions developed by the Minnesota e-Health Initiative Population Health Work Group. ***Population Health is everyone's responsibility.***
Population health is an approach to health that aims to improve the health of an entire population. One major step in achieving this aim is to reduce health inequities among population groups. Population health seeks to step beyond the individual-level focus of mainstream medicine and public health by addressing a broad range of factors that impact health on a population level, such as environment, social structure, resource distribution, etc. An important theme in population health is importance of social determinants of health and the relatively minor impact that medicine and healthcare have on improving health overall. ***Public Health is a governmental responsibility.*** Public health is concerned with threats to the overall health of a community based on population health analysis. Governmental public health agencies provide the backbone to the public health infrastructure, but this infrastructure is also dependent on other entities such as the health care delivery system, the public health and health sciences academia, and other sectors that are heavily engaged and more clearly identified with health activities. Public health also plays a legal regulatory role (e.g., conducting restaurant inspections).

Public Health Information Technology in Nebraska ranges from mature and capable of interoperability with Health Information Exchange to silos of information that have limited capacity to support electronic data exchange. Public Health data needs and opportunities cover a variety of information domains including: Public Health Surveillance and Response, Health Status and disease monitoring; Population based health care / quality improvement; Health care services and utilization; Population-based research and Health education and communication. The different domains help to distinguish the type of public health use of the information and the requirements for the information. For example: Public Health surveillance and response is generally immediate, close to real time information in aggregate format that supports identification of events and emerging diseases or outbreaks. During an outbreak and response and for reportable diseases, the data needs include identifiable health information. Health status and disease monitoring on the other hand is based on analysis of health information at the population level, in aggregate form and focuses on trends over time. The data is often analyzed on an annual basis.

While public health has many sources of information, only those which either are or could be affected by health information exchange with electronic medical records are addressed here. **Tables 1 and 2 in the appendix provide an assessment of Public health data in Nebraska** including:

a. Data available from electronic medical records that public health needs
b. Information Public Health can provide for clinical decision support
c. State of readiness to accept or exchange health information with a Health Information Exchange entity or an electronic medical record system
d. Relationship to the national discussion regarding meaningful use.

➢ Key Considerations and Recommendations

Business and technical operations

- **Staged approach to interoperability between public health and electronic medical record systems** can be established based on maturity of the public health system, immediate benefit to physician provider practice and the federal priorities related to meaningful use. (Tables 3 and 4 in the appendix provide more detail about the stages and readiness of the public health system.)
  - In the **first stage,** the concentration would be on the three types of health information exchange that will meet the most urgent legal requirements, bring the most immediate benefit to public health and to the provider and is applicable to the largest number of ambulatory care providers. This stage would include the exchange of immunization, reportable disease and syndrome surveillance information. Table A below summarizes the analysis of these data exchanges.
  - The **second stage** would include the various other well-established public health registries that are mature and are capable or potentially capable of receiving information electronically. These systems currently obtain information from hospitals, through reviews of records and voluntary reporting by key providers. Reports are sent electronically, on paper or entered directly into the registry by the provider. This group of registries target specific types of providers or specific populations. They are less likely to be applicable to the majority of ambulatory care physician providers. The National HIT Policy Committee endorsed the use of disease registries, "specifically as a way for specialists to report quality data and demonstrate meaningful use"**.**[i]
  - The **third stage** will be the development of a chronic disease registry through the collaboration of public and private health care entities. The leading causes of death in Nebraska are associated with chronic diseases. Currently, most of the information about incidence and quality are based on measures derived from death and hospital data. The lack of information about incidence in early stages of chronic disease seriously limit the ability of medical providers and the community to measure the impact of risk reduction, early screening and treatment. Through the use of EMR-S by medical providers and health information exchange organizations information could shared regarding the incidence and characteristics of diseases at onset or early in the life cycle. The registry will provide information critical to community chronic diseases prevention initiatives focused.
  - The **fourth stage** would be the evolution of knowledge, understanding and ability to measure the incidence of chronic disease and the impact of community and provider interventions. Electronic medical records do not necessarily articulate and track outcomes. Current analysis and reporting is based on hospital discharge and mortality data. Most rates of disease incidence are based on hospital data. This would include the identification / development of relevant and meaningful measures and rates based on incidence information from ambulatory settings. This is needed to improve the capacity to assess the health status of the community and to evaluate the quality and effectiveness of the health care system and community ability to improve the health of their residents. Unlike communicable diseases, immunizations and vital statistics, understanding chronic disease in a population will require developing strategies for bundling information. This will require us to develop both methodologies and relevant parameters for interpretation.

Governance

- **Public Health Stakeholders**
  - Stakeholders representing public health interests need to include both state and local perspectives. For efficiencies and economies of scale, the major public health data systems that interface EMRs and Health information exchanges will be managed at the state level. Local public health represents the entities who work directly with their local health care providers to use the data to improve the health status of their populations.
  - Public Health stakeholders need to partner with the larger effort to meaningful use of electronic health information. This includes both information coming **to** public health for population health and knowledge support that can come **from** public health to the health care provider to support decision-making.

Return on Investment

Measuring the return on investment for implementing electronic medical record systems and health information exchange organizations needs to be at the heart of the e-health plan. Several factors related to public health that will affect return on investment are:

- Certain technologies are most cost effective when purchased and implemented at a state level. Examples are the Nebraska Electronic Disease Surveillance System, Nebraska Immunization Registry and the various disease registries.
- Local health departments are co-owners of public health data with the state public health authority. They have responsibility to analyze, report and use the information to improve the quality of care and health status within their jurisdictions.
- Local health departments develop and maintain a working relationship with the physicians and health care providers in their jurisdictions. This relationship will continue to play a critical role in response even as electronic means of communication improve.
- Response to outbreaks of disease and events that impact health of individuals is always local. This is true whether the response comes from a local health department, the state health department or a private health care provider. The local health departments have a key role to play with health care providers to assure health status monitoring, surveillance and response, and population-based health planning for their jurisdictions.
- For the private health care provider, return on investment should include:
  - Reduction of time, effort and cost to provide required reporting to the public health entity
  - Access to public health advisories, guidelines and recommendations in a timely and useful manner that supports clinical decisions.
  - Participation and access to quality of care review and analysis that lead to outcomes such as early screening and identification of specific diseases and conditions.
  - Access to immunization histories for patients

Barriers / Challenges

There are barriers and challenges that must be addressed for effective interoperability and exchange of health information with public health and to assure meaningful use of that information by public health.

- Infrastructure and capacity vary widely as well as the readiness or sense of urgency among all the stake holders. This is true both for providers and for public health organizations. A cultural shift may need to occur for both medical providers and public health to reset expectations and practices for exchange of information.

- Electronic medical record software that meets the national (CCHIT) certification requirements have to be able to exchange information using the adopted standards for messaging and data but few come "off the shelf" with interfaces for key public health reporting such as immunization registries. This has also been true for laboratory information systems. The capacity is available but the implementation requires additional time and costs.
- Public health systems exist that have the capacity to interface with electronic medical records and laboratory systems. These applications are managed by different program areas. At this time, each program independently approaches the medical providers to obtain the needed health information.
- Privacy is both a perceived and real challenge. Policies and practices for information sharing vary depending on the entity, the type of information and the interpretation of federal and state requirements. Both HIPAA and the current HIT stimulus effort have defined public health uses of data as appropriate and allowed. But there are variations by state and locality. Most local public health agencies and medical providers do not have the resources or expertise to work through the range of acceptable practice and options for electronic information sharing.
- While the cost of purchasing software is a challenge, the greater challenge is the investment of time and human resources by the medical provider and public health that is necessary to implement an EMR. The lack of health informatics expertise and champions for electronic reporting further limit the electronic exchange of information with public health.
- Unrealistic expectations exist for health information exchange related to timeliness, quantity and relevance. Not all public health data needs to be instantly available. In fact, for many public health uses, aged or aggregated data for specific time periods (e.g. annual) is far more relevant. Other data such as communicable disease information exchange needs to be very close to real time. The added requirements for quality reporting to federal and private insurers will impact provider time and willingness to exchange information.
- Functional health information exchange will have to work across Health Information Exchange organizations. The core architecture of Health Information Exchange organizations vary. The methodology to access and exchange public health information will also be different.
- Electronic medical records and health information exchange may change what data is collected, how data is collected, how data is shared. Eventually clinical data sets will expand.
- The structure of the electronic record will have to support accessing information necessary to determine compliance with licensure and certification regulations. This includes keeping pace with changes in licensure and regulation.

APPENDIX

TABLE 1: Population (Public) Health Domains with Data types and Nebraska Applications and Databases

TABLE 2: Meaningful Use Matrix and Potential Value of Public Health in Nebraska

TABLE 3: Nebraska Public Health Information Technology – State of readiness to accept or exchange with EMRs

Table A: Stage One of Public Health / EMR-S exchange of health information

Table B: Stage Two of Public Health / EMR-S exchange of health information

TABLE 1: Population (Public) Health Domains with Data types and Nebraska Applications and Databases

Population Health Domain	Type of Data (based on Minnesota e-Health information)	NE PHIT relevant to HIE with EMRs (Public Health needs the data)	NE PHIT relevant to HIE with EMRs (Public Health has information that can provide clinical decision support)
Public Health Surveillance and Response	Event detection (outbreaks, epidemics and pandemics) Notifiable condition reporting (communicable disease, cancer) Active surveillance Response management (outbreak management, countermeasure allocation, distribution)	○ Lab reportable diseases (State Lab, Western NE HIE-N) ○ Nebraska Electronic Disease Surveillance System (NEDSS) ○ Flu like illness reporting ○ Outbreak / response management ○ Trauma Registry	○ Physician advisories regarding events, outbreaks, epidemics, pandemics: what symptoms to look for , recommended treatment protocols
Health Status and disease monitoring	Environmental monitoring (asthma levels, air quality) Collection of health and functional status data of relevance to communities Monitoring for environmental hazard and potential environmental risk exposures (lead, asbestos, radiation) Monitoring chronic conditions such as obesity or diabetes and their risk factors (diet, physical activity, smoking) Evaluating trends in disease virulence & antimicrobial resistance (including emerging pathogenic agents) Monitoring mental health status of a population (e.g. youth) Identify & address needs of vulnerable populations (e.g. high-risk pregnant women, mothers, children, frail elderly, persons with mental illness and people experiencing health disparities)	○ Cancer Registry ○ Parkinson's Registry ○ Hospital Discharge Data ○ E-code Injury Data ○ Birth and Death Registries including Newborn screening ○ CODES data (drawn from multiple sources) ○ Nebraska Ambulance Rescue Service Information System (NARSIS)	○ Identification of populations at risk or higher risk for specific problems
Population-based health care / quality improvement	Provision of care Identifying populations with barriers to health and related services Identifying health and health-related services Assuring the linkage of people to appropriate health and related services through coordination of provider services and development of interventions that address barriers to care Health disparities determinants Chronic disease management Genomics and population health Vaccination programs (e.g. pneumococcal and influenza) Evidenced-based clinical / health care Developing evidence-based guidelines for individual episodes and systems of care	○ Immunization Registry ○ Newborn Screening ○ Cancer Registry ○ Parkinson's Disease Registry ○ Trauma Registry ○ Head, Brain and Spinal Injury Registry ○ Human Inmmunodeficiency Virus Registry ○ Cancer Drug Repository ○ Information & Referral for Access to Care	○ Vaccination Guidelines, schedules and warnings ○ Physician advisories regarding events, outbreaks, epidemics, pandemics ○ Analysis of quality measures, e.g. hospital or ambulatory surgical center acquired infection rates

Population Health Domain	Type of Data (based on Minnesota e-Health information)	NE PHIT relevant to HIE with EMRs (Public Health needs the data)	NE PHIT relevant to HIE with EMRs (Public Health has information that can provide clinical decision support)
	Delivering evidence to the point of care (clinical decision support)		
	Measuring quality / efficiency for patients, practitioners and health care systems		
	Measuring disparities in care for defined populations across specialties and/or care sites		
Health Services Utilization	Services Services utilization Barriers to access to health care	➢ Health care provider registry	
Population based research	Field-based efforts to foster improvements in public health practice and other population health management activities	➢ UNMC studies, e.g. Tracking patient outcomes for individuals released from the Lincoln Regional Center	
	Infrastructure, policies and internal capacity to perform timely population-based, epidemiologic and economic analyses and conduct needed health informatics and health services research		
	Evaluations to determine the effectiveness of strategies and interventions on health services and systems (e.g. improvements in diabetes health indicators)		
	Research to develop indicators to measure disparities in quality of care		
	Evaluation of social marketing campaigns designed to influence health behaviors to identify effective communications strategies		
Health education / communication (value added from public health to the provider)	Prevention guidelines (e.g. flu, diabetes, obesity, asthma, etc.)		○ **Currently: Physician Advisories and published information** ○ Vaccination schedule, guidelines and warnings ○ Case definitions, syndrome definitions, diagnostic guidelines and criteria ○ Notifications of disease outbreaks or hazards
	Vaccination schedules, guidelines and warnings		
	Case definitions, syndrome definitions, diagnostic guidelines and criteria		
	Notifications of disease outbreaks or environmental hazards and potential environmental risks		
	Promotion of healthy communities and healthy behaviors (e.g. physical activity, nutrition, tobacco, alcohol and other drug use, unintentional pregnancy, sexually transmitted diseases, mental health, maternal and child health and prevention of injury & violence)		
	Inform and educate different audiences (e.g. general public , providers, policy leaders) about creating and supporting healthy communities and population health status risk .		

TABLE 2: Meaningful Use Matrix and Potential Value of Public Health in Nebraska

Health Outcomes / Policy Priorities	Care Goals	2011 Objectives	NE PHIT resource	2013 Objectives	NE PHIT resource	2015 Objectives	NE PHIT resource
Improve quality, safety, efficiency, and reduce health disparities	Report to patient registries for quality improvement, public reporting, etc.	Generate lists of patients by specific condition to use for quality improvement, reduction of disparities and outreach	Registries -Cancer -Trauma -Parkinson's Reports could be generated by Public Health	Provide Clinical decision support at the point of care Report to external disease (e.g. cancer) or device registries	Physician's advisories Registries -Cancer -Trauma -Parkinson's	Implement clinical decision support for national high priority conditions	
Improve population and public health	Communicate with public health agencies	Submit electronic data to immunization registries where required and accepted	NE Immunization Registry	Receive immunization histories and recommendations from immunization registries	-Immunization Registry -Vaccine schedule, guidelines, warnings	Use of epidemiologic data	PH Epidemiologists
		Provide electronic submissions of reportable lab results to public health agencies	NEDSS State Lab	Receive health alerts from public health agencies	Physician advisories	Automated real-time surveillance (adverse events, near misses, disease outbreaks, bioterrorism)	
		Provide electronic syndrome surveillance data to public health agencies according to applicable law and practice	Flu-like illness surveillance pilot project	Provide sufficiently anonymized electronic syndrome surveillance data to public health agencies with capacity to link to personal identifiers		Clinical dashboards Dynamic and Ad Hoc quality reports	
Ensure adequate privacy and security protections for personal health information	--Ensure privacy and security protections for confidential information --Provide transparency of data sharing to patient			Use summarized or de-identified data for reporting data for population health purposes (e.g. public health, quality reporting and research)			

TABLE 3: Nebraska Public Health Information Technology – State of readiness to accept or exchange with EMRs

NE PHIT Application	State of readiness to accept or exchange with EMRs	Comments
Lab reportable disease (State Lab, Western NE HIE-N0	○ Exchanges data electronically with EMR: receive orders and transmit results using HL7 lab messaging ○ Has web-based entry and report capabilities for providers	Identifiable information
Nebraska Electronic Disease Surveillance System (NEDSS)	○ Currently receives reportable disease information from selected laboratories electronically	PHIN (Public Health Information Network) compliant system Identifiable information
Influenza -like illness reporting (ILI)	○ State HHS (Public Health Program) is piloting obtaining influenza-like illness reporting from physician providers. ○ Created a simple case definition and identified the data fields needed ○ Pilot tested with 12 outpatient clinics in Douglas County	○ Data received imported into a data set that the public health agency uses to analyze influenza prevalence ○ Limited data set (aggregate—but does not meet the HIPAA guidelines for completely de-identified information) ○ In future will face challenge of measuring/monitoring the quality of the data from varied sources
Outbreak / response management	State and local public health agencies reviewing the options available for Outbreak and Response Management.	○ CDC-developed Outbreak Management System (OMS) is the likely choice. OMS is designed to interface easily with NEDSS systems but the potential for exchange with EMRs has not been evaluated yet. ○ Identifiable information
Trauma Registry	○ Receive data electronically on disk, extract data and load into database	○ Information currently comes primarily from hospitals ○ Future plans include expansion to pre and post hospital providers such as EMS and rehabilitation providers ○ Identifiable information
Nebraska Ambulance Rescue Service Information System (NARSIS)	➢ See description of CODES DATA SET under hospital section at end of table ➢ EMS service utilization and quality of care review	➢ Data received via patient care reports from ambulance and EMS (pre-hospital) providers
Cancer Registry	○ Receives data electronically, hospitals send on disk, Registry extracts data and loads into the database ○ Currently working with at least one physician provider to obtain data from EMR	Identifiable information
Chronic Disease Registries	Currently no chronic disease registries in Nebraska	A number of groups have been discussing the need for Asthma and Diabetes Registries over recent years
Death registry	○ Data is primarily received from funeral directors, coroners, hospitals	○ No plans at present to interface with EMRs. Given the primary data sources,

NE PHIT Application	State of readiness to accept or exchange with EMRs	Comments
	○ Users log in and enter directly into State Vital Statistics database	this is unlikely to be a priority ○ Identifiable information
Nebraska Immunization Registry	○ Users can access via web and enter, look-up and get reports ○ LLCHD will have 2-way data exchange with the registry (currently in process)	○ The Registry has the potential to provide clinical decision support in the future in the form of vaccine schedules, recommendations and warnings. ○ Identifiable information
Information & Referral for Access to Care	○ Medicaid provides and tracks provider and plan assignments for Medicaid eligible participants ○ Information and Referral agencies track some barriers to obtaining health care	These are primarily managed by non-health care agencies. Service Point is used for Homeless Providers in Lancaster County and for the Panhandle Partnership for Health and Human Services
Physician advisories: events, outbreaks, epidemics, pandemics: what symptoms to look for recommended treatment protocols	○ E-mail, fax and mailed communications from local health departments to physicians and other providers Advisories may include: ○ Case definitions ○ At risk population groups ○ Recommended treatment / protocols	The information for clinical decision support is available, can Public Health provide it in an electronic format that could be integrated into the decision support tools in the EMR. (These are 2013 and 2015 goals and neither Public Health or most EMRs are capable at this time.)
Identification of populations at risk or higher risk for specific problems	○ Physicians Advisories ○ Public Health Community Health Status Reports ○ Public Health Community Health Planning	Written information, graphs, reports
Vaccination Guidelines, schedules and warnings	○ CDC publishes and makes available vaccine schedule algorithms that can be incorporated into EMRs ○ State Immunization Registry available on line to users and implements the vaccine schedule information and guidelines	The information for clinical decision support is available, can Public Health provide it in an electronic format that could be integrated into the decision support tools in the EMR. (These are 2013 and 2015 goals and neither Public Health or most EMRs are capable at this time.)
Case definitions, syndrome definitions, diagnostic guidelines and criteria	○ Physician advisories regarding events, outbreaks, etc. contain this information – written form ○ Flu-like illness surveillance is prototype of extracting EMR information based on case and syndrome definitions	The information for clinical decision support is available, can Public Health provide it in an electronic format that could be integrated into the decision support tools in the EMR. (These are 2013 and 2015 goals and neither Public Health or most EMRs are capable at this time.)
Notifications of disease outbreaks or hazards	Physician advisories regarding events, outbreaks, etc. contain this information – written form	
DATA OBTAINED FROM HOSPITALS (Nebraska Hospital Association)		
Inpatient data set and ER data set Neb. Rev. Stat. §81-676 through 81-680.	Includes Zip code, patient county information, and dates of service with other administrative claim information (Limited data set)	Provided Annually to NDHHSS Provided periodically to LLCHD and

NE PHIT Application	State of readiness to accept or exchange with EMRs	Comments
		DCHD
CODES (Crash Outcome Data Evaluation System)	From the hospitals (limited data set) includes Zip code, patient county information, and dates of service with other administrative claim information; **data also comes from Death Registry, NARSIS database and Accident Reports.**	○ Provided annually to NDHHSS ○ Identifiable information to state initially, the state matches to other data sets then strips identifiers down to a limited data set
Injury Data (Injury Registry) Neb. Rev. Stat.71-2078 to 71-2082 and governed by regulations 186 NAC 3.	E-Code Data Set from hospitals includes Zip code, patient county information, dates of service, and patient date of birth with other administrative claim information (limited data set)	○ Provided monthly to NDHHSS with annual update ○ Provided periodically to LLCHD and DCHD
HBSI (Head, Brain and Spinal Injury Registry Neb. Rev. Stat.81-653 to 81-661 and governed by regulations 186 NAC 2	includes patients name, social security number, date of birth, Zip code, patient county information, and dates of service with other administrative claim information. (Limited data set)	Provided monthly to NDHHSS with annual update
ASC (Ambulatory Surgery Center) data Neb. Rev. Stat.§ 81-6,111 to 81-6,119 and governed by regulations 186 NAC 6	The hospital based ASC data set includes, Zip code, patient county information, dates of service with other administrative claim information. (Limited data set)	Provided annually to NDHHSS
Human Immunodeficiency Virus Registry (HIV) Neb. Rev. Stat.71-532	Includes patient name, medical record number, date of birth, city, patient county information, dates of service with other administrative claim information. (Limited data set)	Provided annually to NDHHSS
Parkinson Disease Registry Rev. Stat.81-697 to 81-6,110 governed by regulations 186 NAC 4	○ Hospital based data set includes patient name, date of birth, street, city, dates of service with other administrative claim information. (Limited data set) ○ **Registry also receives information from pharmacies who report patients filling prescriptions for Parkinson's medications (electronic—disk and paper)** ○ **Registry follows up with physicians (phone / mail) to confirm and expand pharmacy information**	○ Hospital data set Provided quarterly to NDHHSS
Birth registry	○ Data is primarily received from hospitals ○ Hospitals log in and enter directly into the State Vital Statistics database on daily basis	○ No plans at present to interface with EMRs. Given the primary data sources, this is unlikely to be a priority ○ Identifiable information
Newborn Screening	Part of Birth registry	

GLOSSARY:

NE = Nebraska
PHIT = Public Health Information Technology
HIE = Health Information Exchange
EMR = Electronic Medical Record

Table A: Stage One of Public Health / EMR-S exchange of health information

Public Health Data System	Maturity	Benefit to Provider	Type of exchange
Nebraska Immunization Registry	State implemented the registry in June 2008. Use in other states includes receiving immunization information from HIEs and EMR-S	Meets the state and national requirement to report immunizations to public health Provider has access to the patient's immunization history and to recommendations for vaccine schedule and guidelines	➢ Patient identified health data ➢ Real time or near real time exchange ➢ One way reporting from provider ➢ Two way—history from registry; reporting of immunizations given from provider
Reportable diseases	State implemented the Nebraska Electronic Disease Surveillance System in 2003. It is currently receiving data electronically from laboratories and hospitals	Meets state and national requirements to report cases of communicable diseases and specific	➢ Patient identified health data ➢ Real time or near real time exchange ➢ One way reporting from provider ➢ Long term two way with health alert information from public health
Syndromic surveillance	State and Douglas County have piloted a influenza-like symptoms reporting from EMR systems; the state is now expanding the pilot to other providers in the state	Meet state and national requirements to identify emerging diseases and trends	➢ Aggregate data with individual patient information removed but with ability to re-link to personal identifiers ➢ One way reporting from provider ➢ Daily or weekly (close to real time in outbreak or pandemic situation) ➢ Long term two way with health alert information from public health

Table B: Stage Two of Public Health / EMR-S exchange of health information

Public Health Data System	Maturity	Benefit to Provider	Type of exchange
Birth Registry	Established with input from all Nebraska hospitals	➢ Meets federal and state requirements to report all births ➢ Includes newborn screening report	➢ Currently hospitals enter the information directly into the State Birth Registry from the medical record. (Usually done by medical records staff) ➢ Capability to receive information electronically from the provider EMR-S will have to be developed ➢ This registry affects hospitals more than any other provider setting
Death Registry	➢ Established ➢ Input comes from physicians, hospitals, nursing homes, funeral directors, coroners	➢ Meets federal and state requirements to report all deaths and causes ➢ Use of current system facilitates communications after death between the various providers	➢ Currently the various providers enter information directly into the State Death Registry, timeliness is critical because burial cannot happen without the death certificate ➢ This registry involves providers other than medical providers
Cancer Registry	➢ Established ➢ Good quality data ➢	Participation in state-wide and national efforts to improve the quality of care	
Trauma Registry	➢ Established ➢ Hospitals are using TRACs ➢ Transitioning to new Trauma Registry which is in the verification and final testing phase	➢ Participation in state-wide and national efforts to improve the quality of care, reduce risk and incidence of injury	➢ Encapsulated data taken from discharge data in hospitals ➢ Weekly or monthly ➢ Used to evaluate trends, outcomes and risks or other significant patterns
Nebraska Ambulance Rescue Service Information System	➢ Established ➢ Data comes from ambulance and emergency providers working with patients before they arrive at the hospital (pre-hospital injury data)	➢ Participation in state-wide and national efforts to improve the quality of care, reduce risk and incidence of injury	➢ Encapsulated data taken from the ambulance Patient Care Report ➢ Reporting to state is currently paper-based or electronic
Smaller disease specific registries: ➢ Parkinson's ➢ Head, Brain and Spinal Injury Registry ➢ Human Immunodeficiency Virus Registry	➢ Established ➢ Data comes from hospital discharge data, pharmacies and upon request physician providers	➢ Participation in statewide and national efforts to improve quality of care	➢ Encapsulated data taken from hospital discharge records and other data sources ➢ Aggregate (limited data set) data ➢ Monthly or yearly ➢ Used to analyze trends and outcomes to evaluate quality of care and other health care measures

[i] "HIT policy group approves meaningful use criteria", Government Health IT, news item, July 23, 2009, http://www.govhealthit.com/newsitem.aspx?nid=71829

Draft

Nebraska
Strategic eHealth Plan

Oct. 7, 2009

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 State Designated Entity 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), Southeast Nebraska Behavioral Health Information Exchange (SNBHIN), and Western Nebraska Health Information Exchange (WNHIE).

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.

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 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]

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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.

[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.

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 State Designated Entity, 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 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 State Designated Entity, 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. Nebraska has four health information exchanges: the Nebraska Health Information Initiative (NeHII), Southeast Nebraska Health Information Exchange (SENHIE), Southeast Nebraska Behavioral Health Information Exchange (SNBHIN), and

[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.

Western Nebraska Health Information Exchange (WNHIE). Two of these exchanges— NeHII and SENHIE— are currently active. NeHII is also one of the largest fully functional health information exchanges in the country and will serve as the state's designated entity for implementing statewide health information exchange.

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 State Designated Entity 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), Southeast Nebraska Behavioral Health Information Exchange (SNBHIN), and Western Nebraska Health Information Exchange (SNBHIN).

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. As the State Designated Entity for Nebraska, 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. As of August, 2009, over 200 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 where Lt. Governor Rick Sheehy also reported the Governor will designate NeHII as the State Designated Entity for health information technology. 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 Southeast Nebraska Behavioral Health Information Network (SNBHIN) 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. SNBHIN 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.

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.

The **Western Nebraska Health Information Exchange (WNHIE)** will connect health care providers in the Panhandle. 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.

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 .

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%).[9]

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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[9] 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.[10] 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.[11] 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

[10] 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.

[11] 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 as the State Designated Entity, 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.[12] 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.[13]

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.[14] In Nebraska, less than 2% of eligible prescriptions were routed electronically. [15] Nationally, 76 percent of community pharmacies in the U.S. were connected for prescription routing at the end of 2008.[16] In Nebraska, pharmacy participation in e-prescribing is significantly lower. Approximately 61% of pharmacies accepted e-prescriptions.[17] 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.[18]

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[12]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.

[13] 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.

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

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

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

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

[18] 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 state-designated 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 State-Designated Entity

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

It is likely that NMAP 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, NMAP 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 state-designated 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 Offices 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 Offices of Primary Care (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 Office of Rural Health and Primary Care Office have 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 Primary Care Office are made by the federal Office of Shortage Designation. State shortage area designations are set by the Rural Health Advisory Commission.

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.

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 the State Designated entity, 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 State Designated Entity, 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 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 State Designated Entity, 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
- Payers and Employers
- Professional Associations
- Consumers
- Resource Providers, Experts, and Others

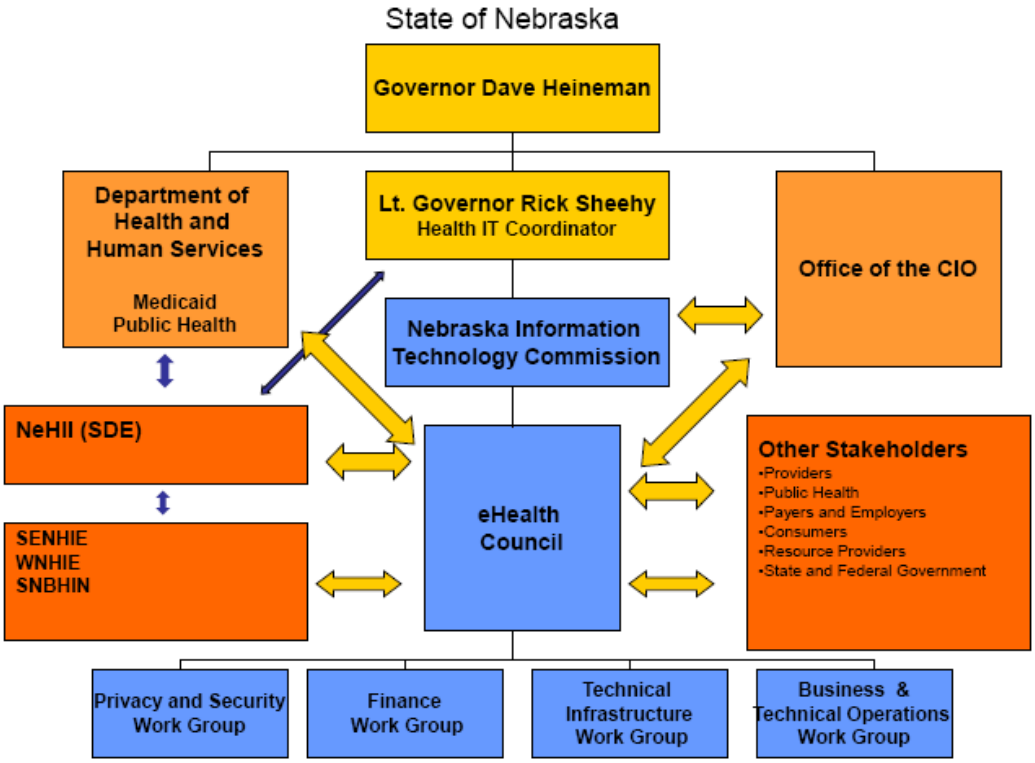
A list of eHealth Council members is included in the appendix.

The NITC and NITC eHealth Council, in cooperation with State Designated Entity 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 state-designated entity, the Health Information Technology Regional Extension Center, the state's health information exchanges, and other stakeholders.
- Working with the State Designated Entity 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, state designated entity (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 state designated entity, 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.

State Designated Entity

As the State Designated Entity, NeHII will assume the primary responsibility for directing and executing 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. Successful implementation of statewide health information exchange requires coordination with the state's Medicaid program and public health programs. Inclusion of the Medicaid Director in the governance structure of the State Designated Entity, 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 State Designated Entity, 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.

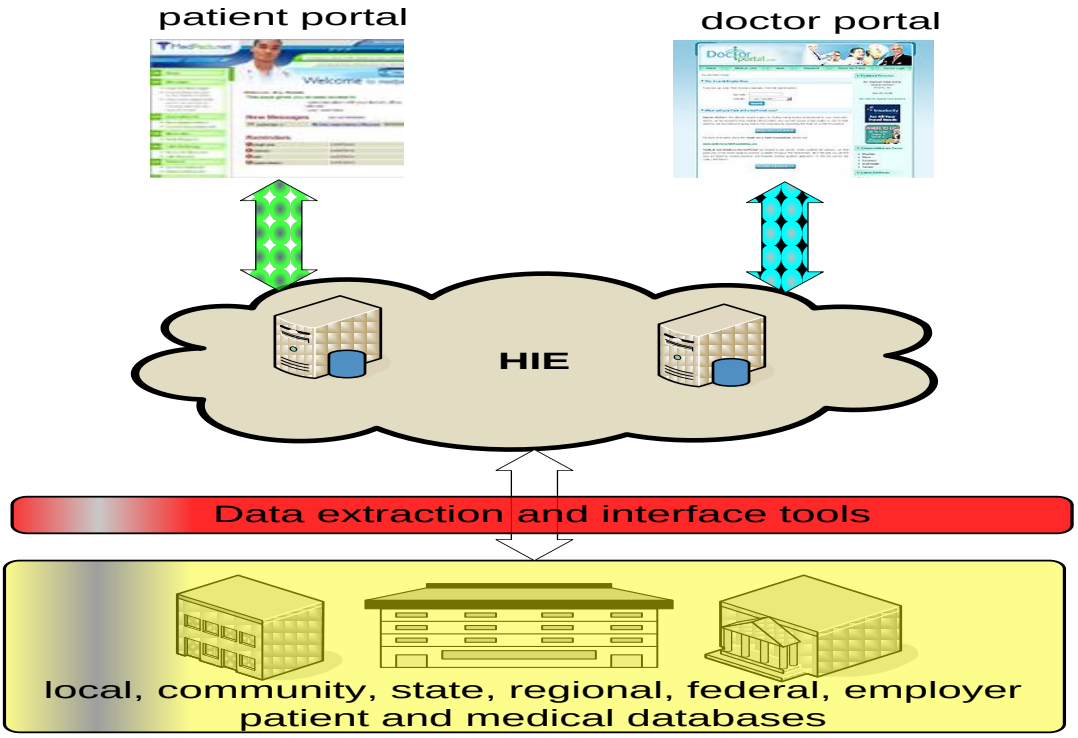
Strategies

- 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.

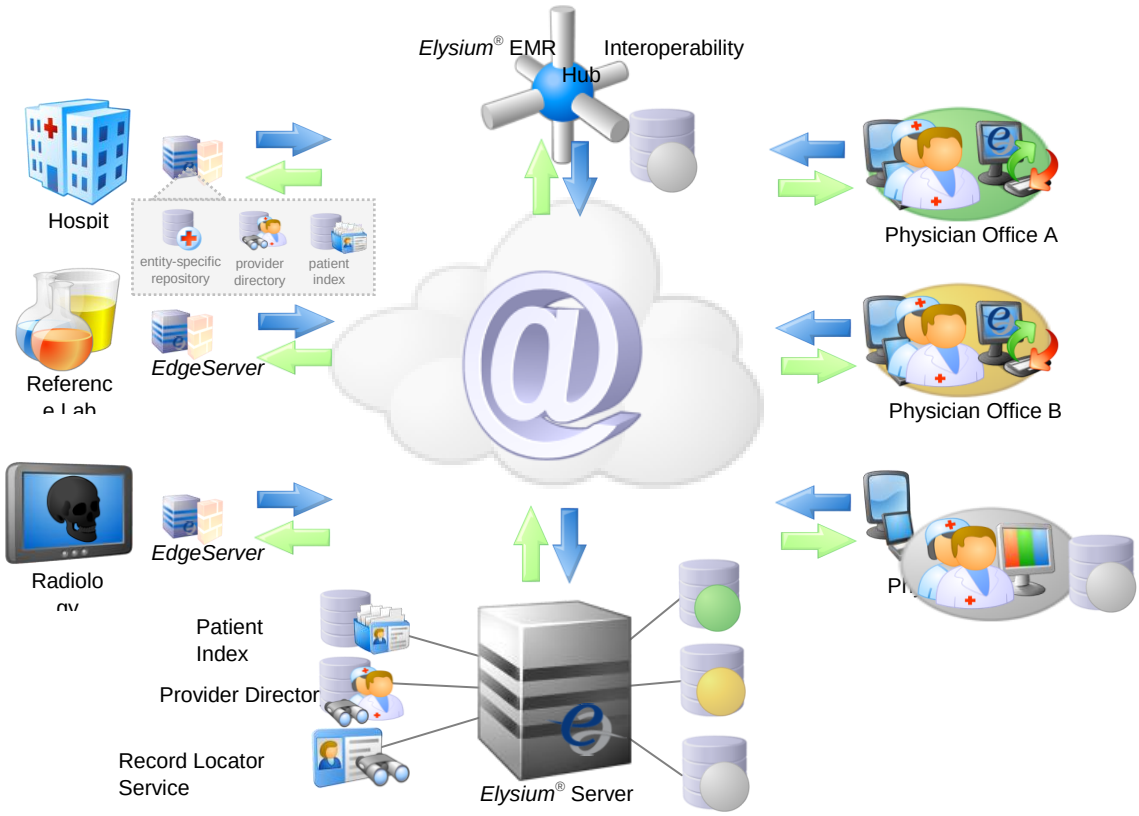
3. As a part of the staging process, the Master Patient Index (MPI) and the Record Locator Service (RLS) which indicates that a patient has medical information available at the corresponding participating organization.
4. The MPI stores limited patient demographics along with other Meta data on the patient 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%). [19]

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

[19] 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.

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, Southeast Nebraska 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, Southeast Nebraska 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
- SNBHIN (Southeast Nebraska 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

Governance. As the State Designated Entity, NeHII will assume the primary responsibility for directing and executing 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 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

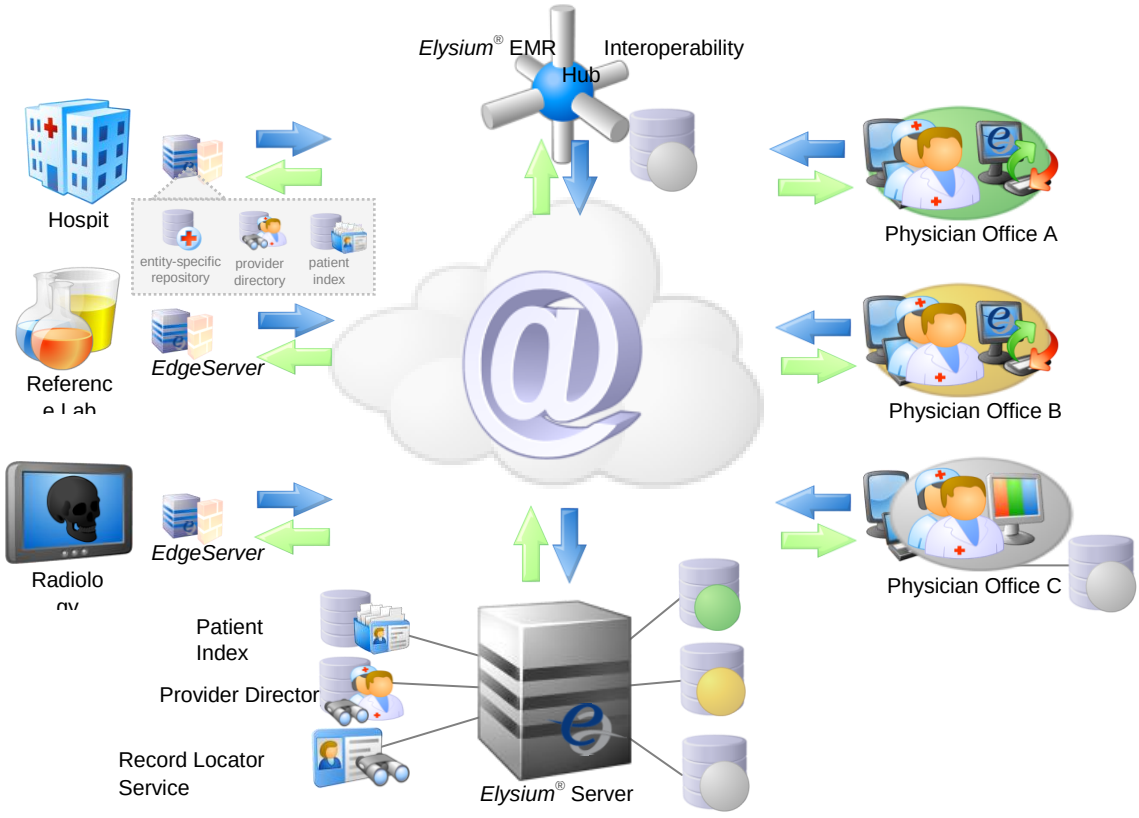
NeHII Appointed Directors

- 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

Governance. 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.

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.

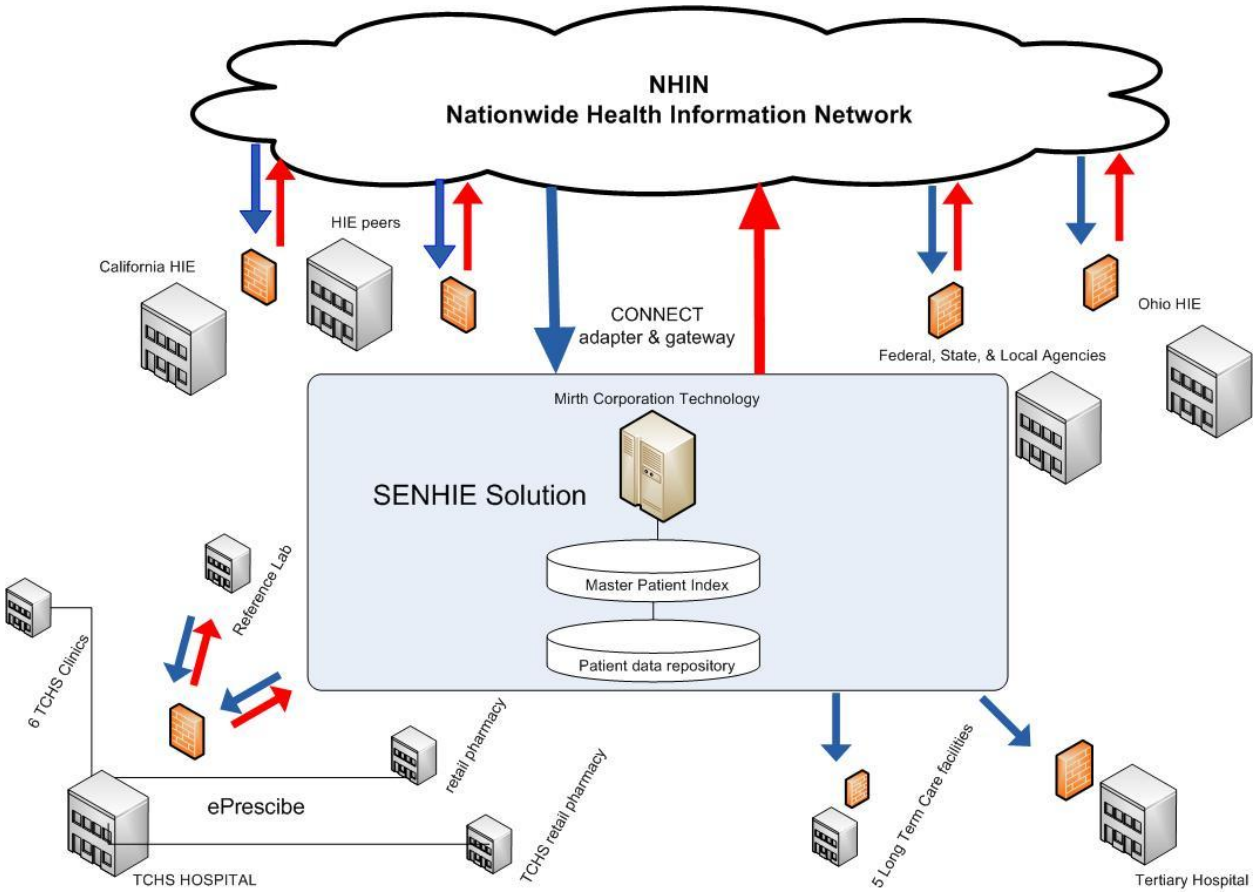
In addition the same technology would be utilized to allow lab results to be available to long term care facilities at the same time it is available to Thayer County Health Services. Mirth technology would be utilized for communication to take place between Nebraska LabLinc and Thayer County Health Services. 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.

SNBHIN

Governance. The Southeast Nebraska Behavioral Health Information Exchange (SNBHIN) 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. SNBHIN will offer HIE services to other Behavioral Health regions in Nebraska as made possible by time and resources. SNBHIN Board Members are listed below:

SNBHIN 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, SNBHIN 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 SNBHIN 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 .

SNBHIN 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 **SNBHIN** 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) 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)

Business Model. WNHIE has developed a business plan for the Exchange that is self-supporting in operating costs by Year 3 and that has a very positive operating cash position at the end of 5 years. Western Nebraska is on the cusp of making one the largest technological advancements in its history. The Rural Nebraska Healthcare Network (RNHN) has been awarded $22 million to deploy a state-of-the-art fiber optic medical network. This network will bring new, advanced tele-health and critical care services to one of the most rural and underserved areas in the nation. In doing so, the quality and care provided to the panhandle's employers, employees, families, children and communities will be vastly improved, and will parallel the advanced medical capabilities found in major metropolitan areas. Future revenue from the fiber are slated for the HIE's sustainability.

Technical Infrastructure and Business Operations. WNHIE is not utilizing a "rip and replace" solution, rather it implements new sharing technology between current electronic and paper-based systems. WNHIE has decided on hybrid (federated and centralized) architecture with a Master Patient Index, Record Locator Service, and some centralized storage of specific data for analytics. The Grid Technology chosen is a scalable care collaboration platform that utilizes an Intelligent Agent Grid which is an effective technology for exchanging information across disparate systems and care locations, adapting to community dynamics and interacting with people and computers. The Grid Technology leverages existing computing and storage and is easily installed and supported. The Grid has different "skills" to provide flexibility and adaptability such as HAL exchange, document image exchange, work lists, patient ID mapping, application interfaces, filtering, batch printing, report generation and more. An important component of the Grid Technology is the aggregation and standardization of data to enable broad community collaboration as well as connection with other local, regional, state and national health information exchanges.

WNHIE is focusing on immediate, results-orientation to information exchange, and will phase-in information sharing based on functionality. Priority functionalities include patient medication and histories, lab, decision support, e-Prescribing/CPOE, and integrated results management. This approach, capitalizing on national standards, creates a system for information sharing among hospitals and providers in real time while at the same time preserving the autonomy of hospitals (and other providers).

Legal/Policy. WNHIE has chosen the Opt-Out option. Each user organization is allowed to make its own determination about whether or not it will accept requests for restrictions with regard to its own and subsequent use The responsibility for entering and maintaining the restriction data for each user organization would belong to the user organization. Data that would be available through the WNHIE HIE for a specific patient would only be from those user organizations that had not accepted restrictions from the patient.