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:
  - o Reduction of time, effort and cost to provide required reporting to the public health entity
  - o Access to public health advisories, guidelines and recommendations in a timely and useful manner that supports clinical decisions.
  - o 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.
  - o 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)	o Lab reportable diseases (State Lab, Western NE HIE-N) o Nebraska Electronic Disease Surveillance System (NEDSS) o Flu like illness reporting o Outbreak / response management o Trauma Registry	o 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)	o Cancer Registry o Parkinson's Registry o Hospital Discharge Data o E-code Injury Data o Birth and Death Registries including Newborn screening o CODES data (drawn from multiple sources) o Nebraska Ambulance Rescue Service Information System (NARSIS)	o 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	o Immunization Registry o Newborn Screening o Cancer Registry o Parkinson's Disease Registry o Trauma Registry o Head, Brain and Spinal Injury Registry o Human Inmmunodeficiency Virus Registry o Cancer Drug Repository o Information & Referral for Access to Care	o Vaccination Guidelines, schedules and warnings o Physician advisories regarding events, outbreaks, epidemics, pandemics o 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.)		o **Currently: Physician Advisories and published information** o Vaccination schedule, guidelines and warnings o Case definitions, syndrome definitions, diagnostic guidelines and criteria o 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)			

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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	o Exchanges data electronically with EMR: receive orders and transmit results using HL7 lab messaging o Has web-based entry and report capabilities for providers	Identifiable information
Nebraska Electronic Disease Surveillance System (NEDSS)	o Currently receives reportable disease information from selected laboratories electronically	PHIN (Public Health Information Network) compliant system Identifiable information
Influenza -like illness reporting (ILI)	o State HHS (Public Health Program) is piloting obtaining influenza-like illness reporting from physician providers. o Created a simple case definition and identified the data fields needed o Pilot tested with 12 outpatient clinics in Douglas County	o Data received imported into a data set that the public health agency uses to analyze influenza prevalence o Limited data set (aggregate—but does not meet the HIPAA guidelines for completely de-identified information) o 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.	o 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. o Identifiable information
Trauma Registry	o Receive data electronically on disk, extract data and load into database	o Information currently comes primarily from hospitals o Future plans include expansion to pre and post hospital providers such as EMS and rehabilitation providers o 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	o Receives data electronically, hospitals send on disk, Registry extracts data and loads into the database o 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	o Data is primarily received from funeral directors, coroners, hospitals	o 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
	o Users log in and enter directly into State Vital Statistics database	this is unlikely to be a priority o Identifiable information
Nebraska Immunization Registry	o Users can access via web and enter, look-up and get reports o LLCHD will have 2-way data exchange with the registry (currently in process)	o The Registry has the potential to provide clinical decision support in the future in the form of vaccine schedules, recommendations and warnings. o Identifiable information
Information & Referral for Access to Care	o Medicaid provides and tracks provider and plan assignments for Medicaid eligible participants o 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	o E-mail, fax and mailed communications from local health departments to physicians and other providers Advisories may include: o Case definitions o At risk population groups o 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	o Physicians Advisories o Public Health Community Health Status Reports o Public Health Community Health Planning	Written information, graphs, reports
Vaccination Guidelines, schedules and warnings	o CDC publishes and makes available vaccine schedule algorithms that can be incorporated into EMRs o 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	o Physician advisories regarding events, outbreaks, etc. contain this information – written form o 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.**	o Provided annually to NDHHSS o 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)	o Provided monthly to NDHHSS with annual update o 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	o Hospital based data set includes patient name, date of birth, street, city, dates of service with other administrative claim information. (Limited data set) o **Registry also receives information from pharmacies who report patients filling prescriptions for Parkinson's medications (electronic—disk and paper)** o **Registry follows up with physicians (phone / mail) to confirm and expand pharmacy information**	o Hospital data set Provided quarterly to NDHHSS
Birth registry	o Data is primarily received from hospitals o Hospitals log in and enter directly into the State Vital Statistics database on daily basis	o No plans at present to interface with EMRs. Given the primary data sources, this is unlikely to be a priority o 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 . 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