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2005

PANHANDLE REGIONAL HEALTH INFORMATION EXCHANGE PLAN

Agency for Healthcare Research and Quality

PANHANDLE
REGIONAL HEALTH INFORMATION EXCHANGE
PLAN

SEPTEMBER 2005

By computerizing health records, we can avoid dangerous medical mistakes, reduce costs and improve care.

President George W. Bush
State of the Union, 2004

In the 20th Century, bricks and mortar constituted the basic infrastructure of the healthcare delivery system. To deliver care in the 21st Century, the system must be based upon a health information and communications technology infrastructure that is accessible to all patients and providers.

Institute of Medicine
***Foster Rapid Advances in Health Care**, 2002*

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EXECUTIVE SUMMARY

From October 1, 2004 through September 30, 2005 a collaborative partnership created this **Panhandle Regional Health Information Exchange Plan**. The Plan details a point-in-time vision for the exchange of health information among a variety of regional providers. The plan is "point-in-time" because as the partners learn more and the concept for health information exchange evolves, we expect that our approach may also evolve. Indeed, we understand that this collaborative partnership is developing a model that other rural areas across the United States will find instructive. The innovative approach has received notice in a number of ways:

- Award of an Agency for Healthcare Research and Quality *Transforming Healthcare Quality Through Information Technology Planning Grant*
- Invitations to present our process and products at statewide and national conferences
- Anecdotal feedback from vendors, other healthcare organizations, and researchers

The Plans describes the implementation process. The implementation process will take advantage of the Panhandle's highly collaborative environment. Partners are aligning, and will be supported to align, their organizations for a change to electronic health information exchange. This collaboration will also enable us to reduce the total cost of ownership for partners who are implementing electronic health records in their entities. We will capitalize on "enterprise architectures" (across all partners) whenever feasible and will create centralized IT functions to support implementation. The process will focus on adopting national standards and creating local policies and protocols to facilitate useable health information at the point of care. The maximal use of harmonization of standards will avoid some expensive, customized solutions. The process will also assist entities in the change management process toward information exchange.

The Plan begins by telling the story and presenting the rationale of the collaboration. Why this set of partners, in this area of Nebraska? Quickly, the Plan moves to identifying important principles and decision points. The Plan then introduces "Next Steps" in terms of immediate, specific actions that must be addressed, as well as longer-term logic models that lay out the broad vision for what will be accomplished. The Plan then explores various key aspects in health information exchange and provides background and options for future decisions. Finally, the Plan presents a prioritization strategy and discusses financial implications.

Participants in the planning process include:
- Box Butte General Hospital, Alliance
- Chadron Community Hospital, Chadron

- Garden County Health Services, Oshkosh
- Gordon Memorial Hospital, Gordon
- Kimball Health Services, Kimball
- Memorial Health Center, Sidney
- Morrill County Community Hospital, Bridgeport
- Perkins County Health Services, Grant
- Regional West Medical Center, Scottsbluff
- The Panhandle Partnership for Health and Human Services
- Panhandle Public Health District
- Region I Mental Health and Substance Abuse
- The University of Nebraska Public Policy Center

The planning process was intended to spur exploration of health information exchange and does not imply that health information exchange will be limited to only these partners. Indeed, the partners have invested in the process to achieve the stated vision of creating a system that connects all health and human services providers and ancillary services in the Panhandle and to others in the multi-state area, to share patient information to provide a high-quality system of care for rural residents. The first step in achieving this larger vision is the goal to create a compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

This Plan provides a road map for the implementation journey. It is intended to serve as a living document that will be modified and changed as participants create wins and develop deeper understandings, and as new information and new technologies develop.

BACKGROUND

The partners' vision for shared electronic health information has a long-term goal of connecting all health and human services providers and ancillary services in the Panhandle, and that connects to others in the multi-state area, to share patient information to provide a high-quality system of care for rural residents.

The goal of this regional partnership of hospitals, behavioral health providers, public health, and health and human services providers is to improve quality of care and patient safety by:
- Enabling the exchange of health information between providers;
- Contributing to the viability of partners by identifying and promoting collaborative wins;
- Ensuring that all hospitals and providers have the capacity to participate in electronic exchange;
- Continuing to promote the vision of a system of care for Panhandle residents;
- Building capacity within the workforce.

The intermediate goal is health information interoperability between hospitals, clinics, private physicians' offices, pharmacies, behavioral health providers through a repository system. The short-term goals are:
- Electronic medical records will be established and integrated with other functional systems (decision support systems, CPOE/e-Prescribing, results management, laboratory) in all Critical Access Hospitals and Rural Health Clinics through a common process and shared resources, in order to enhance local and regional capacity development toward health information exchange.
- Health information exchange systems will be established that will provide current information, from all hospitals and rural health clinics, at the point of care.
- An operational entity and incorporated RHIO will provide the sustainable infrastructure necessary to support regional health information exchange and common developments in the Electronic Health Records.

Health information sharing has been identified as the key goal for the providers involved in this project. Their vision is a system that:
- Collects data from multiple sources
- Is used by providers as the primary source of information at the point of care or service
- Provides evidence-based decision support
- Viable and sustainable
- Operates within established networks of rural hospitals, clinics, public health providers, behavioral health providers, and others.

We envision a regional electronic health information exchange system that will enable providers, patients, and other to share information, communicate orders and results, support evidence-based decision-making, streamline public health disease surveillance and reporting, and enable data management for non-clinical purposes (e.g., billing, quality management). Information will be patient-centric (i.e., available where the patient and his/her provider needs it regardless of where the information was originally gathered). Transmission and access of information by authorized individuals will be through secure systems. Technologies and connectivity options will continue to evolve. We intend to create a technology that will enable all partners with basic technological infrastructures to participate.

PLANNING PROCESS

WHY PLAN
The technology exists to exchange health information. As organizations across the county explore how to share information, they are finding that technology is not the barrier to implementation. Rather, it is all of the related issues of defining the vision, developing processes, building trust, executing necessary legal agreements, making purchases decisions, defining outcomes, and so forth. The partners involved in this planning process decided to spend time, upfront, to begin defining what they wanted and how they wanted it to operate, before rushing to market and implementation. The planning process took approximately one year and has involved the participation of health organization staff throughout the Panhandle.

WHY COLLABORATE
Collaboration is needed when a project needs the experience, resources, and participation beyond what may be accomplished by a single organization. Collaborations require participants to involve other stakeholders in the process of changing the ways things are done and to cede narrow decision making to a consensus-based approach. Chrislip & Larson (1994, pp. 108-9) assert "if you bring the appropriate people together in constructive ways with good information, they will create authentic visions and strategies for addressing the shared concerns of the organization or community."

PARTNERS
The planning process to develop health information exchange has been started by four organizations:
- The **Rural Healthcare Cooperative Network** will take the lead role for project planning. The Network is a cooperative comprising all eight Critical Access Hospitals, the System hospital, and their related services. Its members are:
    - Box Butte General Hospital, Alliance
    - Chadron Community Hospital, Chadron
    - Garden County Health Services, Oshkosh
    - Gordon Memorial Hospital, Gordon
    - Kimball Health Services, Kimball
    - Memorial Health Center, Sidney
    - Morrill County Community Hospital, Bridgeport
    - Perkins County Health Services, Grant
    - Regional West Medical Center, Scottsbluff
- The **Panhandle Partnership for Health and Human Services**, formed in 1998, is a membership-based collaborative of virtually all Panhandle health and human services organizations.

- **Panhandle Public Health District** is governed by one Commissioner and one community representative from each member county. To maximize limited resources and assure locally available services, the Health District does not itself provide direct services but rather directs its resources to existing providers to fulfill the public health function.
- **Region I Mental Health and Substance Abuse** is the local units of government organized under the Interlocal Cooperation Act for the purpose of planning, organizing, staffing, directing, coordinating and reporting of the local service systems of mental health, and substance abuse within the Panhandle
- The **University of Nebraska Public Policy Center** is a system-wide Center that connects policymakers and communities to achieve improved public policy for Nebraska and models of systems for the nation.

STRUCTURE

The CEOs from participating organizations endorsed the Planning Structure for the process. The Planning structure recognized the importance of information sharing at the local, regional, and executive levels. (See schematic on next page). CEOs appointed staff to participate in the process and chartered each Team's work.

Steering Committee

The project Steering Committee comprises CEOs from all eight Critical Access Hospitals in the 11-county Nebraska Panhandle region and the Regional West Medical Center, the Panhandle Public Health District, Region I Mental Health and Substance Abuse, and the University of Nebraska Public Policy Center. The Steering Committee provides executive-level approval and facilitates communications between organizations.

Regional Leadership Teams

Each organizational partner has designated representatives to five Region-Wide Leadership Teams (Information Technology, Organizational, Financial, Clinical, Training & Education teams). These teams, chartered by the Steering Committee: draft regional priorities, policies & procedures; advise and evaluate the process; and serve as an information sharing forum regarding the work of the Local Teams. Members cover the widest breadth of organizational professional involvement, including: CEO's, CFO's, COO's, Directors of Nursing, HIPAA officers, education coordinators, information technology directors, nursing home staff, psychologists, lab technicians, public health administrators, nurses, project managers, patient accounts directors, health information managers, and admissions/discharge specialists.

Local Teams
Local Teams tasked with planning and implementing internal-to-organization capability for sharing. Local Teams minimally include; IT person, clinical representative, administration, finance, providers, QA and HIPAA functions. The Teams are creating internal capacity in understanding business and clinical practices, workflows, information technologies, organizational change, and finances.

The local teams have become a significant component of the planning process and are expected to play a central role in the implementation of health information exchange. Members of the regionwide teams serve as communicators between the teams. For those organizations that do not currently use electronic medical records or other coordinated electronic communications, regionwide

team members are taking their learning and processes from the regional work and applying it to developing capacity and understanding within their own organizations.

Roles and Communications

The Structure allowed for role specificity and iterative communications between the Teams. Overlapping Team members, staff communications, electronic mail lists, website, and joint meetings ensured that participants at each level could readily be apprised of the work of the other teams. (See schematic below.)

Steering Committee
Original vision
Ratifies Plan

RHR Leadership Team
•Embrace and define Vision
•Education and Information
•Collective Determinations
•Design and Uniform Local Process
•Technical Assistance to Facilitate
•Draft regional plans

Local CAH RHR
•Affirm Vision
•Staged Process
•Capacity Development
•Written plans
•Key Components Affirmed

RHR Leadership Team
•Affirms decisions
•Revises Regional Plan

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OTHER STAKEHOLDERS

Physicians

Physician participation is essential to the success of this work. At the same time it is recognized that physicians' availability for time to attend regional meetings is limited. Local staff are sharing information with their physicians and beginning to identify champions. We expect that these champions will form a core of physicians willing to provide input, serve as communicators to their colleagues, and be among the first to test health information exchange.

Other Key Organizations

The planning process was open and transparent. Indeed, much information about the meetings is posted on www.comhealth.org. However, during the planning process, we did not actively seek to broadly communicate with other stakeholder organizations or to publicize the work. Instead, the process balanced openness with the desire to build capacity among existing partners and gain consensus among those organizations. It is expected that the hospitals and related clinics will serve as leaders in reaching out to other relevant stakeholders within their communities.

CAPACITY

The partners have demonstrated their commitment to health information sharing:

- The partners have committed over $1 million annually to support the implementation of health information exchange (see Appendices for letters of commitment). This figure does not include the capital commitments that partners are planning to invest to create the local infrastructure to participate in the regional health information exchange.
- The CEOs of all participating organizations have actively participated in the Planning effort. They have regularly attended monthly meetings (each lasting half a day). They have agreed to align their IT investments so that they are compatible to the system being planned. In fact, some CEOs have held off on some investments until the planning process is concluded so that their investments comport with the finalized system.
- Rural Healthcare Cooperative members have pooled over $200,000 of their individual SHIP funds to upgrade each hospital to core technological functionality. This provides a foundation for health information exchange and has already generated approximately $180,000 in cost savings through joint purchasing over the past year.
- All hospitals, even the smallest and most rural, are creating internal human resource capacity for electronic health information exchange by designating and training an information technology lead. Together, all the information technologies leads have formed a potent regionwide resource team. They have jointly installed systems at hospitals, are developing training curricula, and are pursuing a vigorous schedule of certifications and accreditations.

CAPACITY-BUILDING
A technology change is tantamount to an organizational change.
- Implementing a technology will change the organization
- Implementing a technology may require organizational changes to accommodate the technology
- Implemented technologies may have to be designed to better accommodate the organization
- Change requires communication and teamwork. Communication and teamwork skills can be learned

To equip team members, both in their role as leaders within their own organization and as leaders in the regional health information exchange process, the Steering Committee made a considerable investment (both in terms of financial commitment, as well as in their organizations' staff time and travel) to bring in-person training by experts to the region. Because it was impractical to send all members to a distant training, instead we arranged to have the HIT Certification program come to the region. The program included the curricula for both the Certified Professional in Electronic Health Records (CPEHR) and Certified Professional in Health Information Technology (CPHIT). In total, 33 participants from the region participated. 26 participants also chose to take the joint certification tests (an additional five participants will take the test on-line by the end of May). Eighty percent of the participants received certification in at least one of the two areas. This is higher than the national average of 74%. Following the training, 86% of Panhandle participants rated our collective ability to plan and implement health information sharing as "Very Good" or "Excellent."

Partners are creating workforce capacity to implement health information exchange. Because hospital-based information technology staffing will be a key component for creating sustainable systems, the IT Leadership Team has identified the knowledge, abilities, and skills required of the technological staff. A 5-month A+ PC Technician certification distance education training program was developed and delivered through a collaborative Training Academy supported by the regional community college, this project's collaborative partners, and others. The regional community college has committed $75,000 toward the training. Hospitals are paying fees to enable their IT staff to participate in further monthly trainings, which will include Windows 2003 Server, Leadership Development and Project Management training. This group is implementing organizational changes, not just implementing technology, and the training schedule is building their capacity to create relationships and build trust.

COLLABORATION WITH OTHER NEBRASKA INITIATIVES
As the Panhandle partners more forward with their vision, there are a number of other health information exchange initiatives in early planning stages throughout Nebraska. The Panhandle partners are committed to pursuing and participating in joint sharing efforts. Indeed, the Panhandle project has opened up its capacity-building events to partners across the state and has offered its expertise and learning to other initiatives. To the extent that the Panhandle can beneficially collaborate in other health information exchanges, it will welcome the opportunity.

Two other initiatives merit special note:

neHII (Nebraska Health Information Initiative) – is a nascent project exploring the possibility of statewide health information sharing. As of the writing of this report, the initiative has convened several exploratory meetings with representatives from the Nebraska Hospital Association, the Nebraska Medical Association, some of the largest hospitals in Nebraska, Blue Cross/Blue Shield of Nebraska, and the Panhandle project. Other members are also being recruited.

Heartland Health Alliance – is a project in Southeast Nebraska and a fellow AHRQ grantee. This project is planning for the exchange of behavioral health information among behavioral health providers and hospitals. Representatives of the Panhandle project have consulted with the Heartland Health Alliance project.

CONTEXT AND PRINCIPLES

CONTEXT
This health information exchange planning process recognizes a number of important factors:

- Partnering organizations and potential, future partners have legacy systems that must be accommodated.
- Current telecommunications infrastructures are tenuous.
- We are jointly developing stronger information technology within partnering organizations, both in terms of human resource capacity and physical infrastructure.
- Referral patterns dictate that the system that is developed not only work within Nebraska, but work with providers in other states as well.
- Some national and international standards exist and others are emerging, yet local "standards" must still be developed.

PRINCIPLES
The partners have affirmed that the vision for shared health information is to achieve **patient-centric**, rather than organization-centric information sharing. It is expected that providers should be enabled to access all needed information about a patient, regardless of which hospital or which other provider was involved in care. Additionally, the partners have affirmed the desire for the patient-centric information to be "owned" by the patient, available for notation by the patient, and ultimately accessible and transportable by the patient.

The partners have directed that the information sharing strategies and structures must enable a viable means to share information to others within the region not currently involved in the planning effort, and to those providers outside of the region. This decision is in recognition of the **interdependencies** that regional providers have with one another and with those outside the region. Thus, adherence to national standards will be a hallmark of the process. An adjunct to the partners' decision to capitalize on interdependencies will be their presence in nascent statewide discussions about information sharing throughout the entire state.

We are focusing on **immediate, results-orientation** to information exchange, and will phase-in information sharing based on functionality. That is, function (e.g., patient medications histories, labs, CPOE/e-Prescribing) will be created at the local level and the information exchange will be created in the "space" between organizations by the collaborative. This will enable us to achieve immediate business interests and prevent us from unnecessarily becoming ensnared in committing resources to building a grand architecture, rather than the pragmatic focus on who needs to have what information when to provide quality care safely.

The partners have determined that a **parallel local organization/regional process** will most effectively address the need to equip local organizations to make informed decisions, while also creating the standards and policies needed to facilitate information exchange.

Health information exchange will result in a **fundamental transformation of practices and workflows**. This process is more than simply using existing processes and using computers. Instead, it is an opportunity to gain efficiencies in local hospitals and clinics, and throughout the healthcare delivery system in the Panhandle.

Partnering organizations have committed to the **secure sharing** of patient information within to appropriate persons at other partnering organizations. Health information exchange will require changes in information sharing practices and policies, legal agreements, as so forth.

Health information exchange must be a viable, sustainable proposition for **all parties** involved. As independent organizations, each organization will independently assess the decision to participate. In order to this initiative to be successful, all partners must benefit from the exchange.

We recognize that healthcare providers have many software products, internally. Instead, health information exchange requires a *system* that accommodates information from a variety of software products and systems. Our solution will not be to purchase a software product and expect everyone to adopt it for all their needs. Yet, we also recognize that the complexity of exchanging information mounts with varieties of products that are expected to interface. Thus as partners purchasing new products, we are committing to first considering products already in use by other partners. This will help ensure that the product is accommodated within our exchange system. This distinction is one captured by the concept that partners are seeking "best of fit" software products, rather than the more narrow "best of breed" in software selection.

COLLABORATIVE DEVELOPMENT

This Plan is the result of an intentional and continually evolving collaboration. The partners started the planning process with the intent to build upon past collaborations to develop a roadmap for, undoubtedly, the most ambitious and complex project to date. We believe that the process and the plan are inextricably linked. The Plan would not be possible without the process. That is, this Plan is not a simple template that can or should be immediately adopted by other organizations. However, we do feel that our process is one that might be adapted by other organizations. The process not only created the Plan, but has also deepened the collaboration relationships and capacity of partners to fully participation in the Plan implementation.

The successful collaborative process often creates a transformation of the way that partners think about the goal and their role in it. Although partners often join the beginning phases of a collaborative for a variety of reasons (fear of being left out, self-interest, curiosity), there often emerge entirely new ways of thinking and relating. As Chrislip & Larson (1994) state:

In order for a collaborative to occur in the first place, the participants must believe that the collaboration will serve their own interests. But as the process evolves, and as the emotional energy that helps sustain the initiative through difficult times develops, there is a shift from narrow, parochial concerns to broader, communal concerns. This shift is often described as occurring at a specific time or around a particular event. Once it occurs, it is actively promoted and reinforced by the group. This shift is a profound one, and it marks a turning point in the life of a collaborative initiative.

Participants have identified some of the shifts that have taken place in this collaborative process:

FEASIBILITY/CAPABILITY

Where We Started	→	Where We Are Now
Can we do it?		We will do it!
This is not going to happen, it is way too big.		This is going to happen, it is just a matter of when.
Overwhelming		Manageable
Perception of the Panhandle as "hicks"		Panhandle as leaders and confident in collaborative practices

Limited presence/influence in state		Influence united at state and national level
Participatory skepticism		Participatory optimism
Milestone Events		
March Leadership Team Meeting with videos from other who have accomplished sharing March Health Information Technology Training Visits to partners' sites with working systems National recognition: AHRQ Case Study, AHRQ Conference Involvement in NEHII planning process and recognition of collaborative expertise		

PLANNING PROCESS

Where We Started	→	Where We Are Now
This is an Information Technology Leadership Team issue that can be solved by concentrating on technology		This transcends IT and involves all aspects of providers' operations and can be solved by focusing on relationships
Sharing health information just means a few people need to agree on a new product or system		Sharing health information means that multidisciplinary people must be involved because of the complexity and impact on every aspect of healthcare delivery
Uncertain about personal role in regionwide planning process and what expectations are		Understand that all roles/functions must be involved in planning process and have an important stake.
Reluctant to accept that computers should play a role in the delivery of healthcare.		Staff sees benefit and reasoning why health information exchange may lead to improved safety and quality of care.
It really doesn't matter who from what organizations are here. I am primarily concerned with who is with me from my organization.		If someone is missing from another organization, we notice the absence of their contribution.

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We did not know each other and weren't sure how to interact, but noticed that the one established regionwide team (IT Leadership Team) knew and liked each other and were having fun		We have established important relationships with one another
Tension during the first meeting		Now our meetings are relaxed, enthusiastic, warm, welcoming, and even fun.
Milestone Events		
2nd Regional meeting - working in our Teams Communication at Joint Regional Team meetings – all learning & creating together Reinforcement from new members and visitors about the warmth and enthusiasm		

INTERORGANIZATIONAL TRUST

Where We Started		**Where We Are Now**
Our CEOs have committed to sharing patient health information, but staff did not know what, exactly that meant or how to accomplish it	$\longrightarrow$	Staff at all levels of the organization embrace the important of sharing information and are taking concrete steps to make it a reality
We knew a little bit about how other providers were using electronic records but, aside from the grapevine, not much about what was really working and what wasn't working for them		We know and have seen where providers are in their implementation and we are honest and transparent about what is working and what isn't so that we can all learn from it and make consensus decisions based on facts
RWMC is attempting to take over or force other hospitals to use their system		RWMC has provided information about how their system works and has made offers about how others may opt to use aspects of it if they wish and other providers are open to those possibilities

Staff are concerned about contacting employees at other partner hospitals and sharing information about a range of issues for fear that they do no have permission to talk to the "competition."		Staff regularly contact employees at other partner hospitals and sharing information about a range of issues and all fears that they will be "in trouble" for doing so have been extinguished because of confidence that we are creating a system of care where communications must take place routinely
Uncertain about whom to use as a resource or contact at other provider for questions or problems.		Regularly make connections between people at other providers to address questions or problems
We own our information. You own your information. We have no jointly shared information		Patients own their information. We have our records. You have your records. We must share joint information and will be able to deliver better care for it
This process doesn't really relate to any other initiatives my organization is participating in		This process is key to many other initiatives
Working with staff from other entities will not impact other work I do with them		The positive relationships and trust built with staff from other entities through this process has positively affected our openness and trust as we work on other issues
Milestone Events		
Experiencing the benefits of the IT Leadership Team collaborations Continually building relationships based on trust Willingness to share where each partner is in technology (survey) Willingness to demonstrate partner technologies (site visits) Concrete offers of expertise and assistance		

REGIONAL INTERDEPENDENCE

Where We Started	$\longrightarrow$	Where We Are Now
Independent		Interdependent
When bad things happen, I hope others don't hear about it through the grapevine		When bad things happen, I immediately think of other partners and how they may be impacted
Unilateral decisions are made in isolation by partners about health information products and practices		Consensus-based decisions, where all partners work together, are made and all benefit from joint purchases and processes
Limited resources and possibilities		Shared resources and more possibilities
Individual purchase of best of breed products (even within silos of hospital departments)		Best of fit purchases with emphasis on economy of scale
Costs are determined by individual hospitals for their independent purchase and support		Costs are considered jointly for joint purchase and support
Take on projects and activities where there are opportunities, regardless of where other organizations may fit into a process		Make sure that the most appropriate organization is the one that heads up opportunities
Decisions are made internally within organizations with little regard to impact on other organizations		Decisions are made in the context of impact on other organizations
IT Support focuses on the internal client as the priority		IT Support recognizes that other hospitals are as critical as internal clients
Priorities at hospitals are driven by local impact		Priorities at hospitals are driven by local and regional impact
Milestone Events		
1st Regional Team meeting with so many there because CEOs have made it a priority HIT Training Regional Team discussions - all aspects of communication must work together Site visits		

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LOCAL ENTITY PROCESS

Where We Started	→	Where We Are Now
There is nothing we can learn from others as we implement/use our electronic health records		There is much we must learn from each other about how to implement/use shared information through electronic health information
Installing local electronic health systems just means buying a stand-alone product and turning it on		Installing local electronic health systems is complex, requires planning, changes workflow and changes how an organization functions
My role on the regional planning group is disconnected from whatever role I may (or may not) have in my home organization for IT		As a member of the regional planning team, I play a central role in leading local change efforts and in making sure communication flows
IT Support Staff is constantly making changes to the way we use our computers for no reason		IT Support Staff communicate why the changes are happening and as regional team member, I see how this all connects
Behavioral Health patient not seen as our patient		Behavioral Health seen as equal player in continuity of care
All of the talk of regional health information exchange is moving too fast		We need to move on health information exchange
How we use our electronic systems is not something other entities need to know about		We invite our partners to see our electronic systems in action and to meet our vendors
We don't talk about what doesn't work in our electronic systems with those outside our entity		We openly share our progress and frustrations with our partners and do so in front of our vendors!
Milestone Events		
HIT Training Regional meetings have given us a forum for sharing local implementation strategies Regional resources have been offered and been helpful in local team formation Dialogue at regional meetings has been inclusive of behavioral health population Site visits to active electronic health record systems across the Panhandle		

COMPILATION OF
DECISIONS AND IMMEDIATE ACTION STEPS

During the Planning Year, partners have made tremendous progress in their knowledge of and consensus about health information exchange. Specifically, the group has come to consensus about specific **decision points**, on immediate **action steps,** and three-year **logic models** that are based on accelerated implementation possible with external funding of approximately $500,000 per year. Many of the action steps provided in this section may be completed with more modest investments and in-kind support from partner organizations.

DECISIONS
A number of important decisions have been made during the planning year. They are summarized in the table below.

DECISIONS

An electronic health information sharing system…
      Is NOT:
            A single software package that is installed like a word processing package
      It IS:
            An information system framework that accomplishes multiple functions.
      AND It IS:
            Is patient-centric

We are committed to "Best of Fit" in making hardware, software, and other decisions
We will reap economies in joint purchasing, supporting, training
Access must be role based, based on local determination within region wide "levels"
There must be the ability to monitor and audit access of records
HL-7 is an absolute necessity for any system.
When purchasing new products, partners will prioritize best of fit, as it pertains to regional health information exchange.
We plan to use currently available secure networks for information transmission.

A Master Patient Index is crucial to correctly identify patients across hospitals. It does not have to interrupt current hospital-assigned numbers and instead will interface with those numbers to create a region wide MPI number that will be essentially invisible to all users.
We will follow national/international clinical and other HIT standards wherever available.
We will create a Regional Health Information Organization (RHIO) that: • interconnects with other health information activities across the state or region, • establishes accountability structures, • ensures financial sustainability, • manages staff and contractor resources, • develops and monitors reporting, • adopts standards, establishes protocols, and oversees compliance, • creates mechanisms for modification and enhancements, • creates priorities and opportunities for strategic information exchange initiatives, • "houses" the technology to facilitate exchange, • provides technical support to establish and troubleshoot exchange practices, • directs the work of consultants, • serves as the keystone for business agreements, and manages risk
Governance structure will be sustainable, self-perpetuated, transparent, and inclusive of all stakeholders.
All appropriate organizations must be able to join the governance body. We will not preemptively limit participation based on geography, particularly in recognition of current out-of-state referral patterns.
Each organization owns their "record."
Each patient owns their information and is able to access it and append information.
Patient must have ability to "opt-out" of RHIO.

Communication about the health information exchange must be coordinated centrally, with local providers being equipped for local information sharing
Introducing electronic health records, and to a lesser extent health information exchange, necessitates a fundamental redesign of workflow practices.
Regional coordination of education and training opportunities should be pursued
Create a sustainable business plan for RHIO
Assist providers in projecting costs and benefits of participating in the RHIO

ACTION STEPS

Between the issuance of this report and implementation planning, there are a number of important, immediate action steps that have been identified. Those action steps are listed below.

ACTION STEPS	
Task	**Responsible Group or Individual**
ARCHITECTURE	
Further investigate and make recommendation to Steering Committee about **architectural solution**, taking into account: • Where the integration takes place (in the way users enter data, as an edge proxy, at a transformation site, or some combination) • Pros and cons • Consider national standards (HL7 and LOINC are good beginning starts), ability to integrate, scalability, cost • What protocols are necessary • How are technical choices impacted by different stakeholder needs (public health, private practices, etc.)? • The "minimal" level of IT sophistication this system should/will accommodate.	IT Leadership Team will summarize, evaluate, and communicate the variety of possible architectural approaches and give their recommendation.
Develop an RFP for vendor selection using the HIT planning process, similar to the HRSA EMR Specs, including creating decision processes and tools, such as a Vendor decision matrix based on the information we receive from the RFP process.	RFP team with a couple of representatives from each group

ACTION STEPS	
Task	**Responsible Group or Individual**
AVAILABILITY	
Develop back up/contingency plan for availability of information for planned and unplanned downtime.	IT Team Clinical Team
Evaluate possibility of backup DSL connections and other options for redundancy. while doing the Nebraska Telehealth design. Continue looking into other communication providers for options, and watch for new technology.	IT Team
Shared SharePoint for the IT group. 1) List of spare or backup IT equipment at each site that can be used in an emergency. 2) The two courier routes over lap and we can get physical things to everyone in the group. 3) Shared Portal for RHR Group.	IT Team
SECURITY/AUDITING/MONITORING	
Research current methods of authentication	IT Team
Review and amend the Common Security Consensus document to include provider and RHIO practices for such issues as: • Access • Authentication • Transmission • Monitoring and Auditing • Physical Safeguards	HIPAA/Regulatory Team
Look at releases - Regenstrief uses a Statement of Use in Privacy Policy, no separate release.	HIPAA/Regulatory Team IT Team Steering Committee with legal consultation
Figure out how to screen out opt-out patients.	IT Team
Policies will have to cover patient opt-out, notice of privacy practices.	HIPAA/Regulatory Team
Security Policies will have to include portal.	IT Team
Recommend and implement security/auditing/monitoring technologies and hire vendor for those areas where needed.	IT Team

ACTION STEPS	
Task	**Responsible Group or Individual**
INTEROPERABILITY	
Compile region-wide matrices of observed language, vocabularies, terminologies, nomenclature, classifications, standards and versions, and codes (starting with LOINC, HL7, SNOMED, UMLS)	IT Team Clinical Team HIM Team
Lay out software "standards" using the Site Services Profile flowchart to show the pieces that each have so that we can determine what each is missing.	IT Team
Explore interoperability with pharmacies: Identify all the pharmacies, their systems, connectivity, and interoperability issues.	IT Team Local Teams

Set data exchange standards and policies to ensure system-wide integrity and consistency, including:
1) Data interchange
   a) Structured vs. Unstructured
2) Communication
   a) What information is requested
   b) Standards for location of information is in communication
3) Vocabulary
   a) Content standards
   b) Clinical data standards
	IT Team
	Clinical Team
	HIM Team

Monitor current/pending national and international standards.	IT Team
CONNECTIVITY	
Fully implement the Panhandle-portion of the Nebraska Telehealth Network: 1) Pricing for T1 lines, Cisco routers and Checkpoint firewalls is being developed for the RHCN hospitals. Everyone should end up with the same equipment and the same configuration. 2) Briefing for CEO's 3) Hospitals will review the Telco quotes. 4) Hospitals will sign contracts with Telco. 5) Lines are ordered. 6) Routers and firewalls ordered from Alltel	IT Team will oversee and coordinate implementation in the Panhandle.

ACTION STEPS	
Task	**Responsible Group or Individual**

7) Network design
    a) IP addressing scheme
    b) Issue for data traffic: Tony and Jim have 192.0.0 public IP Addressing schemes
    c) Build local configuration for video and data
 8) Installation of T1.
 9) Configuration and testing of Cisco 2811 router and Checkpoint VPN1 firewall.
 10) CheckPoint VPN1 training with hospital IT people, only let in what needs to be let in.
 11) Video training with Education and IT Leadership Teams
 12) Switch Video traffic to new T1's
 13) Switch Data traffic to new T1's (unless a hospital keeps the High Plains T1)
 14) After a few months of side by side operation, the High Plains T1's can be discontinued, depending on the contract with High Plains and capacity needs of the individual hospital.	

Monitor ongoing network usage to ensure appropriate capacity is available: 1) The hospitals may not need two T1's, that decision should be based on usage and redundancy needed, now and projected. 2) Another T1 may be needed to PVH from RWMC based on usage and a need for redundancy.	IT Team
Ensure interoperability of connectivity by centralizing contact people for ordering T1's, equipment, etc.	Bill Loring will be the liaison with RWMC and the local hospitals. Perry Delzer and Laura Looney will work with Rick Golden, UNL Computing Services Director.
Expect that video conferencing and telemedicine usage will increase. Continue to monitor and pursue other aspects of telehealth: • Project digital radiology needs up to 5 years • Project other uses	IT and RWMC
MASTER PATIENT INDEX	
Investigate the suitability of Passport to serve as the Panhandle MPI and to interface with legacy systems at other hospitals.	RWMC will work with McKesson and report back to IT Team

ACTION STEPS	
Task	**Responsible Group or Individual**
Document current hospital-based internal patient indexing programs and procedures so that information is gathered for eventual interface with a Panhandle MPI	IT Team
Create guidelines/template to guide hospital deduplication of records.	HIM Team
Create an on-going process for each facility to deduplicate its records in order to interface effectively with the regional health information exchange.	HIM Team through local HIM groups
TECHNOLOGICAL ASSETS AND GAPS	
Determine what kinds of staffing is required and develop options to achieve 24/7 response for troubleshooting and assistance.	IT Team
Address the legal and liability issues of sharing IT staff, nurses, or other ancillary staff for support.	Steering Committee
INFORMATION CONTENT	
Identify HIPAA, other federal and state law restrictions to information sharing of sensitive or protected information, prior to release of information (e.g., HIV/AIDS, psychologic/psychriatric, substance abuse, hepatitis, Sickle cell, etc.)	Legal consultation accessed via the Steering Committee
Specify required data exchange standards for use of terminologies (such as content standards and clinical data standards)	Clinical Team HIM Team
Reach regional consensus on data structure, including initial basic data sets (e.g., H/P, op rpt, demo, consult, discharge summary, labs/x-rays, med list (common or generic). Refer to NHIMA's work to update legal guide that has a data set that will create statewide "standards" and JCAHO's data set standards.	HIM Team
Standardize aspects of record management: how may be re-revised, how records will be signed-off on, will they be made available before they are signed-off on, issue of signatures	HIM Team
Develop "all hospital" standard abbreviation list	Clinical Team HIM Team
Identify the levels and types of users that will have access to records information and what elements of the information. This work should include determining who has access to view "entire" record (does the patient? If yes, how can doctors filter out information that may be harmful if patient views?).	Clinical Team HIM Team

ACTION STEPS	
Task	**Responsible Group or Individual**
Within each provider, staff must be assigned to appropriate levels and types of access based on job descriptions or functions.	Local Team
GOVERNANCE AND ORGANIZATION	
Determine tax status, governance structure, documentation and other aspects required to create the RHIO, including who else is eligible to "join" the RHIO and how.	Steering Committee with legal consultation
Reach consensus about roles and responsibilities including the role of the provider and the role of the RHIO. For example: Local Provider • Content and maintenance of records • Role-based access to records • Virus protection • Data backup • Physical safeguards • Capacity to observe or agree not to observe patient restriction requests • Capacity to override otherwise permissible access requests based on agreed upon restrictions • Security and authentication • Monitoring and auditing (how additions to the record will be enabled and tracked, and how access will be monitored) • Liability Sharing • Training • Determine personnel access (and legality) issues, for example: to prevent people terminated for security violations at one entity from joining another entity and then potentially being re-instated into the information exchange. Perhaps this could be accomplished during the application phase in employment ("have you been dismissed from another entity because due to your breeching security practices?") that is then tracked with other entities. • Process for terminations, transfers and new staff RHIO	HIPAA/Regulatory Team

ACTION STEPS	
Task	**Responsible Group or Individual**
• Establishment and monitoring of standards • Auditing rights for use and users • Agreements with vendors • Detailed operational and performance specifications for organizations and vendors • Performance measures and rewards or penalties • Intellectual property issues • Training	

Create regional privacy, confidentiality, and authorization/consent policies to be adopted by each partner. Policies should include:
• HIPAA authorization vs. HIPAA consent
• HIPAA requirement that "minimum necessary information for the intended purpose" be what is requested by covered entities
• Federal regulations governing substance abuse treatment records
• State confidentiality laws
   o Requirements may vary with the type of information (e.g., HIV/AIDS, mental health, Medicaid)
   o Separate laws may have differing consent requirements (e.g., oral vs. written, required elements)
   o Laws may apply to only a subset of partners (e.g., hospitals, mental health facilities, public health)
• Partner authority to release patient information beyond RHIO partners
• An articulation of who owns the record and who owns the information
	Steering Committee with legal consultation

Create agreements, protocols, and practices to include: • Policies to cover patient opt-out • Notice of privacy practices • Patient ability to request restrictions on uses of data for treatment, payment, or health care operations • Patient initiation of audit	HIPAA/Regulatory Team Steering Committee with legal consultation

ACTION STEPS	
Task	**Responsible Group or Individual**
• Record retention practices • Archival practices • Patient death	
RISK ASSESSMENT	

Identify and address other key legal and regulatory and operational issues, including:
• Fraud and Abuse
    o Anti-Kickback
    o False Claim Act
    o Federal Income Tax
• Anti-Trust
    o Stark Law
    o Anti-competitive
• Liability/Malpractice
• Intellectual Property
• State Licensing
• MMA of 2003
• EMTALA
• Reporting requirements
    o Police, state patrol, FBI (vehicular accidents, gunshot wounds, animal bites)
    o Public health communicable diseases and health surveillance
    o Risk management (sentinel events and board reports)
    o State CPS/APS
• Surveys, governing agencies, payers, and regulatory standards
    o JCAHO
    o CARF
    o CMS
    o CAP
    o AABB
    o Business agreements and contracts with insurance companies
	Steering Committee with legal consultation

ACTION STEPS	
Task	**Responsible Group or Individual**
o Office of the Inspector General	
CHANGE MANAGEMENT	
Determine what current paper processes can be improved (paper is still useful!) • Do a workflow/flowchart analysis of current paper processes between and in hospitals. • Standardize paper processes between hospitals	IT Leadership Team Clinical Team Workflow consultant
Continue to equip local teams in change management processes and resources	Coordinate through Joan Frances
OTHER POTENTIAL PARTNERS	
Identify and pursue what other organizations should be made aware of the partnership	Steering Committee
Develop communications strategy and pieces so that other potential partners receive a consistent message about what it means to join (including responsibilities, standards, practices, timelines, etc.)	Steering Committee, with assistance from Community Health Connections communications staff
Upon approval of Steering Committee, learn about (via a created survey) technological assets of potential partners including: internet access, type of electronic medical records, billing software/process, scheduling, how many people need access, how many access points (PCs), and who supports information technology function.	IT Leadership Team
PORTAL	
Create HIPAA-compliant policies and procedures to enable hospital access of RWMC portal	RWMC in collaboration with the Steering Committee is working to define and frame the issue for experienced health information attorney

Upon execution of necessary agreements, create roll-out and training plan for providers.
Possible steps may include:
1) Demonstration of RWMC Portal
   a) Promotion and use of the RWMC Portal
2) Rollout
   a) Setup users
   b) Train the trainer at each site
   c) Local site procedures for user training and support
   d) Adding shortcut or Favorite to desktop or SharePoint Homepage
	RWMC
	Local Teams
	Training and Education Team

ACTION STEPS	
Task	**Responsible Group or Individual**
e) Concentrators or VPN connection for physicians. Concentrator allows for direct web access with no access to the network.	
BUSINESS PLANS	
Develop metrics and evaluation plan to project and track impact	
Determine significant measurable impacts of health information exchange	Evaluation Team
Make estimates of impact	Evaluation Team in consultation with all other Teams
Develop evaluation design and implement	Evaluation Team
Develop template formula for calculating hard benefits costs using data, medians	
Determine software to be used (e.g., Access/Excel)	IT Team
Develop format and guide book to be used	Finance Team
Provide Regional Training for Providers	Finance Team
Obtain information from those who are currently using systems on how they tracked and account for margin of error. Develop into document for local teams use	Finance Team
Develop template for providers that will include: • Decrease in the turn around times for billing. • Measure # of AR days (pre and post- set target) • Measure Reduction in duplicate billings • Measure: Decrease in percentage denied • Measure : Net patient revenue and cash ratio • Measure: Collected versus charges • Measure: FTE's per RVU (Relative Value Unit) • Measure : Aging of AR by payor class • Measure: Actions as result of incorrect billing information (% that require follow up). • Measure: Whether current IT systems and processes may be eliminated (e.g., cost of tests - RWMC AS/400 for Chadron, Bridgeport, Kimball, SCB; need to talk with Alliance & Sidney) • Paper costs	Finance Team

ACTION STEPS	
Task	**Responsible Group or Individual**
• Transcription costs • Compensation (staff time) • Office supplies • Space costs • Measure: internal staff time cost of outsourced, copying expense, and staff time to do copying. • Costs of time to move and find files.	
Conduct point in time survey based on template	Providers
Assist local clinic/hospital to set bench marks (% of medical records with accurate billing information) and share benchmarks between groups	Finance Team
Develop template formula for calculating hard benefits costs using data such as medians	
Develop formulas for clinics and hospitals to use to factor increases in staffing, supplies, etc.	Finance Team
Determine what can be eliminated in each organization on an annual basis. On an at least three year migration path implementation plan determine at what point actual elimination will occur. The cost savings are at this point. Cost savings must be weighed in formula which includes systems fees against reductions in staff and hard costs.	Providers
Develop a short-term RHIO business plan for next three years using AHRQ budget.	
Include costs of: • Project Manager • System Redesign Consultant • Technology Consultant • Legal Costs to develop system • Finance Cost (Bookkeeping and Accounting) • Meeting costs • Legal costs for incorporation of entity as determined by Steering Committee	Finance Team
Develop long range business plan for RHIO	
Determine which costs can be carried within regional organization and covered through CAH.	Finance Team
Provide information to CEO's in making determination about structure of RHIO	Finance Team

ACTION STEPS	
Task	**Responsible Group or Individual**
Once structure of RHIO determined develop fee formula	Finance Team
Assist entities in projecting the costs and benefits of participating in the health information exchange	Finance Team
Determine Cost benefits for RHIO	
Regional Training Plan format for tracking current and future use.	Finance Team
Regional IT versus individual hospital IT	Finance Team
Architecture	
Develop purchase costs of various architecture being considered	IT Team will recommend architecture plans/costs
Develop maintenance costs for three years	Finance Team IT Team
Determine which costs should be carried through RHIO and which to local entities	Steering Committee
Vendor Selection	
Establish common criteria and considerations from past RFP's in area	Vendor Selection team
Review local Migration paths and benefits	Local Teams Vendor Selection team
Review and cost hardware requirements	Finance and Providers
Review information from experiencing outside of NE for states or groups that have formed RHIO's (hidden costs/actual/ long range)	Finance Team Steering Committee
Hold a train the trainer training to develop ability to negotiate regional vendor selections, measure cost savings, purchase and train	Vendor Selection team
FUNDING/POLICY	
Develop funding alternatives for short term plan.	Steering Committee
Determine feasible funding opportunities and pursue	Steering Committee
Review impact and opportunities in regard to Medicare/Medicaid reimbursement policies	Finance Committee Steering Committee
Closely monitor Congressional action in regard to reauthorization of the Universal Service Fund	Steering Committee

LOGIC MODELS

The longer-term (three-year) vision for implementation of health information exchange is captured in the following logic models. The logic models assume a Panhandle partner investment of $1.5 million and an external investment of $1.5 million over the three year period. The logic models relate to each other and are organized, for ease of use, in the following sections:

- Electronic Health Records: Building Capacity Within Local Entities
- Patient Health Records- Health Information And Data
- Health Information Exchange : Regional Health Information Organization
- Health Information Exchange : Education, Training, and User Capacity Development
- Health Information Exchange : Regional Information Exchange Demonstrations

FOCUS AREA:	ELECTRONIC HEALTH RECORDS: BUILDING CAPACITY WITHIN LOCAL ENTITIES
PROBLEM STATEMENT	Electronic Medical Records are the foundation of a patient centered Regional Health Record system. Eight Critical Access Hospitals and Rural Health Clinics do not have Electronic Health Records. Successful planning and implementation of Regional Electronic Health Records requires a parallel local process which engages CAH's and RHC in a staged development and determinations for Electronic Health Records in accordance with sound principles for HIT Development.
GOAL	Develop and implement Electronic Health Records in CAH's and RHC's through a common process and shared resources in order to enhance local and regional capacity development toward health information exchange.
DETERMINATES:	Electronic Health Records need to be different in different settings. In any setting the EMR must have a common set of goals. However, work flow, communications, primary users, data content, and data volume, source of data, information flow, and decision making vary in acute and ambulatory settings and in mental health practices. While EMR requirements vary by healthcare setting, in remote rural areas it is most likely that many of the same people will be engaged in each process wearing different hats. Each Critical Access Hospital and Rural Health Clinic is a unique, autonomous entity with its own systems and processes which must participate in change management planning in order to successfully implement.

	The Regional collaborative planning process has resulted in: • Increased capacity and understanding of process and requirements in developing Electronic Health Records. • Participants in the Regional Health Records process have affirmed a common vision and identified common benefits of a RHR. • RHR Leadership team members have identified common problems and common solutions in the development of EHR. • By September 2005 the Regional Health Record Leadership Team will have completed a general Migration Path for Electronic Health Records. The Migration Path is based on assessments and will include Core Components of Functionality for Patient Centered Health Records. This work provides the opportunity for common definition, workflow redesign, and process improvement, and is an integral and ongoing component of EHR design.
ASSUMPTIONS:	For Regional Collaboration in the Development of Electronic Health Records: • Fidelity in a common process for determinations of EHR's at the local level enhances the success in functionality of local system and RHR system. • Increased local capacity through shared expertise and resources. • Equitable development of systems in all RHC's and CAH's. • Identifying and purchasing common software products in these sites that currently have no resources, reduces the cost of interfaces and decreases timelines for a functional health information exchange. • Use of common software and Electronic Medical Records reduces costs and increases effectiveness of successful implementation in rural areas including: -Joint purchasing -Joint user training -Joint system support for users and IT staff. National Research For Electronic Health Records Development; • Electronic health records improve patient safety through accessible information that reduces medical errors. • Electronic health records improve patient safety through provision of reminders and alerts. • Electronic health records improve quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care. • Electronic health records increase productivity through easy access and reduction of repetitive tasks.

	Related to Framework for Strategic Action Goals: • Inform clinical Practice (incentivize EHR adoption, reduce risk of investment, provide HER diffusion in total and underserved areas. • Interconnect clinicians through fostered regional collaboration • Personalize care (encourage use of personal health records)
OBJECTIVES:	1.1 Retain a Redesign Consultant to develop a uniform process and provide technical assistance to Critical Access Hospitals and Rural Health Clinics in implementing plans for Electronic Health Records. 1.2 Facilitate local process for affirmation of priorities for Core Functionality for Electronic Medical Records addressing: • Health Information and Data Bases • Results Management • Order Entry (CPOE) • E Prescribing • Decision Support • Electronic Connectivity • Patient Support • Administrative Processes • Reporting 1.3 Ratify or revise regional priorities for electronic health record implementation as defined from local clinics and hospitals. 1.4 Provide Technical Assistance for each Critical Access Hospital and Rural Health Clinic to complete a Migration Path which includes: • process mapping of current systems • determination of gaps • relationship to internal business initiatives • timeframes • benefits portfolio 1.5 Revise and enhance Regional Migration Path for Electronic Health Records. 1.6 Complete Work Breakdown structure for Electronic Health Records priority areas. 1.7 Complete vendor selection for new Electronic Health Records

INFLUENTIAL FACTORS	• Regional West Medical Center has a comprehensive Health Information System including EHR. • Kimball Health Services Clinic has an Electronic Health Record. • Fifty five persons from nine hospitals/clinics and regional mental health have participated in monthly Regional Health Records Leadership Team planning meetings. • Thirty three of the Regional Health Records Leadership Team has participated in nationally recognized HIT Training. • RHCN has entered into a contractual agreement with Western Nebraska Community College Center for Business and Industry Training to create a training academy for upwardly-mobile employee training and education.

GOAL: Develop and implement Electronic Health Records in CAH's and RHC's through a common process and shared resources in order to enhance local and regional capacity development toward health information exchange.

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
1.1 Retain a Redesign Consultant to develop a uniform process and provide technical assistance to Critical Access Hospitals and Rural Health Clinics in implementing plans for Electronic Health Records.	1.1.1 Develop position description, advertise, interview, select and contract.	RHR Steering Committee	1.1.1 Written position description, and selection criteria, standardized interview process, contract.	By October 1, 2005 a Redesign consultant has been contracted.	Fidelity in a common process for determinations of EHR's at the local level enhances the success in functionality of local system and RHR system. Increased local capacity through shared expertise and resources Equitable development of systems in all RHC's and CAH's
1.2 Facilitate local process for affirmation of priorities for Core Functionality for Electronic Medical Records	1.2.1 Develop and facilitate local process for affirmation of functionality needs and priorities for: Health Information and Data Bases, Results Management, Order Entry (CPOE) E Prescribing, Decision Support Electronic Connectivity, Patient Support, Administrative Processes, Reporting	RHR Leadership Team Local Teams, Redesign, Consultant	1.2.1 Written process, power point, and handouts. Participant lists from 18 meetings. Written functionality priority plans for 18 entities.	1.2.1 By December 2005 Core Functionality requirements for CAH's and RHC's have been developed and included in local Migration Path.	Equitable development of systems in all RHC's and CAH's

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
	1.2.2 Compare local priorities to local strategic plans.	Local Team	1.2.2 Written cross walk of business plan		
1.3 Ratify or revise regional priorities for electronic health record implementation as defined from local clinics and hospitals.	1.3.1 Compare local entities Core Functional priorities for commonality and relate to, and revise if necessary regional Migration Path.	RHR Leadership Team	1.3.1 Written comparison of local plans and RHR migration Path	By 01/06 final regional migration Path for Core Functionality is complete.	Equitable development of systems in all RHC's and CAH's
	1.3.2 Ratify Regional Migration Path Core Functionality priorities.	RHR Steering Committee Local Teams	1.3.2 Minutes of Meetings	By 01/06 ratified RHR Migration Path for Core Functionality	
1.4 Provide Technical Assistance for each Critical Access Hospital and Rural Health Clinic to complete a Migration Path.	1.4.1 Develop and implement a facilitated process for each CAH and RHC to complete a Migration Path including: • process mapping of current systems • determination of gaps • relationship to internal business initiatives • timeframes • benefits portfolio	Redesign Consultant And local Teams	1.4.1 Written curriculum/process for each redesign stage. Attendance lists and evaluations from regional trainings (Academy) and local meetings.	By 06/06 completed Migration Paths including • process mapping of current systems • determination of gaps • relationship to internal business initiatives • timeframes • benefits portfolio in each CAH and RHC.	Fidelity in a common process for determinations of EHR's at the local level enhances the success in functionality of local system and RHR system. Increased local capacity through shared expertise and resources. Equitable development of systems in all RHC's and CAH's.

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Objective	Action Steps	Lead	Outputs	Outcomes	Impact
1.5 Revise and enhance Regional Migration Path for Electronic Health Records	1.5.1 Compare local entities and RHR migration paths, identify common linkages and exceptions and revise regional priorities plan. 1.5.2 Ratify revised migration Path Plan	Project manager and RHR Leadership Team RHR Steering Committee	1.5.1 Cross walk of Migration Path plans Minutes form meetings	By 06/06 ratified Migration Path.	Increased local capacity through shared expertise and resources. Equitable development of systems in all RHC's and CAH's.

1.6 Complete Work Breakdown structure for Electronic Health Records priority areas.	1.6.1 Complete Regional and local Work Breakdown Structures as information from Migration Path development is forthcoming including:
	Definition
	a) Requirements
	  • Current systems
	  • Process Mapping
	  • New FNC and Tech
	  • RFP
	Design
	a) Functional
	  • Process improvement
	  • Guidelines
	  • Vocabulary
	  • Standards
	  • Change Control
	b) Technical
	  • Interfaces
	  • Security
	  • Network
		Project Manager and RHR Leadership Team
		
		RHR Leadership Team
		
		Clinical Workgroup
		
		IT Leadership Workgroup
			1.6.1 Written Work Breakdown Structures
			
			Meeting Minutes Attendance Lists
			
			Research
			
			Drafts of standards
			
			Sample Security policies
				By 07.06 Comprehensive written regional Work Break down and Local Work Breakdowns are completed	Fidelity in a common process for determinations of EHR's at the local level enhances the success in functionality of local system and RHR system.
					
					Increased local capacity through shared expertise and resources.
					
					Equitable development of systems in all RHC's and CAH's.

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
1.7 Complete vendor selection for prioritized areas of new Electronic Health Records	1.7.1 Attendance at Vendor Fairs, group site visits, and demonstrations	RHR Leadership members	Reports back to RHR Leadership Team and local sites (ongoing)	By 09/06 completed contract for vendor for priority areas for Electronic Health Records for CAH's and RHC's who do not currently have capability.	Electronic health records improve patient safety through accessible information that reduces medical errors.
	1.7.2 Strike Vendor Selection committee	RHR Steering Committee and local entities	Committee list by 07/06		Electronic health records improve patient safety through provision of reminders and alerts.
	1.7.2 RFP Review and Narrow filed	Vendor Selection Committee	Written review criteria for vendor selection 08/06		Electronic health records improve quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care.
	1.7.2 Demos and recommendation for selection	Vendor Committee RHR Leadership Team Local Teams	Review rankings and notes and proctored vendor list 08/06

Rating Sheets from RHR Leadership Tam and Local Teams | | |
| | 1.7.3 Approval of Vendor and contracting | RHR Steering Committee and Project Manager | Consensus Process minutes

Minutes of meeting

Contract | | Electronic health records increase productivity through easy access and reduction of repetitive tasks |

FOCUS AREA	PATIENT HEALTH RECORDS- HEALTH INFORMATION AND DATA
PROBLEM STATEMENT	Paper health records (medical records) or hybrid health records (partially on paper and partially electronic) have multiple uses and users. As a result the record may or may not be accessible at the point of patient care. Patients may see multiple providers within the region and have multiple paper health records, or must wait while records are retrieved.
GOAL	Develop requirements for core functionality for health information and data which increase patient safety, quality of care and productivity through the implementation of a regional patient health record available in real time
DETERMINATES	In clinical settings patient records must be pulled, updated and used by multiple persons (physician, nurse, coding and billing, quality review, etc.). The record is inaccessible to more than one person at a time. Documentation of visits may happen after the visit, handwriting may be illegible. Patient health records may be missing lab results, x-ray reports, or other pertinent information from with in the clinic or other providers. In hospital settings patient health information may be compiled at multiple points (lab, radiology, surgery, recovery). Patients entering emergency rooms, seen in follow up clinics or referred to another provider shortly after a stay may be seen without the complete patient health record. Essential information may not be readily accessible when trauma patients enter the emergency room. Workflow redesign and process improvement is an integral and ongoing component of EHR design.
ASSUMPTIONS:	- Electronic patient records improve patient safety through accessible information that reduces medical errors. - Electronic patient records improve patient safety through provision of reminders and alerts. - Electronic patient health records improve quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care. - Electronic patient health records increase productivity through easy access and reduction of repetitive tasks.

OBJECTIVES:	1.1 Develop standardized primary requirements for core functionality for Health Information and Data for Electronic Health Records through determinations of common demographics including advance directives, medication and allergy lists, Problem Lists and diagnoses, diagnostic tests and radiology results including advance directives, for Patient Health Records 1.2 .Develop additional standardized requirements for comprehensive core functionality of Electronic Health Records through determination of common definitions and elements for procedures, health maintenance, disposition and level of service. 1.3 Develop impact and proposed changes in process improvement and workflow through systems flow charts and process mapping and data base development for monitoring change.
INFLUENTIAL FACTORS	• Core Functionality of Health Information and Data is a pre-requisite for all other functionalities. • Data will need to be derived from free text and template based. • Data must capture identifiers for people and their roles. • Too much information and data may overwhelm end users so EHR's must have well designed interfaces. • EHR should provide the ability to generate a single discipline and interdisciplinary treatment plan, capture patient acuity/severity of illness/risk • Development of common requirements toward a desired HER will create provide guidelines for obtaining software. • Development of health information and data evolves over time as new knowledge becomes available • Process improvement and change management is an ongoing activity that

GOAL: Develop requirements for core functionality for health information and data which increase patient safety, quality of care and productivity through the implementation of a regional patient health record available in real time.

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
1.1 Develop standardized primary requirements for core functionality for Health Information and Data for electronic health records	1.1.Identify common elements and structure for demographics including advance directives, medication and allergy lists, Problem Lists and diagnoses, diagnostic tests and radiology results	RHR Clinical Team And Local Teams	1.1.1 Review of current clinic paper charts and practices. 1.1.2. Review current hospital paper charts and practices. 1.1.3. Review existing electronic health records. 1.1.4 Compile standardized common elements for all records for: demographic, advance directives, medication lists, allergy lists, diagnostic tests and radiology results. 1.1.5 Ratification of standardized tools as completed by RHR Leadership team, local clinics/hospitals/ and Steering Committee	By: September 1, 2005 define common structure and elements for common demographics collection and advance directives. By November 1, 2005 common structures for standardized medication and allergy lists have been ratified. By January 1, 2006 Written common structure diagnostic tests and radiology results have been ratified.	Improved patient safety through accessible information that reduces medical errors. Improved patient safety through provision of reminders and alerts. Improved quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care. Increased productivity through easy access and reduction of repetitive tasks.

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
1.2 Develop additional standardized requirements for comprehensive core functionality of Electronic Health Records	1.2 Identify common elements and structure for procedures, health maintenance, disposition and level of service.	RHR Clinical Team and Local Teams	1.2.1 Review current practices and procedures in local clinics 1.2.2 Develop standardized requirements for recording procedures, health maintenance, disposition and level of service. 1.2.3 Ratification of standardized tools as completed by RHR Leadership team, local clinics/hospitals/ and Steering Committee	By September 2006 written standardized requirements for recording procedures, health maintenance, disposition and level of services have been ratified.	Improved patient safety through accessible information that reduces medical errors. Improved patient safety through provision of reminders and alerts. Improved quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care.
1.3 Develop impact and proposed changes in process improvement and workflow	1.3 Develop systems flow charts and process mapping, data base t for monitoring change at the local and regional level.	Clinical Team and RHCN SC	1.3.1 Retain a consultant to support local clinics/hospitals and the regional team in undertaking systems flow and process mapping with fidelity	By November 1, 2005 retain a consultant through the RHCN.	Increased productivity through easy access and reduction of repetitive tasks. Improved patient safety through accessible information that reduces medical errors.
		Clinical Team	1.3.2 Design and affirm common process to be used for systems flow and process mapping in each clinic/hospital	By December 15, 2006 affirm common practice for systems flow and process mapping	

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Objective	Action Steps	Lead	Outputs	Outcomes	Impact
		Clinical Team and local teams	1.3.3 Implement Systems flow and process change process in each clinic and utilize information in the design of standardized Regional Electronic Health Records as well as local clinics.	1.3.3 By June 2006 written systems flow and process change process exists for each clinic and have been integrated into RHR plan	Improved patient safety through provision of reminders and alerts. Improved quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care. Increased productivity through easy access and reduction of repetitive tasks.
			1.3.4 Identify common training needs for Regional Plan.	1.3.4 By January 2006 Regional Training plan with WNCC contains areas identify for change and redesign.	
			1.3.5 Conduct time studies for baselines for Regional Health Records increased productivity as part of clinic systems flow and process change.	1.3.5 By June 2006 baselines have been established for each clinic for increased productivity benefit analysis.	

FOCUS AREA:	HEALTH INFORMATION EXCHANGE : REGIONAL HEALTH INFORMATION ORGANIZATION
PROBLEM STATEMENT	Western Nebraska patients access care from multiple care settings. Paper health records (medical records) or hybrid health records (partially on paper and partially electronic) have multiple uses and users. As a result the record may or may not be accessible at the point of patient care. Patients may see multiple providers within the region and have multiple paper health records, or must wait while records are retrieved. Written and telephone communication for referrals require extensive patient time. When patients are referred for specialty care there are concerns about "getting the patient back" and about having ready access to up to date information from specialty care. Mental health care requires partnership with primary care practitioners and access to comprehensive patient information in real time. The extensive legal work being undertaken to open portals to the Regional West Medical Center Electronic Health Record would be eased by the existence of a RHIO. Similar challenges are anticipated for all future data information exchange if a RHIO is not developed.
GOAL	As an operational entity and incorporated RHIO provide the infrastructure necessary to support regional health information exchange and common developments in the Electronic Health Records.
DETERMINATES:	Regional Health Information Organizations form to support health information exchange across care settings. RHIO's are characterized by local leadership, oversight, fiduciary responsibility and governance. The regional population (90, 000) accesses health care from multiple care settings. Electronic Health Records must respond to patient care need for accessible information for multiple providers. Improving population health requires regional data. Syndromic surveillance for public health requires regional architecture.

ASSUMPTIONS:	For Regional Collaboration in the Development of Electronic Health Records
	- RHIO's provide an economy of scale benefit to remote rural/frontier areas with limited population and resources through: - Shared leadership and expertise. -Shared fees for legal and regulatory aspects of EHR -Joint purchasing and vendor agreements -Joint user training -Joint system support for users and IT staff. - For rural areas with limited populations opportunities to access funding (ehealth initiative and health plans) is enhanced through a Regional RHIO - A Regional RHIO supports a regional system of care while enhancing capacity to negotiate to share information with adjacent regions. National Research for HIT and EHR - Regional Health Information Exchange reduces hassle factors and improves satisfaction for clinicians, consumers, caregivers in rural areas. - Regional Health Information Exchange supports predictive modeling through evidenced based healthcare guidance. - Regional Health Information Exchange maintains patient confidentiality and exchange data securely among all key stakeholders. Related to Framework for Strategic Action Goals - Interconnect clinicians through regional collaboration - Personalize care through promoting use of telehealth network - Improve population health through unified surveillance architecture, streamlined quality and health status monitoring.

OBJECTIVES:	2.1 Hire a Project Manager to oversee development of Regional Health Records project. 2.2 Retain Legal Consultants for completion of RHIO formation, legal and regulatory aspects of RHR. 2.3 Finalize governance structure for a Regional RHIO 2.4 Develop by-laws for the regional sharing of health information. 2.5 Develop regional security policies and standards. 2.6 Develop regional financing plans for EHR development 2.7 Develop user agreements which identify the duties and right of members, HIPAA compliance, proper use, ownership, cost and liability sharing and technology standards. 2.8 Develop budgets and business plans for Regional Health Records. 2.9 Complete corporation formation
INFLUENTIAL FACTORS	• The region has a history of collaborative organizations such as the Rural Healthcare Cooperative Network. • The Performance Improvement Network transmits data through a shared software system • A telehealth network and t-1 line connectivity is being completed.

GOAL: As an operational entity and incorporated RHIO provide the infrastructure necessary to support regional health information exchange and common developments in the Electronic Health Records

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
2.1 Hire a Project Manager to oversee development of Regional Health Records project.	2.1.1 Develop position description, advertise, interview, select and contract.	RHR Steering Committee	2.1.1 Written position description, and selection criteria, standardized interview process, contract.	By 11/05 a Project Manager has bee contracted.	Economy of scale benefit to remote rural/frontier areas with limited population and resources through: shared leadership and expertise
2.2 Retain Legal Consultants for completion of RHIO formation, legal and regulatory aspects of RHR	2.2.1 Sign Retention contract with Paul Smith

2.2.2 Retain Nebraska lawyer to work on project. | RHR Steering Committee | 2.2.2 Signed contracts with Paul Smith and Nebraska lawyer | By 10/06 complete legal contracts. | Economy of scale benefit to remote rural/frontier areas with limited population and resources through: shared fees for legal and regulatory aspects of EHR |
| 2.3 Finalize governance structure for a Regional RHIO | 2.3.1 Determine process for membership/leadership, inclusion of new partners and structure for current RHR Steering Committee and planned RHIO. | RHR Steering Committee Physician Champions | 2.3.1 Written governance structure and membership list. | By 011/05 revised governance members for current RHR Steering Committee.

By 01/06 proposed governance model for RHIO. | RHIO's are characterized by local leadership, oversight, fiduciary responsibility and governance. |

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
2.4 Develop by- laws for the regional sharing of health information	2.4.1 Draft bylaws

2.4.2 Review, revise and approve | Legal consultants

RHR Steering Committee | Draft Bylaws

Minutes of meetings | By 12/05 ratify written bylaws for regional sharing of information are | RHIO's are characterized by local leadership, oversight, fiduciary responsibility and governance

Interconnect clinicians through regional collaboration

Improve population health through unified surveillance architecture, streamlined quality and health status monitoring. |
| 2.5 Develop regional security policies and standards | 2.5.1 Compare local HIPPA Risk Analysis, physical safeguards, and technical safeguards and develop RHR Privacy and Security policies for Individual Rights, Administrative rights, risk analysis, physical safeguards, and technical safeguards.

2.5.2 Develop RHR Standards and Policies and Standards which address: Retention, Destruction, Storage, durability, accuracy, documentation change, and transmission integrity. | Legal Counsel

Project Manager

RHR Steering Committee | Review of entity policies.

Written RHR Policies.

Written Standards | By 12/05 ratify regional information sharing Privacy and Security Policies.

By 03/06 ratify RHR Policies and Standards for Retention, Destruction, Storage, durability, accuracy, documentation change, transmission integrity | Regional Health Information Exchange maintains patient confidentiality and exchange data securely among all key stakeholders

Economy of scale benefit through: shared fees for legal and regulatory aspects of EHR |

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
2.6 Develop regional budgets and financing plans for EHR development	2.6.1 Assess local capacity for shared purchase of software.	Finance Team And Project Manager	Capacity analysis Determine local and Regional Requirements	By 12/05 financial capacity analysis	RHIO's provide an economy of scale benefit to remote rural/frontier areas with limited population and resources through:
	2.6.2 Based on Work Break Down develop budget and finance plan for priority areas for EHR purchase and installation.		Work Break Down plan Review finance opportunities	By 06/06 draft financial plan.	- Shared leadership and expertise. -Shared fees for legal and regulatory aspects of EHR
	2.6.3 Complete financial plan for Technical Infrastructure for the Health information Exchange.		Review of IT Leadership Technical Infrastructure Plan Budget preparation Review of financing options	By 09/06 draft Health Information Exchange budget and finance plan.	- Joint purchasing and vendor agreements -Joint user training -Joint system support for user and IT staff
	2.6.4 Approval of all budges and finance plans.	RHR Steering Committee	Minutes form meetings		For rural areas with limited populations opportunities to access funding (ehealth initiative and health plans) is enhanced through a Regional RHIO

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
2.7 Develop user agreements which identify the duties and right of members, HIPAA compliance, proper use, ownership, cost and liability sharing and technology standards.	2.7.1 Draft user agreements 2.7.2 Distribute to partners and members for review, discussion, and comment. 2.7.3 Ratify user agreements	Legal Counsel Project Manager RHR Steering Committee	Draft user agreements Written comments Minutes of meetings	By 09/06 Ratified user agreements.	Regional Health Information Exchange maintains patient confidentiality and exchange data securely among all key stakeholders Economy of scale benefit through: shared fees for legal and regulatory aspects of EHR
2.8 Develop budgets and business plans for Regional Health Records.	2.8.1 Develop business plan for health information exchange organization and operations which focuses on sustainability. 2.8.2 Approve business plan 2.8.3 Incorporate sustainability planning into each budget	Finance committee Project Manager RHR Steering committee or RHIO	Return on investment Cost Benefit Analysis Business Case Value Assessment Cost Worksheet Cash Flow Source of Funds Financing options Minutes form meetings	By 09/06 completed Business Plan	Sustainable RHIO by 2008.
2.9 Complete corporation formation	2.9.1 Review structures of other RHIO's 2.9.2 Determine best fit in accordance with national standards 2.9.3 Formally structure RHIO	RHR Steering committee Project Manager Legal Counsel	Minutes of meetings	By 12/06 formal structure for RHIO	RHIO supports a regional system of care while enhancing capacity to negotiate to share information with adjacent regions.

FOCUS AREA:	**HEALTH INFORMATION EXCHANGE :** **EDUCATION,TRAINING AND USER CAPACITY DEVELOPMENT**
PROBLEM STATEMENT	Development and implementation of Electronic Health Records requires ongoing education and training across multiple levels in organizations. Small hospitals and clinics have limited capacity and resources to develop internal education and training programs. Further, the regional view for the development of health records requires standardized dispersal of education, training and information in order to maximize success. Not all currently employed potential users of Electronic Health Records have adequate competency to utilize systems. Skill sets for future employees, by position description have not been developed.
GOAL	Provide standardized education, training and user capacity development through the provision regional courses and criteria.
DETERMINATES:	In October 2004 the Rural Healthcare Cooperative Network entered into a collaborative agreement with Western Nebraska Community College Center for Business and Industrial Training to develop a Training Academy for healthcare. The purpose of the Academy is to support the RHCN as a collaborative and individual members, in planning and offering high quality education and training which enhances the current workforce and promotes upward mobility. The Academy affords: • Opportunities for employees to work toward higher education while of employed. • Enhancement of the workforce through high caliber training with CEU's • Development of an Associates of Applied Occupational Studies diploma which will transfer to four year courses. • A single employee training record. Cost effectiveness is achieved through shared resources including computer labs, presentation equipment (LCD's), online registration and computerized employee training records, and sharing of local education and training funds. Benefits of regional education and training in developing local capacity have already been realized during the planning process in completion of common understanding of electronic health records.

ASSUMPTIONS:	For Regional Collaboration in the Development of Electronic Health Records and HIT • Development and implementation of RHR requires ongoing education and training at each stage. • Regional education and training provides a common body of knowledge which enhances uniform development and utilization of system across geographic area. • Development of regional initiatives for education and training is cost effective. • Providing training through Western Nebraska Community College CBIT develops the workforce capacity through provision of CEU's, and development of upwardly mobile training and education which enhances the rural workforce. National Framework for Strategic Action • Inform clinical practice to incentivize EHR adoption, reduce risk of EHR investment, and provide diffusion in rural and underserved areas.
OBJECTIVES:	3.1 Provide change management workshops for all members of Regional and Local teams 3.2 Develop and provide ongoing health information and technology educational sessions for current and future participants. 3.3 .Develop and provide user competency training in preparation for EHR. 3.4 Develop regional training modules and provide local training for each implementation stage of EHR. • Assure that education and training for current employees which is pertinent to EHR includes CEU's. • Develop user core competencies for Applied Occupational Studies which will transfer to four year programs. • Develop curriculum for employees with HIT Certification to retain annual certification status • Assure that education and training for current employees which is pertinent to EHR includes CEU's. • Develop core user competencies for all future employees by position description.
INFLUENTIAL FACTORS	• Contract with WNCC CBIT for training Academy and AOS. • Part time training and educations coordinators in each local facility. • RHCN Education and Training Coordinator position to begin by June 2005.

GOAL: Provide standardized education, training and user capacity development through the provision regional courses and criteria.

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
3.1 Provide change management workshops for all members of Regional and Local teams	3.1.1 Plan and provide training in three sites in region.	Training coordinator	Training date and announcements Registrations lists CEU's given Handouts Evaluations	By 11/05 ten organizations have participated in change management training.	Development and implementation of RHR requires ongoing education and training at each stage.
3.2 Develop and provide ongoing health information and technology educational sessions for current and future participants	3.2.1 Develop annual training plan for RHR Leadership Team 3.2.2 Develop annual training and education plan for communities and future participants. 3.2.3 Determine components applicable to AOS 3.2.4 Include community based education and addition of partners.	Training Coordinator and Training and Education Committee	Annual Training plans Registrations Participant evaluations CEU's Annual budget Cost share benefits	By August of each year annual Information and Technology training plan is completed.	Regional education and training provides a common body of knowledge which enhances uniform development and utilization. Inform clinical practice to incentivize EHR adoption, reduce risk of EHR investment, and provide diffusion in rural and underserved areas.
3.3 Develop and provide user competency training in preparation for EHR.	3.3.1 Develop and offer training courses through CBIT through out region for basic computer competency for currently employed staff based	Training Coordinator	Local sites and computer labs Number of registrants. CEU's	By 09/06 All current employees of hospitals and clinics will have basic competency skills as required by position.	Providing training through Western Nebraska Community College CBIT develops the workforce capacity through provision of CEU's, and development of

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
	on positions and determinations by IT Team.				upwardly mobile training and education.
3.4 Develop regional training modules and provide local training for each implementation stage of EHR.	3.4.1 Assure that education and training for current employees which is pertinent to EHR includes CEU's. 3.4.2 Develop user core competencies for Applied Occupational Studies which will transfer to four 3.4.3 Develop curriculum for employees with HIT Certification to retain annual certification status 3.4.4 Assure that education and training for current employees which is pertinent to EHR includes CEU's	Raining and Education Coordinator and Committee	Surveys of needs Written training plan Contracts with instructors Sites and locations CEUS Evaluations	By June of each year an annual training plan is developed which meets the training and education requirements for HER implementation, is incorporated into AOS, assures recertification possibilities for HIT, and provides CEU's.	Regional education and training provides a common body of knowledge which enhances uniform development and utilization of system across geographic area. Development of regional initiatives for education and training is cost effective. Providing training through Western Nebraska Community College CBIT develops the workforce capacity through provision of CEU's, and development of upwardly mobile training and education. Impacts all National Goals for EHR's.

FOCUS AREA:	HEALTH INFORMATION EXCHANGE : REGIONAL INFORMAITON EXCHANGE DEMONSTRATIONS
PROBLEM STATEMENT	Critical Access Hospitals and Rural Health Clinics recognize that recognition of the stated benefits of EHR's (improved quality of care, enhanced patient safety, increased productivity, reduced hassle factors and improved patient satisfaction) will be enhanced occurs at the point of interoperability and information exchange which corresponds with the intra and inter regional systems of patient care.
GOAL	Develop an ongoing systematic implementation for the exchange of health information as each component of Electronic Health Records implementation is completed.
DETERMINATES:	Physician portal capability exists at the present time for access to the RWMC EHR. Legal requirements for opening the portal are being developed. Opening the portal provides immediate benefit for the clinics and hospitals involved in RHR process and provide an opportunity to demonstrate the benefit of HIT to local sites. At the present time it is anticipated that the health information exchange architecture will be a combination of the federated model for those entities which currently have EHR's and consolidated model for common local systems that are being developed.
ASSUMPTIONS:	National Research for HIT and HER - Electronic health records improve patient safety through accessible information that reduces medical errors. - Electronic health records improve patient safety through provision of reminders and alerts. - Electronic health records improve quality of care by increasing communication and enabling use of knowledge among healthcare professionals and providers for continuity of care. - Electronic health records increase productivity through easy access and reduction of repetitive tasks. - Regional Health Information Exchange reduces hassle factors and improves satisfaction for clinicians, consumers, caregivers in rural areas. - Regional Health Information Exchange supports predictive modeling through evidenced based healthcare guidance. - Regional Health Information Exchange maintains patient confidentiality and exchange data securely among all key stakeholders.

	Related to Framework for Strategic Action Goals • Interconnect clinicians through regional collaboration • Personalize care through promoting use of telehealth network • Improve population health through unified surveillance architecture, streamlined quality and health status monitoring.
OBJECTIVES:	4.1 Open physician portal from RWMC to all hospitals and clinics. 4.2 Complete and ratify common data standards list. 4.3 Complete design and implementation of the health information exchange technical infrastructure and architecture including hardware and software purchases and installation based on determinations from Migration Paths and Health Information Exchange governance and legal consultants.
INFLUENTIAL FACTORS	• RWMC has enterprise agreement for McKesson system. • All CAH's would have access to portal through T-1 connectivity. • IT Leadership has completed assessments of systems and connectivity. • IT Leadership team also managing implementation of telehealth network • RHCN members have dedicated over $200,000 in shared resources in 2004, 2005 to develop compatible internal LAN in each hospital.

GOAL: Develop an ongoing systematic implementation for the exchange of health information as each component of Electronic Health Records implementation is completed

Objective	Action Steps	Lead	Outputs	Outcomes	Impact
4.1 Open physician portal from RWMC to all hospitals and clinics	4.1.1 Support RWMC in obtaining final legal documents to open portal.	RHR Steering Committee		By 10/05 area physicians have access to health information for patients seen at RWMC.	Interconnect clinicians through regional collaboration
4.2 Complete and ratify common data standards list	4.2.1 Develop data standards for message format, basic interoperability, functional interoperability, semantic interoperability. 4.2.2 Adopt data standards as a requirement for all future purchases and installations for RHR health information exchange participants.	RHR Leadership Team RHR Steering Committee	List of data standards	By 12/05 data standards list has been adopted.	Interconnect clinicians through regional collaboration
4.3 Complete design and implementation of the health information exchange technical infrastructure and architecture based on determinations from Migration Paths and Health Information Exchange governance and legal consultants	4.3.1 Complete Technical Infrastructure Work Break down plan including but not limited to; hardware specifications, processing architecture, redundancy, storage architectures, connecting devices-security for methods of communication (LAN/WAN/VPN internet , telecommunications)	IT Leadership Team And consultants	Assessments of current systems. Research documents	By 08/06 completed Work Break Down plan for Technical infrastructure.	Interconnect clinicians through regional collaboration Improve population health through unified surveillance architecture, streamlined quality and health status monitoring

BENEFITS OF HEALTH INFORMATION EXCHANGE

Research indicates that the application of health information technology may lead to improved quality of care and patient safety (AHRQ, 2003):

For example, at LDS Hospital in Salt Lake City, a computerized physician order entry (CPOE) system with decision support reduced the incidence of adverse drug events related to antibiotic administration by 75%.[1] It also significantly reduced orders for drugs for which patients reported allergies and adverse effects that were caused by antibiotics.[2] At the Regenstrief Institute for Health Care in Indianapolis, researchers demonstrated that automated computerized reminders increased orders for recommended interventions from 22% to 46%.[3] At the Brigham and Women's Hospital in Boston, use of a CPOE system with decision support led to increased use of appropriate medications for high-risk clinical situations, such as an increase in the use of subcutaneous heparin to prevent venous thromboembolism, from 24% to 47%. Medication errors were also reduced by 19% to 84%.[4] A 1998 systematic review of the literature that assessed the effects of 68 computer-based clinical decision support systems demonstrated a beneficial, though variable impact on physician performance in 43/65 studies (66%) and a beneficial effect on patient outcomes in 6/14 studies (43%).[5] In a more recent study, the Center for Information Technology Leadership (CITL) at Harvard recently projected that the adoption of advanced computerized physician order entry systems in ambulatory care settings could eliminate more than

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[1] Evans RS, Classen DC, Pestotnik SL, Clemmer TP, Weaver LK, Burke JP. A decision support tool for antibiotic therapy. In: Gardner RM, ed. Proceedings from the Nineteenth Annual Symposium on Computer Applications in Medical Care. Philadelphia, PA: Hanley and Belfus; 1995:651-55.

[2] Evans RS, Pestotnik SL, Classen DC, Clemmer TP, Weaver LK, Orme JF, et al. A computer-assisted management program for antibiotics and other anti-infective agents. N Engl J Med. 1998;338:232-38.

[3] Overhage JM, Tierney WM, Zhou XH, McDonald CJ. A randomized trial of "corollary orders" to prevent errors of omission. JAMIA. 1997;4:364-75.

[4] Bates DW, Leape LL, Cullen DJ, Laird N, Peterson LA, Teich JM, et al. Effect of computerized physician order entry and a team intervention on prevention of serious medication errors. JAMA. 1998;280:1311-16.

[5] Hunt DL, Haynes RB, Hanna SE, Smith K. Effects of computer-based clinical decision support systems on physician performance and patient outcomes. JAMA. 1998;280:1339-45.

two-million adverse drug events and prevent more than 190,000 hospitalizations per year; this improvement in quality and safety could also generate billions of dollars in savings in the healthcare systems.[6]

Yet, we also know that there is a misalignment between those that bear the costs (tangible and intangible) and those that recoup the financial benefits. Indeed, 89% of the financial benefits (in the form of cost savings and cost avoidance) accrue to purchasers and insurers. Only 11% of the financial benefits are enjoyed by providers (Center for Information Technology Leadership, 2003).

What does this mean in Nebraska's Panhandle? What are the benefits that healthcare providers envision? Why do they believe that health information exchange is worth the investment?

Over and over, participants were driven back to the vision for improved quality of care and patient safety as the over-riding focus for sharing information. In short, **sharing health information means that *both* staff and the patients will have more information and be better informed**.

We believe health information technology can serve as a catalyst to many, greater impacts. The adoption of health information exchange introduces the possibility for re-engineering existing processes to become more effective. Technology, alone, will not result in the benefits envisioned in the following pages, but it can provide us the tools for these outcomes.

Participants identified four categorical areas of impact within the overall vision of quality of care and patient safety. The categories overlap and numerous of the outcomes could be organized into more than one of the categories. Thus, the categories are intended as ways to organize thinking about health information exchange and its impacts and are not intended to isolate concepts. The categories are:
- Clinical Outcomes
- Patient Outcomes
- Structural Outcomes
- Financial Outcomes

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[6] Center for Information Technology Leadership. The Value of Computerized Provider Order Entry in Ambulatory Settings. March 2003.

The group also differentiated between **necessary and expected outcomes** for the health information exchange effort to have met its goals and **other possible benefits** that are important, but not central to measuring the success of the project.

NECESSARY AND EXPECTED OUTCOMES
Partners have entered into this collaborative with the intention that health information exchange will result in improved patient safety and higher quality of care. Additionally, partners recognize that reducing unnecessary costs for both hospitals and patients is a key component to providing accessible, available healthcare in the Panhandle. Health information exchange, then, should result in important outcomes, many of which are measurable. Among the essential, measurable impacts that are expected as a result of successful implementation are:

Clinical/Patient Outcomes
- Decreased time from order to implementation (antibiotic delivery, etc.)
- Fewer Adverse Drug Effects
- Increase in number of people with PCP or primary clinic
- Fewer duplicative tests (especially AB, radiology)

Structural Outcomes
- Streamlining of work processes
- Fewer duplicate records/admissions
- More clients seen in less time
- Provider satisfaction

Financial Outcomes
- Decrease in the turn around times for billing.
- Decrease in AR days (pre and post- set target)
- Reduction in duplicate billings
- Decrease in percentage denied
- Net patient revenue and cash ratio
- Collected versus charges
- FTE's per RVU (Relative Value Unit)
- Aging of AR by payor class

- Actions as result of incorrect billing information (% that require follow up).
- Less cost for square footage devoted to records (on and offsite)
- Record transfer costs
  - Person hours
  - Supplies
  - Long Distance
  - Postage

AN ARRAY OF OTHER POSSIBLE BENEFITS

There are a number of other *possible* benefits that may be the result of health information exchange. The following list is not meant to imply that health information exchange will accomplish all of these benefits, or even that all these benefits are measurable. Rather, the list is presented in order to enable, in future planning and evaluation, a consideration of the range of benefits that may accrue from health information technology. This list was developed by partners based on their own experiences and observations and in review of the experiences of others who have implemented health information technologies.

Clinical/Patient Outcomes

Clinical benefits are those that allow for improvements in care and delivery quality.

Faster Care

Timeliness of care from admission to order completion may improve. Immediate charting and information availability would mean care may improve. Point of care completed at the time of care will become immediately available. Because patients will more quickly and easily be identified, patients with chronic conditions and other high-users in the healthcare system, especially, may be evaluated more efficiently. We expect that there may be speedier admissions for those who are sick, and in effect, decreased waiting time in the clinic or ER where patients must sit with others who are sick. There may be reduced time spent on obtaining patient record release. Providers will not have to wait for chart pulls. Since information will be available at the point of care, providers will have immediate access to information, especially in an emergency. Providers may be able to follow-up with patients, even after discharge, enabling quicker identification of issues, speedier communication, and faster interventions. There may be improved coordination and treatment among multiple providers, and this may be particularly crucial in emergency rooms. There may be decreased time waiting for relevant information to become available.

Appropriate Care

With more comprehensive health information, providers may be better equipped to deliver appropriate care because they may have more complete and reliable information. Providers may have more time to spend with patients. There may be improved continuity of care for those patients who do not have a medical home or who migrate among providers. Even for people with a medical home, as Primary Care Providers are becoming a "place" rather than a person. Providers may not have to rely on patients to relay health histories, specialists' results, medications, allergies, and so on. In those cases when the patient is unconscious or otherwise unable to relay accurate information, access to comprehensive information will be vital. Providers may be able to give more specific diagnosis when they are performing the coding. Access to specialty referral may be accomplished in a timelier manner. Physicians may not have to spend hours on the phone trying to persuade and provide information to specialists to make a referral. The availability of accurate information may help with a more timely response and acceptance. And, the results of that specialists' care may be readily available to the referring physician.

Error Reduction

Shared electronic health information may reduce errors. Providers may have more accurate medication and allergy lists, and decision support tools that may decrease adverse drug effects and polypharmacy. Transcription errors may be reduced. There may be less chance of error in transfers. There may be better and legible documentation and orders by providers.

Preventive, Continuity, and Follow-up Care

Providers may more easily be able to provide preventive care, continuity of care, and follow-up care. There may be better continuity of care, particularly between provider organizations. Services between physicians may be better coordinated. Providers may be able to work from the big picture instead of snapshots. Providers and patients may get information about specialist and referral care back in a timelier manner. There may be decreased duplication of services and tests. Care may be better coordinated. Providers may be able to monitor that their prescriptions have been filled. It may be possible to engage in structured health prevention and quickly identify and contact patients in groups (e.g., by pharmacology, age, diagnosis). There may be improved integration with social services.

Efficiencies in Healthcare Delivery

Patients may experience a more efficient healthcare system. Because more complete information may be available, patients may have improved care and better access to information and appropriate care. Patients may be less likely to have to make multiple trips for care. They may not have to physically navigate from provider to provider to ensure that appropriate information is available. Test results may become available more quickly among all their providers who need the information.

Satisfaction

Patients may recognize the quality, comprehensive care available in the Panhandle. Patients may not be faced with the frustration of having to negotiate and try to expedite information and results sharing among various providers. Patients may not have to bear responsibility for ensuring that tests and referrals and other information physically flows to their other providers. Streamlined information gathering means that patients may not be faced with providing the same, repetitive information over and over. The amount of paperwork patients deal with may be reduced. Providers may be able to more quickly and completely communicate with patients because they may be more likely to more quickly have the information they need to answer patients' questions. There may be fewer patients who leave the Panhandle system of care due to patient frustration. Patients may be confident in and satisfied with the care they receive.

Trust

Patients may have greater trust and confidence in their providers. There may be fewer complaints and legal action from patients as a result of their perceptions of the care they received or of the privacy of their information.

Costs

Patients may have more timely care, less redundancy, shorter lengths of stay, fewer rehospitalizations, and as a result may enjoy a decrease in cost of their care. Care may be more efficient.

Empowerment and Accountability

Patients may be able to more easily access and annotate their health information. They may become informed partners in their health treatment and more in charge of their own health. Patients may be able to access educational information about their care. Patients may have more information to take responsibility for and monitor their own care.

Measurable impacts for expected clinical/patient outcomes may include:
- Fewer patient falls
- Decreased medical errors and near misses
- Decreased infections rates/nosocomial infections
- ORYX indicators
- Time studies - shorter time to be seen, quicker admissions, more productive patient visits
- Decreased Complications
- Decreased time from order to implementation (antibiotic delivery, etc.)
- Fewer Adverse Drug Effects
- Number of Trauma patients
- Shorter length of stay
- Increase in number of people with PCP or primary clinic

- Greater fidelity to treatments because patients may understand and be a partner in care
- Fewer duplicative tests (esp. AB, radiology)
- Decreased multiple trips to obtain care
- Decrease in recovery time
- More accurate, specific diagnoses (better decision making)

- More early intervention
- Trust and confidence in providers
- Time with providers
- Decreased emergency room use
- Timeliness of information
- Out-migration
- Lower overall healthcare costs for patients

Structural Outcomes
Structural (organizational) benefits are those that improve processes through streamlining or fundamental transformation.

Efficiency of Care
Providers may be able to work with more clients every day. Staffing profile or job descriptions may change (for example the ward clerk could ensure coding immediately). Fewer staff may be required to file and retrieve paper records. There may be dramatically reduced reasons for multiple entry of information. There may be better use of human capital and increased productivity. There may be reduced total person hours.

Information Availability
Information may be more readily available to everyone who needs it. "Charts" may be available to everyone who needs it, when they need it, regardless of who else is accessing it simultaneously, and how old the information is. "Charts" may not get lost. Information may be documented more quickly and there may be fewer delinquent or inaccurate charts. Information availability may be useful for Quality Review and Utilization Review and the chart audit access for peer review. Back up documentation may be able to find more readily.

Satisfaction
Staff may be freed from duplicative paperwork to spend more time with patients. Some physicians are finding that adoption of electronic health records also means that less time must be spent at their hospital or clinic, and that they have more time to spend with their family. When providers are on-call, instead of always having to report to work, they may be able to access information and develop a care plan without leaving home. New physicians trained in communities with electronic health records may expect to have

this availability. Recruitment of new providers may be improved and turnover may be reduced. Providers' staff capabilities may be enhanced.

Provider Safety
Providers may have added safety features. Decision support systems may assist in preventing adverse drug events, or providing important reminders. There may be reduced organizational and personal vulnerability for errors. Appropriate security procedures may reduce vulnerability to breaching patient confidentiality. Risk management may be improved.

Measurable impacts for expected structural outcomes may include:
- Satisfaction
    - Physician
    - Collaboration/communication with others
    - Timeliness of information
    - Time with patients
    - Comprehensiveness of information
    - Availability of charts when needed
- Staff
    - Confidence in carrying out tx
    - Timeliness of information
    - Time with patients
    - Comprehensiveness of information
    - Job satisfaction
    - Availability of charts when needed
    - Less duplicative work
    - Less turnover
    - Fewer overtime hours
    - Less sick leave
    - FTEs (registrations, chart pulls, transcription, record transfer)
    - Other record transfer costs, such as supplies, phone, postage

- Streamlining of work processes – not yet sure how to measure
- Fewer duplicate records/admissions
- More clients seen in less time
- Staffing
- Fewer threats of lawsuits
- Fewer privacy complaints
- Longer record retention
- Less time waiting for information from other providers
- Project In A Box

FINANCIAL BENEFITS
Financial benefits are increases in revenue or reductions of operating costs. However, it must be noted that to gain the complete financial impact, costs to implement the electronic health records exchange must also be considered, including: hardware and software, training and education, and so forth. These are dealt with in another section of this document.

Revenue
We expect that electronic health records may create opportunities for quicker turn around time of results and billing. Legible documentation may increase coding accuracy. Overall quality of billing and coding may be improved. Billing delays may be reduced. Duplicative or erroneous billing may be reduced. The number of claims denials may decrease.

Tests and Services
There may be decreased cost and revenue because there may be fewer redundant tests and services (e.g. AB & radiology).

Operating Costs
Record transfer and storage costs may be reduced. Registration costs may be reduced. There may be reduced transcription costs in some venues and reduced storage cost. There may be reduced liability risks and costs. Joint purchasing may increase buying power.

Measures
- Track retail vs. collaborative purchasing methods (Money saved and projects implemented that wouldn't have been implemented otherwise.)

- Savings due to IT person watching IT purchases (holding vendors to contracts)
- Decreased denials and refusals for payment
- Decreased accounts receivable – days in
- Fewer late charges (e.g., Medicaid and Medicare)
- Less cost for square footage devoted to records (on and offsite)
- Record transfer costs
    - Person hours
    - Supplies
    - Long Distance
    - Postage

EVALUATION AND MONITORING
Many positive outcomes are possible, depending on what how health information will be use. Precise outcomes and metrics must be established to evaluate the impact of health information exchange and the introduction of electronic health records in those entities where they do not exist. Articulating outcomes will help partners focus their efforts and determine to what extent tangible improvements have been achieved. It will also assist in focusing implementation prioritization. An Evaluation Team will be established to work with the other Teams to create the Evaluation Plan.

ASSETS, RISKS, THREATS, AND BARRIERS

This rural partnership is uniquely positioned to successfully model how rural, isolated hospitals and other providers may use health information technology to exchange health care information. Indeed, as noted by experts across the country, it is not the technology that is the difficulty; rather it is the people, policies, and processes that are often stumbling blocks. The partners involved in this effort have made health information exchange their primary, joint goal. The partners have long-standing institutional relationships, and have experienced success in similarly complex projects requiring high degrees of collaboration, information sharing, and financial commitment. The successes of the partners in developing services and integrated systems of care are in large part based on the time and energy spent in developing trust and relationships within and between these organizations toward a common vision. The partners also know how to work productively with consultants to bring needed expertise to processes. In short, if rural health information sharing between disparate rural providers will be successful anywhere, it will be among these partners. Participants have identified overall assets and gaps, as well as risks, threat and barriers to exchanging health information.

ASSETS
Participants identified four primary categories of assets:
- Collaboration, Leadership, and Vision
- Resources & expertise within partners
- Information technology infrastructure
- Financial

Collaboration, Leadership, and Vision
- Vision makes sense in our system of care and defined geographic area
- Time and commitment from leadership, especially CEO's
- CEOs have set the shared vision and allocated resources for planning
- Panhandle's history of success in achieving results and sharing resources
  - History of sharing confidential information and working together for system improvement
  - Nebraska Organization of Nursing Executives Panhandle group
  - Physician Peer Review
  - Trauma network

- o Existing business agreements
- Regional relationships
  - o Building on existing collaborations
  - o Established Relationships
  - o Can air problems without trouble
  - o Organizational and personal trust
  - o Conflict Resolution skills
  - o As a group we have more power
- Leadership Teams have ability to create the plan
- Determination
  - o Can-do attitude/frontier spirit
  - o Political Influence
  - o Collaborative will

Resources And Expertise Within Partners
- WNCC Training Academy as a way to tie training into education opportunities
- Partners have expertise and resources in important issues such as group process and training (e.g., Meyers/Briggs Personality Test, "Who Moved My Cheese?")
- Confidentiality Awareness and Training Currently in Place
- Joint media campaigns
- Physicians' organizations and other professional networks we can tie into both to disseminate information and also to gather information and provide training
- Increasingly, people are using computers at home, so they should have more familiarity
- Bill Loring – RHCN System Engineer
- NU Public Policy Center
- Joan Frances – RHCN Executive Director

Information Technology
- All the hospitals now have an IT Infrastructure to build from and awareness about why it is important
- Nebraska's Telehealth Network will provide future connectivity with the local hospitals and the entire state

- High Plains T1 network connects all but two of the hospitals
- Organizations that have experience in partnering with a Vendor
- We can benefit from experience and resources of those organizations that have already implemented electronic records
- Staff from organizations are using each other as resources
- We have Internal Champions

Financial
- Each organization has financial resources that each are willing to commit
- Experience in and willingness to pool funds
- Organizations recently have benefit of financially favorable designations (Rural Health Clinics, Critical Access Hospitals)
- Possibility and history of grants and other federal funding

RISKS, THREATS, AND BARRIERS
There are also important risks, threats, and barriers to the implementation of electronic health records information. These include:
- Technological
- Procedural
- User Resistance
- Implementation
- Financial

Technological
- The Panhandle's lack of redundant electrical and communications infrastructure
- Local data communications providers don't have the capacity
- No current loop (no redundancy, one line is cut in Grand Island, and everything is down.)
- Possible vulnerabilities
  - Weather and other natural disasters
  - Vandalism (intentional and unintentional)
  - Terrorism
  - System failures (crashes)
  - Maintenance

- Secure technology will have to be implemented
  - o Identity authentication for patient and user
  - o Levels of access
  - o Audit trails
  - o Data integrity
- Is there an architecture and implementation process that will work?
- Chosen technology must be accessible to all organizations who wish to participate
- Creating a viable regional master data index will be an huge challenge
- There are challenges to move from RFP to Proposals to Reality
- Definition of the Electronic Health Record and components to share
- Our information is not currently interoperable
- There is a language barrier between IT staff and provider staff. This must be overcome.
- IT staffing will have to change in some organizations so that there is immediate availability for troubleshooting 24/7.

Procedural
- Rules/Regulations/Legal – confidentiality, privacy, fraud & abuse, antitrust, federal income tax, intellectual property, liability/malpractice, state licensing, etc.
  - o HIPAA authorization vs. HIPAA consent
  - o The Family Educational Rights and Privacy Act (FERPA)
  - o Federal regulations governing substance abuse treatment records
  - o Nebraska confidentiality laws for all aspects of records (e.g., HIV/AIDS, mental health, Medicaid) and types of consent requirements (oral vs. written, required elements)
  - o Department of Housing and Urban Development's Homeless Management Information Systems (HMIS)
- Adaptation of established procedures
  - o Reporting to state/certifying organizations
  - o Existing agreements among and between other partners
  - o Security/confidentiality policies and procedures will have to be adapted to meet standards agreed upon by all partners because the security will only be as strong as the weakest link
    - ▪ Data integrity
    - ▪ Access and use policies

- Disgruntled employees
- Levels of Access
- Fired employees who apply for jobs at other partner hospitals
- Ensuring "need to know"
- Ensuring information does not become a part of "Small town talk"
- Policies for refusal to use/misuse of access
  - How users will be trained and "accredited" prior to receiving privileges

User resistance

End-user resistance to move to the regional health information exchange system, particularly for those providers moving from a paper-based system, is a significant cultural change.

- Security exposure perception
- Patients may not trust security of system
- Resistant to the standardization of information
- Fear of technology or change
- Unwilling or unable to learn
- Perceived loss of power by individuals
- Staff will dismiss this as the "Flavor of month" and not take it seriously
- Staff will be reluctant to use because of expected future changes, so they'll want to wait until the system is stable and in place, but there will have to be a change in mindset because there will always be changes and upgrades.
- Staff resentment that money for information technology is being diverted from other priorities
- Organizations have traditionally operated as competitors
- Loss of identity for organizations if we are begun to be seen as a single entity
- Organizational culture has been to protect and secure medical records

Implementation

- Many partner will have to make the shift from paper to electronic
- The information-sharing process must be completely redesigned
- The security of system is important, but if it is difficult to get to the information needed, it will be a barrier to use.

- Users may not understand the information flows so that they can recognize "down stream" effects of changes they make
- Other health care providers must be incorporated (Private practice, pharmacies, chiropractors, others) or may be lost
- Interfaces, even those within hospitals (Payroll, nursing home, lab, clinic, etc.) are difficult
- Integration between hospitals, clinics, and behavioral health providers, each with their own practices and norms.

Financial

The rural environment imposes significant economic constraints upon any technology initiative.
- Not being able to leverage current systems, the cost of obsolescence
- Every organization has its own budgeting process and priorities and scheduling
- Affordability of the exchange system that is scaleable small to large
- Liability for breach of security
- Financial burden of conversion—transition from paper to electronic
- Cost of equipment/software upgrades

ARCHITECTURE AND DESIGN SPECIFICATIONS

An electronic health information sharing system…

 Is NOT:

  A single software package that is installed like a word processing package

 It IS:

  An information system framework that accomplishes multiple functions.

 It SHOULD:

- Integrate data from multiple sources (e.g., lab, Rx, radiology, images)
- Capture data at the point of care
- Support caregiver decision making

 The decision about architecture must be made in the context of:

- Legacy systems at hospitals and clinics
- Internal and external to partners
- Connectivity options
- Fiscal realities
- On-going viability and support
- Standards-based for broader interoperability

The architecture describes the regional health record's technical foundation. The *architecture* is a formal description of an IT system that defines the components or that make up the overall information system, and how products and systems will work together. Each participating organization will maintain its own information on their resident systems. The information, with patient approval, will be compiled with other organizations' data and be made available through a common interface.

The architecture will describe the regional health record's technical foundation. The *architecture* is "a formal description of an IT system, organized in a way that supports reasoning about the structural properties of the system. It defines the components or building blocks that make up the overall information system, and provides a plan from which products can be procured and systems developed,

that will work together to implement the overall system" (Tsiknakis et al., 2002, p. 9). Each participating organization will maintain its own information on their resident systems. The information, with patient approval, will be compiled with other organizations' data and be made available through a common interface.

The technological infrastructure will comprise three components -- local, connectivity, and regional. It is expected that the solution will enable participation even for those providers with a very basic level of technology, as long as interoperability standards and policies are observed. Possible software and architecture barriers will be addressed through: the solution (which will accommodate, rather than replace, existing software and architectures to the greatest extent practicable); development of a modular system (which will enable a "piece by piece" assembling of the infrastructure); and observance of national and international standards. Connectivity will be achieved through the existing WANs for hospitals and their clinics, and through secure, encrypted exchanges on the Internet for other providers. It is expected that all of the hospitals, including two hospitals not currently connected, will be connected through a current initiative of the Nebraska Public Service Commission that essentially provides free purchase and installation of private data lines.

We will aggressively explore opportunities for economies through joint purchase. We believe multiple partners engaging in a joint process will provide the scale needed to create sustainable systems. Financial and other resource economies may be achieved in selection processes, purchase price, training, technical support, and so on. Although there will likely be a tension between choosing what may be "best" for an organization versus what will most ensure information exchange, we expect to find opportunities that will create mutual advantages. Indeed, we expect that providers without systems will first closely consider the advantages of joint arrangements for the existing products currently in use by the partners.

CURRENT CAPACITY AND INFRASTRUCTURE
Hospital technological capacity varies significantly among partners. A survey of capacity and infrastructure has been developed and administered to create a comprehensive picture of partners' current status. The information provided in the tables that follow are current as of July 2005.

	BBGH Alliance	CCH Chadron	GCHS Oshkosh	GMH Gordon	KHS Kimball	MHC Sidney	MCCH Bridgeport	PCHS Grant	RWMC Scottsbluff	PCS	PMHC
IT Person	Jim Parks Mandy Whaley	Anna Turman	Dee Dee Waltman	Tony Hindman	Nicole Neilan Tim Danna	Lupe Torres	Connie Christensen	Tami Sorensen	Laura Looney	Mike Fogle	Debbie Wells
IT Staff Training	2004	2004	2004	2004	X	2004	2004	2004	X		
IT System Engineer	2004	2004	2003	2004	X	2004	2004	2004	X		
Staff Training	2004	2004	2004	2004	2004	2004	2004	2004	X		
Technology Planning	2004	2004	2003	07-04	X	X	2004	07-04	X		
Wired Network	X	2004	2003	2005	X	X	X	2005	X	X	X
Internet Bandwidth Down/Up	1.5/512	06-04 1.1/830	2003 1.5/384	1.0/1.0	1.5/384		09-04 2.0/512	512/512	2.5/2.5	T1	
Internet Provider	Mobius	Qwest	Sprint	Great Plains	Sprint	Qwest	Charter	Great Plains	Action	Action	Sprint
Local Telco Provider	Allo Communications	Orbitcom	Sprint	Great Plains	Sprint	ATT	NTT	Great Plains	Sprint		
Secure Firewall	Firebox	07-04 Firebox	2003 Firebox	11-04 Firebox	Firebox	Firebox Sonicwall	09-04 Firebox	10-04 Firebox	Cisco Sonicwall	Firebox	Sonicwall
Internet Content Filtering	12-04 Firebox	06-04 Firebox	2003 Firebox	03-05 Firebox	SurfControl	St Bernard			Sonicwall	Firebox	
Corporate Anti Virus	09-04 Symantec	07-04 Symantec	2003 Symantec	02-05 Symantec	Symantec	Symantec	09-04 Symantec	10-04 Symantec	X Symantec	X Symantec	X
Software Updating	X	08-04	2003	12-04	X	X	09-04	10-04	X	X	X
Remote Access	X	06-04	2003	11-04	X	X	09-04	10-04	X	X	
File Server	10-04 W2003	09-04 W2003	10-04 W2003	02-05 W2003	W2003	W2000	09-04 W2003	10-04 W2003	W2000	NT 4.0	X
Security Policies	09-04	09-04	10-04	12-04	X	X	09-04	10-04	X	X	X
Mail Server	10-04 Exchange 2003 Std	09-04 Exchange 2003 Std	10-04 Exchange 2003 Std	02-05 Exchange 2003 Std	Exchange 2000 Std	07-05 Exchange 2003 Std	02-05 Exchange 2003 Std	10-04 Exchange 2003 Std	Exchange 5.5 Std	Exchange 5.5 Ent	Exchange
Mail Server Anti Virus	Symantec Mail Security	Symantec Mail Security			Symantec Mail Security	Symantec Mail Security		Symantec Mail Security	Norton Anti Virus for Exchange	Symantec Mail Security	
E-mail Gateway Content and Spam Filtering	Firebox Mdaemon	09-04 Firebox Mdaemon	2003 Firebox Mdaemon	02-05 Firebox Mdaemon	Firebox Mdaemon		Firebox Mdaemon		Barracuda 2005	X	
Intranet	07-05	07-05	07-05	07-05	X			07-05			
Connected Sites	2	9		1	2	2	2		1	1	3
Terminal Server	05-05	08-05			06-05	1			1	1	

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	BBGH Alliance	CCH Chadron Hosp	WCHR	PP	GCHS Oshkosh	GMH Gordon	KHS Kimball	MHC Sidney	MCCH Bridgeport	PCHS Grant	RWMC Scottsbluff	PCS Gering	PMHC
Networked Copiers											6		
Networked Multi Function Copiers (Fax, Scanner, Printer)					1	1	7	18	1	1	6		
Network faxing (Faxing from Computer)								3		2	6		
Network Printers	20	3			1	1	7	27	1	1	150	X	
Printers attached to workstations	4	43	28	1	12		20	10	10	15	5		
Wireless Network	10-04		X				X	X	X		X		
LCD/DLP Projector	2	2	1				2	1			10	5	
Adequate Pc's	X						X	X	X		X	X	
Adequate Laptops	X						X	X			X	X	
Pc's on wired network	80	53	16		27		55	42	22	41	630	118	
Pc's on wireless network		14	4					21					
Laptops on wired network		5			2		5	6			55	3	
Laptops on wireless network	8		1				5	25			160		
Wireless Tablets							11				3		
PDA's	1	2					9	2		1	45		
Intelligent Phone System							Altigen 4.5	X			Avaya G3SI		
Voice Mail	X				X		Altigen 4.5	X		X	Audix, Intuity	X	
Auto Attendant Routing	X						Altigen 4.5	X			X		
Phone System Integration with Computer Systems							Altigen 4.5						
Phone System VOIP Capable							Altigen 4.5	X			X		
Time Clock/Payroll					TimeForce		TimeForce						

Current Data Use of High Plains Network	BBGH Alliance	CCH Chadron Hosp	/WCHR/PP	GCHS Oshkosh	GMH Gordon	KHS Kimball	MHC Sidney	MCCH Bridgeport	PCHS Grant	RWMC Scottsbluff	PCS Gering	PMHC
Radiology to RWMC		X		X		X		X				
Radiology to PVH						X	X					
Video Conferencing Units	2	1		1		1	1	1	1	6		
AS400 (RWMC)		X	X			X		X				
MIDAS (RWMC)	X	X		X		X	X	X				
Lab (RWMC)		X				X						
RWMC Portal						X						

Approximately what is the percentage of the combined annual operations and capital budget for . . .

	BBGH Alliance	CCH Chadron Hosp/WCHR/PP	GCHS Oshkosh	GMH Gordon	KHS Kimball	MHC Sidney	MCCH Bridgeport	PCHS Grant	RWMC Scottsbluff	PCS Gering	PMHC
Information technology staff?	.4%	0.352%	>.06%	1%	1%	2%	.06%	06%	1%		
Hardware purchase and repair?	.5%	0.037%	>.02%	.5%	14%	3%	2%	1%	.5%		
Software purchase and licenses?	.1%	0.013%	>.02%	1.4%	2%	1%	1.5%	1%	1.4%		
Connectivity?	.03%	0.087%	>.02%	.1%	1%	0	.03%	.02%	.1%		
Consulting and maintenance contracts?	.25%	0.062%	minimal	1.5%	1%	13%	1.8%	2%	1.5%		

ARCHITECTURAL STRUCTURE

There is no single solution for creating health information exchange structures. Two important aspects of structure to consider are:

- data storage
- data transfer

Data Storage

The Data Storage continuum is anchored by a purely centralized model on one end and a purely decentralized model on the other end.

- Centralized - All data is maintained in one repository
- Decentralized - Data resides at each facility

As with any continuum, in the middle of these to pure solutions are solutions that are a combination of the two. For example, an architectural solution may be a centralized data repository for a subset of users (small physician offices) and decentralized for all other participants. One approach that is gaining recognition is a model where the data is decentralized, but a record locator service maintains a centralized index of where information is available for each patient.

Centralized Data Storage
    Ownership
- Everyone would have to agree on the rules of input, output, functionality, security and maintenance
- Everyone would have to agree on location and system
- Everyone would have to agree on cost sharing

    Access
- When access to the data is down, no one can send or view information.

    Relative Expense
- Backup and Redundancy most expensive with this solution

Decentralized Data Storage
    Ownership
- Rules of input, output, functionality, security and maintenance are local decisions
- Share the cost of system for data aggregation and delivery

    Access
- When access to one decentralized system is down, the others are available
- Aggregated information can also be cached at each local system

    Relative Expense
- Backup and Redundancy least expensive with this system.

Data Transfer

Data transfer describes how data is made available so that it is accessible to others. Data may be pulled (i.e., the data is made available upon request from a provider) or it may be pushed (i.e., data is made available based on something other than a specific patient request from a provider)

- Pull – Information is transferred when requested
- Push – Data is pushed from data storage based on rules, ex. alerts, subscription data

Some information exchange systems only either pull or push. Some enable both pulling and pushing. This is an important consideration. For example, if a system is only able to pull data, it may be impossible to aggregate data for public health surveillance.

Initial Reaction
- A **Centralized** data storage system is unlikely to be appropriate for a rural area because of a lack of redundancy, adequate infrastructure, money and existing legacy systems.
- In a **Decentralized** data storage system the infrastructure would be cheaper, but the custom programming infrastructure is currently beyond our capability. We would need to partner with a vendor for this expertise until we could gradually build capacity.
- In a **Pull** data environment, the right information would be available at point of care, but clinical decision making support wouldn't be available. A combination of **push** and pull makes the most sense. The provider receives the information that they request when they need it, plus they can subscribe to different alerts and active published information.

Based on the state of the art of this infant industry, we will need to work with a vendor to customize the solution, which would likely include a combination of all of these ideas, to our situation.

AVAILABILITY
Availability of information is a key factor. All systems experience some downtime, however. The partners must realistically assess their availability needs, create a system (including necessary redundancies) that should be able to reasonably meet those needs, create contingency plans for unexpected downtime, and monitor achievement of availability goals.

Electronic health records systems will have some downtimes. Some typical downtimes include:
- Maintenance, Repairs and Upgrades
- Human Error from Support Staff
- Connectivity Outages (internal and external)
- Power Outages and other Unforeseen Incidents

Because of the inevitability of downtimes, it is essential that redundancies be built into the architecture of the system. Redundancies may be addressed by duplicating systems, so if one is down the other is available to ensure data accessibility. This kind of duplication is possible for electricity, T-1 lines, local computing hardware and software. The data may be backed up and stored offsite at some regular interval (e.g., daily) so that it may be retrieved in the event of a catastrophic failure. Also, real-time data may be continuously mirrored on an alternate system that is available when the main system is down.

SECURITY/AUDITING/MONITORING
The IT Leadership created a Common Security Goals Consensus approximately one year ago. This document lays out regional security goals. In the context of health information exchange, it will form the foundation and will continue to evolve as the consensus document for security, auditing, and monitoring practices of technological systems. A useful resource for updating the Consensus document may be MA-SHARE's Summary Security Requirement document (2005) that may be accessed at:
http://ccbh.ehealthinitiative.org/profiles/documents.aspx?Section=123&Category=159&Document=357&Page=123.

Access
The vision of health information sharing is that information will be accessible by those who need it, when they need it, how they need it. Access will be only through authorized user and the information available to any user will be determined by their employer. It is expected that categories of users will have different "views" of information. These views will enable them to quickly find the information they need to do their jobs, and restrict them from seeing information they are not authorized to view.

Providers will determine what employees require access to which aspects of shared information. Providers will also be responsible for documenting that employees have appropriate training. The regional body will, based on provider determination and requests through agreed-upon processes, make access to their employees available. Only those individuals who need access to a particular patient's information will be authorized to do so. And, even with authorization to access information about a particular patient, users will only be able to access the information that is relevant to their work. The information relevant to their work will be provided in functional "views" that show only those elements of information types needed for their work.
All users of the system will be uniquely identified in order to:
- Authorize access to the system
- Authorize access to a specific patient
- Authenticate access
- Define information "view"

"Break the glass" access will ensure that, in emergency situation, providers are able to gain access to information important to safe care of patients. Every break the glass access will be subject to backend audits

Authentication
UserID and Password is the standard technology for authentication. Vendor software features will determine what other options may be available. Ideally, access to the health information exchange will feature a single sign-on for the regional system with security tied to the local user id password.

Transmission
The Nebraska Telehealth Network is a private network and so does require encryption for transmission of information. Firewall will have rules established to ensure that the data only goes where it should go.

Monitoring and Auditing
All types of access and activity on the health information exchange will be proactively monitored. Rules will be established to set off alerts and immediate action (e.g., page to IT support staff or others) will be taken when a rule is violated. Standards for will be developed to ensure periodic audits of use and for automatic audits (e.g., "break the glass" access). Reports will be generated to summarize activities.

Physical Safeguards
Physical safeguards also play an important role in assuring security. Both at the provider and at the RHIO assessments of the adequacy of physical security is key. Physical safeguards include such issues as access control, environmental control, emergency power, disaster recovery plan. Electronic systems should be integrated into physical safeguards. Safeguards at the individual level include such features as auto-logoff.

SYSTEM INTEROPERABILITY
The health information exchange will not be limited only to partners within the region. Indeed, many of the hospitals have significant referral patterns outside the region, and even state. For some of the Panhandle hospitals, the closest major hospital is in South Dakota, Wyoming, or Colorado. To facilitate health information exchange beyond the borders of the region, Consolidated Health Informatics-adopted interoperability standards, including SNOMED, LOINC, RxNorm, and UMDNS, will form the basis for all decisions. We will also investigate applicability of the supplemental terminologies (e.g., UNII, MedDRA, MEDCIN, ISBT, DSM-IV). Although these and the CHI initiatives provide an essential foundation for information exchange, there remain gaps in specification in the standards. Thus, partners will continue to monitor important advances, such as the results of the Commission on Systemic Interoperability, the vendor-certification initiative through the Certification Commission for Healthcare Information Technology, and the Continuity of Care Records initiative.

Partners will look closely at new versions of standards that are not yet currently required, but that will eventually be adopted. Finally, other standards are being developed that transcend health care. For example, standards for web portals are being developed that must be monitored.

The information that will be exchanged must be precisely defined and agreed upon by all providers. National standards will be observed. Additionally, partners will develop more specific local standards. The collaborative will have to determine where compromise is feasible and what the consequences are if not all providers in the Panhandle participate.

Interoperability with others outside direct health care delivery must also be explored. Most chain pharmacies already have e-prescribing capabilities as do some locally-owned pharmacies. The implementation of e-Prescribing must be done carefully and mindfully of the impact on revenues so that businesses are not put at risk or seen as being treated preferentially.

CONNECTIVITY
Current Connectivity
Wide Area Network connectivity between all the hospitals via T-1 lines has been achieved for all participating hospitals, except two. In the Panhandle, this Wide Area Network with Regional West Medical Center as the hub, connects to two larger Wide Area Networks: the High Plains Rural Health Network and the Nebraska Telehealth Network. The High Plains Rural Health Network, a member-supported telemedicine network, comprises 18 rural hospitals and 2 urban hospitals in Nebraska, Kansas, Colorado and Wyoming. Partners are connected to the east through the Nebraska Telehealth Network that by 2005-2006 will include all 80 Nebraska hospitals and 20 health departments. There can be Data traffic and Video Conferencing with RHCN and PoudreValley bridged through RWMC.

The Nebraska Telehealth Network has also provided other telehealth capabilities to partners. The Nebraska Department of Health and Human Services provided the funding for the purchase of video conferencing equipment for:
- Box Butte General Hospital
- Chadron Community Hospital and Health Services
- Gordon Memorial Hospital
- Perkins County Health Services
- Kimball Health Services

Current Data Use of High Plains Network	BBGH Alliance	CCH Chadron Hosp/WCHR/PP		GCHS Oshkosh	GMH Gordon	KHS Kimball	MHC Sidney	MCCH Bridgeport	PCHS Grant	RWMC Scottsbluff	PCS Gering	PMHC
Radiology to RWMC		X		X		X		X				
Radiology to PVH						X	X					
Video Conferencing Units	2	1		1		1	1	1	1	6		
AS400 (RWMC)		X	X			X		X				
MIDAS (RWMC)	X	X		X		X	X	X				
Lab (RWMC)		X				X						
RWMC Portal						X						

Future Connectivity

Excellent and reliability connectivity (and redundancies in connectivity) are crucial to achieving true health information exchange. Despite an excellent foundation for connectivity, all partners are not yet connected and most partners have not achieved the kind of continual connectivity needed for true health information exchange. Indeed, the Nebraska Telehealth Network, as a whole suffers from difficulties in establishing and maintaining information flows. Yet, partners do believe that connectivity via the High Plains or Nebraska Telehealth Network are the best options to build upon. The current connectivity options are also important for other aspects: hospitals *must* connect to the Nebraska Telehealth Network for Bioterrorism alert reasons. Because these networks are private networks, they accomplish important security, as well as information transformation, channels. Router and firewalls from certified carriers can separate and control the traffic from the Nebraska Telehealth Network video network to the internal hospital local area network.

New technologies are constantly emerging and offering opportunities for superior connectivity. For example, T3 may offer an excellent opportunity for redundancy, instead of relying on aT1 connection. Another example is Wi-Max (802.16): it should be available in 2006 for wireless communications and may be designated for medical use only. Partners must monitor new innovations to ensure superior connectivity.

The Panhandle goals for connectivity are:
1) Planned and documented implementation.
2) Good communication
3) Customer Service

PATIENT IDENTIFICATION AND MATCHING

A crucial aspect to sharing information is being able to confidently identify what information relates to what patient. Patient names, alone, are insufficient identifiers. Many organizations have developed master patient indexes even within a single organization, to ensure that various departments are correctly acting on data for the patient they believe they are acting on. Collaboratives, also, are developing master patient indexes that identify patients among independent organizations.

Recently, one federal initiative seemed to be building momentum that would create and manage unique patient numbers for every patient across the country. Other countries have used this approach. However, the initiative now has largely been abandoned, thus providers are left to determine how to overcome fragmentation.

Regional West Medical Center's Master Patient Index may provide the tool needed to identify patients throughout the Panhandle, regardless of hospital. RWMC is beta testing its suitability with Horizons West Medical Group. If the matching is successful, approximately one-third of the Panhandle's population will be uniquely identified.

MA-SHARE (http://www.mahealthdata.org/ma-share/projects/communitympi.html), a health information exchange initiative in Massachusetts, has developed an excellent resource (St. George, 2004) for designing Master Patient Indexes.

NEEDS AT THE NETWORK AND THE PROVIDER LEVEL

As decisions about architecture, connectivity, access, and so on are being made, the physical needs and the human resource needs will become clearer. The IT Leadership Team has taken a lead role in upgrading physical infrastructures and human resource expertise at providers. Doubtless, however, is that significant needs are yet to be identified.

Information Technology Needs

Information technology needs include hardware, software and other tangible devices, spaces, and systems to make health information exchange usable and used. Providers may be faced with purchasing new software and hardware to ensure that information is available at the point of care. The regional exchange engine will absolutely need to be equipped to effectuate the actual exchange practices.

Local providers will continue to make investments in electronic health records and connectivity. Providers will be supported in developing processes and making decisions toward equipping themselves to participate in health information exchange.

The continuing assessment of needs includes such areas as:
1. Central processing unit

2. Memory
3. Secondary storage
4. Specifications for input and output devices:
5. Workstations
6. Specifications for networking:
   a. Private network configuration (WAN, VPN, Intranets, Extranets)
   b. Devices (hubs, bridges, routers, switches, gateways, multiplexors, etc.)
   c. Protocols
7. Physical Plant including cabling, electrical power, other hardware needs.
8. Software (including virus protection)
9. Operating system software
10. Application software
11. Application integration/interface.

Information Technology Human Resource Needs
As regional health information is created and then relied upon for care, IT human resources availability and expertise becomes crucial. It is not enough to have an 8-5 IT person when the facility is open 24/7. When a patient presents at an Emergency Room at 2 a.m., the provider must have immediate access to IT assistance if the system is not working.

The IT Leadership Team has demonstrated the great strides that are possible when providers' IT staff work, train, and share information. In the Panhandle, the IT Leadership Team will continue to play the central role in visioning how trained IT staff may be made available to all providers at all times of need. To ensure that support is available 24/7, possibilities of a centralized remote support system or on-call structure will be explored.

Preliminary work includes the following identification of assets and gaps:
1) Outsourced network consultant support - Bill Loring has network and infrastructure knowledge of all the hospitals, but not the applications. Application support can come from RWMC or the local hospital.
2) We will need a minimum of 2 IT people per facility (at least part time).
3) There are two types of support, application support and technology support.
   a) Application support deals with the specific application or program.
      i) Regional Superusers for major systems support and training.
      ii) Local cross training between clinical and IT, a super user or application specialist for each major system

b) Technology support deals with the network, infrastructure, computers and other systems that the applications need to function. The support systems.

4) More time for existing IT people who are not fulltime and have other jobs. The time needed for the IT part of their job is going to increase.

5) After hours On Call and Call Back policies needed

6) Physical support by location. Hospitals physically close to each other could share IT people for vacation coverage or large projects.

7) An Interface specialist to monitor interfaces and troubleshoot, do the upgrades and make sure the interfaces work right. This person could be hired by the regional group and he/she could possibly support common interfaces.

Possible alternatives to providing 24/7 support include the possibility that RWMC TrackIT Help desk portal could become a centralized knowledge base.

1) Sections for Dairyland support, McKesson products, general user issues

2) Users or IT people can submit issues and automate non-urgent requests.

3) Reporting and tracking of common problems for training, make it easier on the help desk.

INFORMATION CONTENT AND ACCESS

At its most fundamental level, the information content and who is able to access that content is at the core of any health information exchange. The *content* is the type and amount of health information that flows over the system. The *access* is defining which persons may have the ability to obtain the information and what they may do to the information obtained.

The content and access planning will include identification of the process or elements that should be included in individual patient records and to whom that information should be made available. The identification of elements should include process for careful identification of what information is available online and what levels of security are needed to access elements that require more security[7]. Content of records will likely comprise clinical information such as lab and ancillary services results, transcriptions, orders, medications, assessments, care plans, immunizations, allergies, and "all other information necessary for providing patient care and ultimately evaluation and improving the quality of care offered" (Memel et al., 2001); decision support systems such as those that perform drug utilization reviews, provide event- and time-based alerts and prompts, based on physician-specified parameters and on evidence-based practice guidelines; and practice management information such as basic personal and payer information, unique patient identification code, family history, and so on.

CONTENT TYPES

It is expected that basic information such as medical history, laboratory results, radiographs, and current diagnoses, medications, past treatments, and so on, will be exchanged. Computerized physician/provider order entry or e-Prescribing pharmaceuticals will enable providers to order prescriptions via computerized system and also find out whether the prescriptions have been filled. It is expected that decision support products (e.g., alerts, reminders, outcome analyses, and other knowledge management functions) will be incorporated into local electronic medical record installations. Partners may eventually want to be able to share scheduling and practice management data. It is also expected that de-identified information will be able to be aggregated for reporting public health, external accountability, and ad hoc requests.

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[7] NOTE: The group envisions Behavioral Health as an important component, and behavioral health providers as a significant part, of the health information exchange in order to ensure integrated care. However there are HIPAA, other federal, and state regulations that will impact some decisions about what is shared.

It is expected that this information will be electronically captured as:
1) Image data (e.g., handwritten notes & drawings, signed patient consent forms, transcribed radiology/pathology reports, UBs/itemized bills, ultrasound & catheterization examinations, voice annotations, heart sounds, EKG/EEG/Fetal signal tracings, pathology/histology images, digital X rays, CT, MR).
2) Structured data (MPI/Registration, Online charting and documentation, medication orders, laboratory orders/results).

CURRENT ELECTRONIC CONTENT
The Health Enterprise System at **Regional West Medical Center** utilizes McKesson software for electronic clinician documentation, order management, medication and IV administration, pharmacy management, laboratory management, radiology management, viewing and archiving (PACS) radiology images, document management, home health documentation, materials management, enterprise scheduling, and tools for electronic claims processing and compliance checking. Physicians use a web-based portal for accessing patient information from any location. Beginning Spring 2005, physicians are now placing orders directly on the computer. Regional West has purchased the McKesson enterprise master person index (Passport) that we are exploring using for patient matching. For the past two years, Regional West has been named as one of the most Wired Small and Rural Hospitals in the United States (Solovy, 2003, 2004). **Memorial Health Center** has implemented a suite of CPSI products including: CPOE, admit/discharge, labs, and pharmacy. Patient records will be implemented during Fall 2005. These systems will integrate with the PracticePartner system used by the only private practice in the area (Sidney Medical Associates). **Box Butte General Hospital** has a suite of Dairyland Healthcare Solutions including: CPOE, admit/discharge, appointments, labs, and pharmacy. They implemented the patient medical records component in during Summer 2005. **Kimball Health Services** has a fully electronic system in the rural health clinic, a state of the art technology infrastructure, but no EHR in the hospital. **Perkins County Health Services** has clinic EHR software that was designed by a local physician and may be accessed in the hospital, but does not have interoperable capability.

Perhaps one of the most important indications of infrastructure progress to date is that hospitals that yet to commit to electronic health records products are delaying purchases until the Planning process is completed so that they can be assured their purchase will be compatible with the sharing system. Even those partners with existing systems are seeing this as a context for continuing prioritization of even greater implementations. For example, Regional West has moved developing its portal to a top priority.

Partnering hospitals are using electronic health information sharing for quality assurance and performance management. All the hospitals collaboratively purchased the same quality management software that is now networked and has become a widely-used Performance Improvement Network (PIN) for monitoring quality assurance and performance improvement processes. PIN has created a data collection system and a backdrop for important collaborative processes, such as: defining outcome measures, jointly

selecting software products purchased by partner hospitals, creating common standards, developing and delivering collaborative training, implementing the systems and creating information exchange processes, and ultimately, creating systems change. Through the network, hospitals have achieved important gains in quality of care and patient safety.

Physicians, too, have varying levels of technological capacity within their private practices. By far the largest private practice/specialty care group, Horizons West Medical Group has begun implementing an electronic medical record (billing, practice management) and will soon be implementing patient records. They have expressed keen interest in participating in regional health information exchange processes. The remaining private practices are mostly very small (1-2 physician practices who also have hospital responsibilities). Only few of these private groups have electronic medical records.

Software Snapshot
- Some Hospitals and their Clinics use the same family of software products
- Some Hospitals and their Clinics use different software products
- All Hospitals and their Clinics do not use electronic systems for all functions

Hospital	Patient Accounting	Scheduling	Transcription	Medical Records	Lab	Pharmacy	Medication Management	Supply System	Stats
Box Butte General Hospital	Dairyland 6000		Lanier	Dairyland 6000	Dairyland	Dairyland	Pysix	Pyxis	Midas 6.2
Cow County Health Center (Hyannis)	Dairyland 6000			Dairyland 6000					
Hemingford Clinic	Dairyland 6000			Dairyland 6000					
Sandhills Family Center	Dairyland 6000			Dairyland 6000					
Chadron Community Hospital	McKesson Series 8.0					QuadraMed PharmPro 3.11	Omnicell	Pyxis	Midas 6.2
Hay Springs Clinic									
Hay Springs Pharmacy	Speed Script USSE4								
Legend Buttes Health Services (Crawford)	McKesson Series 8.0								
Prairie Pines Lodge (Assisted Living)									
WCHR	Millennium Medical Version 17								
Garden County Health Services	American Healthnet				American Healthnet				Midas 6.2
Garden County Health Services Clinic	American Healthnet				American Healthnet				
Lewellen Clinic									
Gordon Memorial Hospital	Dairyland				LabPac				Midas 6.2

Gordon Clinic	Dairyland								
Rushville Clinic	Dairyland								
Gordon Countryside Care	Dairyland								
Kimball Health Services	McKesson Series 8.0								Midas 6.2
Kimball Health Services Clinic	Medinformatix 5.25			Medinformatix 5.25					
Memorial Health Center	CPSI			CPSI					Midas 6.2
Sidney Medical Associates	Medical Manager			Practice Partner					
Potter Clinic									
Gurley Clinic									
Chappell Clinic									
Morrill County Community Hospital	McKesson Series 8.0								Midas 6.2
Morrill County Community Clinic	Practice Point Manager 6.019								
Chimney Rock Medical Center (Bayard)	Practice Point Manager 6.019								
Perkins County Health Services	Dairyland			SuperDoc					Midas 6.2
Grant Medical Clinic	SuperDoc			SuperDoc					
Regional West Medical Center	McKesson Series 8.0			Horizon Patient Folder	Horizon Lab 9.0	Horizon Meds Manager 8.1		Horizon Clinicals 7.5 SP2	Midas 6.2
RWMC Clinic									
Mitchell Medical Center	Medical Manager								
PCS FQHC									
Panhandle Mental Health Center	Medical Manager								

Hospital	Radiology CR/DR	MRI	CT	Mammogram	Ultrasound	Nuclear Medicine	PACS	RIS	Birth Certificates	Immunization	TQI
Box Butte General Hospital	Fuji			MRS				Dairyland			Cart
Cow County Health Center (Hyannis)											
Hemingford Clinic											
Sandhills Family Center											
Chadron Community Hospital		Magic View 300	Magic View 300	Insite 6.0					Vital Records	Immunet 2.5.5.04	Cart 2.0
Crawford Clinic											
Hay Springs Pharmacy											

Hay Springs Clinic										
Legend Buttes Health Services										
Prairie Pines Lodge (Assisted Living)										
WCHR									Immunet 2.5.5.04	
Garden County Health Services		Magic View 300	Magic View 300						Immunet 2.5.5.04	Cart 2.0
Garden County Health Services Clinic										
Lewellen Clinic										
Gordon Memorial Hospital										
Gordon Clinic										Cart
Rushville Clinic										
Kimball Health Services	Agfa ADC QS/Impax v					Novarad NovaPACS v5	NovaRIS v5			QualityNet Exchange Cart 2.2
Kimball Health Services Clinic	Agfa ADC QS/Impax v					Novarad NovaPACS v5	NovaRIS v5			
Memorial Health Center										Cart
Sidney Medical Associates										
Potter Clinic										
Gurley Clinic										
Chappell Clinic										
Morrill County Community Hospital										Cart
Morrill County Community Clinic										
Chimney Rock Medical Center (Bayard)										
Perkins County Health Services										Cart
Grant Medical Clinic										
Regional West Medical Center	Horizon									
RWMC Clinic										
Mitchell Medical Center										
PCS FQHC										
Panhandle Mental Health Center										

Hospital	Coding Billing	Scanned Medical Records	Daycare	Foundation	Physical Therapy	Nurse Call System	Telemetry				
Box Butte General Hospital	3M										
Cow County Health Center (Hyannis)											
Hemingford Clinic											
Sandhills Family Center											
Chadron Community Hospital	NCoder	Laserfiche									
Crawford Clinic											
Hay Springs Pharmacy											
Hay Springs Clinic											
Legend Buttes Health Services											
Prairie Pines Lodge (Assisted Living)											
WCHR											
Garden County Health Services							Datascope				
Garden County Health Services Clinic											
Lewellen Clinic											
Gordon Memorial Hospital	NCoder										
Gordon Clinic											
Rushville Clinic											
Kimball Health Services			EZCare Softerware	DonorPerfect Softerware	ReDoc	HillRom					
Kimball Health Services Clinic											
Memorial Health Center											
Sidney Medical Associates											
Potter Clinic											
Gurley Clinic											
Chappell Clinic											
Morrill County Community Hospital											
Morrill County Community Clinic											
Chimney Rock Medical Center (Bayard)											
Perkins County Health Services											
Grant Medical Clinic											

Facility
Regional West Medical Center
RWMC Clinic
Mitchell Medical Center
PCS FQHC
Panhandle Mental Health Center

Services Offered	Beh. Health	Birth/Infant	Blood Bank	Cancer	Cardio-Pulm,	Sleep Service	Diabetes	ER	Endoscopy	Genetics	Heart Cardiac	Home Health	Immunization	Inten. Care	Internal Med	Lab	Nutrition	Occ. Health	Occ Ther OP	Orthopedics	Peds	Pharmacy	Phys T OP	Radiology	Rehab, IP	Retirement Assist Living	Speech T OP	Surgery	Transplant	Weight Mgm, Bariatrics	Women's Health OB	Daycare
Box Butte General Hospital		X	X	X	X		X	X	X				X	X	X	X				X	X	X		X	X							
Cow County Health Center (Hyannis)																																
Hemingford Clinic																								X								
Sandhills Family Center																																
Chadron Community Hospital		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X			X	X	X	X			X			X	
Crawford Clinic																																
Hay Springs Pharmacy																						X										
Hay Springs Clinic																																
Legend Buttes Health Services													X			X						X		X								
Prairie Pines Lodge (Assisted Living)																										X						
WCHR	X						X						X		X	X			X												X	
Garden County Health Services																																
Garden County Health Services Clinic															X																	
Lewellen Clinic																																
Gordon Memorial Hospital		X	X		X		X	X				X	X	X	X	X						X		X				X			X	
Gordon Clinic							X						X					X													X	
Rushville Clinic							X						X						X												X	
Gordon Countryside Care																										X						
Kimball Health Services		X		X			X	X					X			X	X					X	X					X			X	X
Kimball Health Services Clinic																																
Memorial Health Center		X	X		X		X	X				X		X		X	X	X				X		X	X	X		X				

Sidney Medical Associates																												
Potter Clinic																												
Gurley Clinic																												
Chappell Clinic																												
Morrill County Community Hospital			X		X	X		X	X	X	X		X			X			X	X			X					
Chimney Rock Medical Center																												
Morrill County Community Clinic																												
Perkins County Health Services	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X		X		X		X	X	X		X	X
Grant Medical Clinic	X				X	X				X		X	X											X					
Regional West Medical Center	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X
Mitchell Medical Center																												
RWMC Clinic																												
PCS FQHC																												
Panhandle Mental Health Center	X																												

Hospital	Beds	Total Employed	FTE	Employed MD's	Employed Primary Care Providers	Employed other Professionals	MD's/Primary Care Providers	Other Professionals	Total Inpatient Visits	Total Outpatient Visits	Total Clinic Office Visits
Box Butte General Hospital	25	230	185	3	5	40	4	1	1,186	24,501	4,350
Cow County Health Center (Hyannis)		3	1.6	1			2	2			1,000
Hemingford Clinic		7	5	1			1				2,500
Sandhills Family Center		8	7	2			5				2,300
Chadron Community Hospital	25	120	90				56	3	2,297	1,087	2,415
Crawford Clinic		13	10		3		7	2			3,900
Hay Springs Pharmacy		4	2								
Hay Springs Clinic											
Legend Buttes Health Services											
Prairie Pines Lodge (Assisted Living)	73	25	20								
WCHR											
Garden County Health Services											
Garden County Health Services Clinic		6	5	1	3						4,045

100

Hospital	Beds	Total Employed	FTE	Employed MD's	Employed Primary Care Providers	Employed other Professionals	MD's/Primary Care Providers	Other Professionals	Total Inpatient Visits	Total Outpatient Visits	Total Clinic Office Visits
Lewellen Clinic											
Gordon Memorial Hospital	25	97	76					11			
Gordon Clinic		19	17								10,660
Rushville Clinic		3	3								3,488
Gordon Countryside Care	40	54	42								
Kimball Health Services	20	160	68	1	2	2	55	3	466	127	1,450
Kimball Health Services Clinic		14	15.8	2	2						14,000
Memorial Health Center	25	248	225			66	20	10	1,156	4,923	4,536
Sidney Medical Associates											
Potter Clinic											
Chappell Clinic											
Morrill County Community Hospital	20	43	22				50	20	190	5549	1,293
Morrill County Community Clinic		9	9	3							8,037
Chimney Rock Medical Center (Bayard)		4	4	1							2,748
Perkins County Health Services	21	170	90	1	1	5	24	7		377	9,142
Grant Medical Clinic		6	5	2	1		2				4,000
Regional West Medical Center											
RWMC Clinic											
Mitchell Medical Center											
PCS FQHC											
Panhandle Mental Health Center											
Totals	**274**	**1,243**	**902**	**18**	**17**	**113**	**226**	**59**	**5,295**	**36,564**	**79,864**

CONTENT TO BE SHARED AND NEEDED BY WHOM

The content is classified into the following categories:

- Demographics
- Financial
- Emergency Information

- Medical
- Legal
- Billing
- Facility-Specific
- Miscellaneous

A current visit can be "Created" at the partner organization, or can be put into the record (append or change) from a local (hospital) record. Medical Records are available for viewing to those that need it—but no one can edit these. The payor issue is difficult to determine—but if the patient wants their payor to have access they should be able to give them access.

Demographics: Name, date of birth, address, phone, gender, Social Security number, next of kin, emergency contact, marital status, religious preference, ethnic origin, universal chart number				
Who Needs Access	**View**	**Submit**	**Edit/Append**	**Create**
Patient	X	X		
Scheduling, Admissions	X		X	X
Providers	X			
Nurses	X		X	X
Pharmacist	X			
Therapists	X			
Ancillary	X			
Medical Records	X		X	
Transcription	X		X	
Billing/Coding	X		X	X
EMT	X			
School Nurse	X	X		
Nurse/technologist	X		X	
Social Work				
Payor				
HIM				
Physician				

Financial: Current insurance information (and coverage dates), scanned insurance cards, green cards, any other identification, guarantor, employer, insured information. Note: edit information would apply to *current* visit only.				
Who Needs Access	**View**	**Submit**	**Edit/Append**	**Create**
Patient	X			
Scheduling, Admissions	X		X	X
Nurses				
Providers	X			
Pharmacist	X			
Therapists	X			
Ancillary	X			
Medical Records	X			
Transcription	X		X	
Billing/Coding	X	X	X	X
EMT	X			
School Nurse	X			
Nurse/technologist	X		X	
Social Work	X			
Payor	??			
HIM				
Physician				

Emergency Information: Medical history, allergies, basic medical information, (Blood type major dx primary providers, current meds, (critical meds), problems and issues, primary provider(s), EMT Reports, EMTALA Consent, NARIS Ambulance, Transfer Form, ER Report, HIV/Hepatitis Status. Note: Edit Applies to Current Visit Only

Who Needs Access	View	Submit	Edit/Append	Create
Patient	X	X		
Scheduling, Admissions	??			
Nurses				
Providers	X	X	X	X
Pharmacist	X			
Therapists	X			
Ancillary	X			
Medical Records	X		X	
Transcription	X		X	
Billing/Coding	X		X	X
EMT	X	X	X	X
School Nurse	X			
Nurse/Tech	X	X	X	X
Social Work				
Payor				
HIM				
Physician				

Medical: Primary physician and specialists, parental/guardian information, foreign travel history, utilization summary, surgical histories, event history, audit trail of edits, immunizations (childhood, flu, pneumonia, mass vaccinations), diagnosis (link to ICD-9), tests and results (lab, X-Ray, Echo, cardio, blood, EKG, sleep study, HIV/AIDS), radiology, documentation, medical history, physicals, blood work, transcription (EKGs, surgery), procedure /operating notes (procedure reports and operative notes), nursing documentation (flow sheets; nurses notes; medication dispensing hx, tracking, and reaction- free med program; nursing assessments- vitals, flow sheet, meds, treatment;

wound care; pt diet), progress notes & orders/op orders (progress notes, orders, SOAP Notes, progress notes), specialty clinics and visiting doctors (specialty clinic and local doctor dictations), allergies, social, chronic problems, behavioral health (drug/alcohol rehabilitation, psych notes and orders, AIDS/HIV, STD with medications list, medications, over the counter/herbal/alternatives, genetic, clinical visits (progress notes, orders), rehab (PT/OT/Speech/Cardio), inpatient and outpatient visits, home health, hospice visit, nursing home, family history, master problem list (more history /clinical notes), areas of deficit, hard of hearing, interpreter, necessary medical equipment, special needs, pediatrics (learning disabilities), referrals for social services (utilization, CPS/APS, case manager, UR, medication discrepancy tracking and history). Note: Edit applies to current visit only.

Who Needs Access	View	Submit	Edit/Append	Create
Patient	X	X		
Scheduling, Admissions	?			
Nurses				
Providers	X		X	X
Pharmacist	X			
Therapists	X			
Ancillary	X		X	X
Medical Records	X		X	
Transcription	X		X	
Billing/Coding	X		X	X
EMT	X		X	X
School Nurse	X	X		
Nurse/technologist	X		X	X
Social Work				
Payor				
HIM	X		X	X
Physician	X		X	X

Legal: power of attorney, advanced directives (durable medical, living wills, organ donor), documentation and compliance information (orders, medical necessity), proof of guardianship, emergency contact, DNR.

Who Needs Access	View	Submit	Edit/Append	Create
Billing	X			
Admissions	X			
Clinicians	X		X	
HIM	X		X	X
Patient/Guardian	X	X		
Physician	X			
Pharmacy	X			
Nurses/social work	X		X	

Billing: management of all aspects of accounts and billing.

Who Needs Access	View	Submit	Edit/Append	Create
Billing	X	X	X	X
Transcription	X			
Medical records	X			
Revenue-producing depts.	X	X	X	X
Providers	X	X	X	X
School nurse	X			

Facility-Specific: Privacy, informed consent, patient rights and responsibilities

Miscellaneous: there may be other elements that are hard to categorize or capture, such as razor blades, halters, fetal monitor, videos, treadmill tracings, pictures.

SHARING CONTENT
Modes of Information Sharing - Current Practice
Currently, information is shared via a number of different modes:
commonly shared among partners, and to others, verbally (over the phone), fax, delivery (mail/courier), digital, email, transported (patient/helicopter/ambulance), telehealth networks, and through the Regional West Medical Center Portal.

The table below gives example of modes of information sharing:

Mode	To Whom
In-person	Authorized Family Members Audit Review/Accreditation Law Enforcement Patient News Media (general condition only)
Verbally (via phone, but avoid using cell phones)	Referral Calls Rx
Fax	Referrals Transfer Rx (follow w/ written)
Delivery (mail or courier)	Patient Other providers Attorneys & Insurance
Digital transfer (via a network, email)	Other providers
Transported – (patient, helicopter, ambulance)	Patient moves data: • test results • Medications • Demographics • insurance cards • Medical alert bracelet • scripts • referrals

	• Verbal
	• Immunizations
	• Arm band
	• Video
	Other providers
Video (telehealth network)	Other providers
Portal (Regional West Medical Center)	Other providers
Certified/Tracked Mail	Only to attorneys or insurance co

Business agreements for releases or transfers of patient information are typically needed. It is largely believed that out of town specialists do not share their records.

Participants believe that the current practice does not always work and is not as timely as needed. Additionally, there is currently confusion about records and "ours vs. theirs."

Types of Information Sharing - Current Practice

What Information	How Shared	Who Makes Decision	Documentation Requirements
Anything the patient wants	However requested	Patient	Authorization to Release
Patient chart information	Fax Delivery Transported	Patient	Release
Emergency room records	Fax	Patient Provider	
Consults - physician-to-physician	Verbally Telehealth Email		

What Information	How Shared	Who Makes Decision	Documentation Requirements
Doctors orders	Fax Verbal Transported Delivery		
Referral	Fax followed by Delivery		
Transcription	Fax Email		
X-rays/radiology	Fax Delivery Transported	Patient Provider	Release
Demographics/Billing Face Sheet	Fax	Patient	Release
Clinic Records	Transport	Patient Provider	Release
Children's Outreach - consent and medical information	Fax	Patient	
School immunization records - Immunet	Reports printed from Immunet Fax Transport Email		
Pharmacy – Lincare, prescriptions, allergies	Verbal Fax Transport	Patient and Provider	Written orders for narcotics
Lab Results	Verbal Fax Transport Portal (currently for RWMC docs)	Patient Provider	Release

What Information	How Shared	Who Makes Decision	Documentation Requirements
Transfer Arrangements – discharge summary (instructions, medications), transfer form, EMTALA, NARSIS, HIV/AIDS	Verbal		
Insurance - clinical updates	Verbal Fax Transported Delivery	Patient	Business Agreements Contracts with Insurance Companies
Insurance - drug tests for employers (internal or external)	Phone Fax	Employer	
Mandatory Reporting – vehicle, dog bites, gunshot wounds, communicable disease, CPS/APS	Phone followed by written	Provider	Legal Requirement Public Health HIPAA
Licensing Abuse-Personnel		Provider	Law
Needed for Specific Investigation (law enforcement, FBI)	However requested	Provider	Tracking form (subpoena) Patient authorization
Birth Certificates	Email		

What Information	How Shared	Who Makes Decision	Documentation Requirements
Performance Improvement Network (PIN) Files sent to Peer Review Group only	Delivery	Provider	
TQI	Fax Delivery Transported Email		
Patient Status	Verbal		
Surveys/Governing/ Regulatory Agencies – AABB, CAP, JAHCO, CMS, EMTALA, CARF	On-site		Identification
Governing Boards Risk Management Reporting TQI Infection control	Written Generic Verbal	CAH- According to policies	
Liability Insurance Sentinel Events	Verbal And Written (Fax, Mail)	CEO's Admin	Mandatory Risk Mgmt

Never Shared

Some information is never sharing between partner organizations:

- Internal Quality Review
- Root Cause Analysis Reports
- Incident Reports
- Personnel Files

AN INFORMATION SHARING SCENARIO – CURRENT AND FUTURE
Automobile accident and injuries
- Patient is taken by ambulance to a Critical Access Hospital and treated in emergency room.
- Transferred by helicopter to larger facility for inpatient stay.
- Moved to a step down unit after acute stay.
- Chart shows how sees the patient and what information they either collect or need.

Current

Person	Information Collected or Needed	Information generated; forms; format/method used
Ambulance encounter: EMT, Paramedic, ambulance driver, patient, witness, police, dispatch, ER/hospital staff	Patient information: vitals, assessment of injuries, mechanism of injury, time line, emergency contact information, site scene description, meds, allergies, brief medical history	Verbal, written NARSIS form
Emergency room encounter: EMT, triage nurse, patient, police, physician, dispatch, admitting, pastoral, social worker, behavioral health, media, family	Consents, CYA paperwork, insurance and patient information, vitals, assessment, mechanism of injury, time line, emergency contact, site scene description, meds, allergies, detailed medical history, orders for diagnostics – lab, radiology, meds	Verbal, written, computer EMTALA paperwork
Inpatient encounter: Family, pastoral, nursing, physician, utilization review, ancillary staff – RT, Dietary, Pharmacy, Lab; billing, housekeeping, dietary, social worker	H&P, Doctors orders, nursing notes, medication charge list, progress notes, care plan, diagnostics (lab, radiology, medication)	Face sheet, results, written, verbal, computer
Step down encounter: Nursing, physicians, social worker, ambulance/EMT, facility #2 registration, nursing, physicians, dispatch, ancillary depts., rehab services	Consents, CYA paperwork, insurance and patient information, vitals, assessment, mechanism of injury, time line, emergency contact, site scene description, meds, allergies, detailed medical history, orders for diagnostics – lab, radiology, meds, H&P, Dr. Orders, nursing notes,	Face sheet, results, written, verbal, computer, copier, fax, phone

	medication charge list, progress notes, care plan, diagnostics (lab, radiology, medication)	
Discharge: Discharge planning, social worker, physician, nursing, family	Discharge summary, follow-up instructions, education	Written, verbal, computer
Physician office: Registration staff, nursing	Consents, CYA paperwork, insurance and patient information, vitals, assessment, mechanism of injury, time line, emergency contact, site scene description, meds, allergies, detailed medical history, orders for diagnostics – lab, radiology, meds, H&P, Dr. Orders, nursing notes, medication charge list, progress notes, care plan, diagnostics (lab, radiology, medication)	Written, verbal, computer

Future

Accident site	Emergency Room	In-Patient	Step-Down	Physician office
EMT/Paramedic collects brief patient history, meds & allergies, vitals, assessment, etc., and enters in handheld computer				
Information transmitted via wireless connection to receiving ER and begin	ER begins preparing for patient arrival upon receipt of electronic info; Page on-call trauma staff			
Telephone call to ER on ETA and patient condition	Contact with ambulance on patient condition until arrival			

Accident site	Emergency Room	In-Patient	Step-Down	Physician office
	Triage staff validate information collected and beginning adding their documentation to the electronic chart			
	ER Physician place orders electronically to begin care Notifies IP nursing unit of pending admission	IP Nursing unit Receive notification and reviews patient information on computer		
	Tests and care provided; all results available electronically			
	Patient transferred to IP	IP nursing receives patient; continues to document assessment, care, vitals via computer; Orders & results handled on the computer		Attending physician reviews patient info via computer in office or hospital
		Patient improves and is scheduled for transfer to step down unit; Notify step-down unit	Step down unit reviews patient information on computer in preparation for receiving patient	
		Transfer to step down unit	Care provided and documented on the computer; patient discharged	

Accident site	Emergency Room	In-Patient	Step-Down	Physician office
		Patient/insurance company billed immediately after discharge	Patient/insurance company billed immediately after discharge	Physician office reviews electronic chart

FUNCTIONALITY AND STANDARDS

Processes and a vision for functionality must be developed, that is, how data is directly obtained from the system by users and how results will be recorded including recommendations on screen designs, report layouts, workflow changes, and so on. The decisions about access will be balanced with functionality:

a) Data retrieval and management (e.g., real time, easy-to-use access menus, navigational devices, order entry, patient scheduling, "in-basket" and email, patient summaries, and care plans/clinical guidelines/protocols/pathways).
b) Results management (e.g., results notification), data capture (how clinicians use the system to document or chart their findings or actions).
c) Data access. Where and how users need to access information (from remote locations, transcribed documents, electronic signatures, and document imaging).

Possible Quick Wins
- Faster sharing of radiology
- Get MIDS fully operational 9 hospital portals for Electronic Peer Review file sharing (PIN) would be important to physicians
- Make EMTALA Trauma Transfer information possible electronically
- Infection control Rates
- Telehealth conferences
- Encrypted email
- Information demo
- Face sheet printing – remote queue (series customers only) or IP printing
- Email (encryption/PGP) – forms replacement
- Portal for docs and specialty clinic docs to view patient information – could do remote charting and review of test results – real soon 2005 – follow-up for doctors – possibly could be used for registration, demographics, and insurance

Future Practices Considerations
- Transcriptions Dictated Reports Here and Sent real time
- Alerts/notifications of updates
- On Screen
- Mobile Messaging
- All patient information- Ideal is real time

GOVERNANCE AND POLICIES

The planning grant is currently overseen under the aegis of the Steering Committee. This collaboration has worked very well during the Planning year and will provide an appropriate structure for the early phases of implementation. In order to provide clarity for participation and decision-making within the Committee, it is expected that a contractual charter will be developed and executed. The contractual charter will be akin to Bylaws and will be an intermediate step from the more informal MOU relationship. Later into the implementation process, a new structure will be formed that will broaden participation to all stakeholders. Now popularly referred to as regional health information organizations (RHIOs) (Brailer, 2004), this entity will serve as a formal body that interconnects with other health information activities across the state or region, establishes accountability structures, ensures financial sustainability, manages staff and contractor resources, develops and monitors reporting, establishes and enforces standards, creates mechanisms for modification and enhancements, creates priorities and opportunities for strategic information exchange initiatives, "houses" the technology to facilitate exchange, provides technical support to establish and troubleshoot exchange practices, directs the work of consultants, serves as the keystone for business agreements, and manages risk.

The formation of a RHIO will create economies in developing training and capacity-building opportunities, legal agreements, policies and procedures, and security and privacy practices. Rather than each participating organization having to develop and execute agreements with all other organizations, the RHIO infrastructure will streamline and standardize these activities. RHIOs are a fairly new concept: The actual structure and implementation of one is still not straightforward.

ORGANIZATIONAL STRUCTURE AND MEMBERSHIP
When the RHIO is formed, the Steering Committee will disband and the RHIO will become the lead organization for implementation activities. It is expected that all current members of the Steering Committee will become members of the RHIO. Anticipated participants in the RHIO include clinics, hospitals and specialists, public health, behavioral health providers, home health, hospice, physical therapy, ancillary services, pharmacy, ambulances, order entry, nursing homes, insurers, state programs, and so on.

The RHIO's organizational structure must be defined. There is currently no pre-defined organizational or governance structure required to be considered a RHIO. Indeed, across the country a number of alternatives have been implemented.

GOVERNANCE AND ORGANIZATION

Among some of the most important decisions that must be made in creating the RHIO are a host of governance and organizational structure decisions.

Tax Status and Governance Structures

A RHIO may be created as either a taxable or tax-exempt status. Within the tax-exempt status, typically, a RHIO not for profit would be either a 501(c)(3) (MA-SHARE (Massachusetts Health Data Consortium, Inc.) and the North Carolina Healthcare Information and Communications Alliance), or a 501(c)(4). Some RHIOs are also forming as for profit entities, such as corporations or partnerships. Some RHIOs have also been created as authorities or cooperatives

Currently, existing governance models for shared, collaborative projects in the Panhandle, include:
• Rural Healthcare Cooperative Network (cooperative);
• Panhandle Partnership for Health and Human Services (501(c)(3)); and
• Panhandle Public Health District.

Criteria

Whatever status, governance structure, and composition is selected, then, should be driven by clearly articulated criteria. The governance structure should be developed to meet the needs of partners. Some important criteria developed by the partners includes:
   a) RHIO should have the ability to:
        a. execute contracts/agreements,
        b. hire or contract for staff,
        c. maintain independence and neutrality,
        d. accept grants
   b) New organizations should be able to meaningfully "join" the RHIO
   c) RHIO should have clear ability to monitor and control participation
   d) RHIO's accountability and reporting structures must ensure transparency
   e) RHIO's structure should be appropriate to enable sharing under HIPAA

Permissions And Responsibilities

Organizational partners, the RHIO, and patients each have unique roles in health information exchange. These roles, and requisite permissions and responsibilities, should be clearly described and agreed to. The permissions and responsibilities should be outlined in relevant agreements, policies, standards, and other documents.

Documentation
Other RHIOs across the United States have found the following types of documentation helpful to formalize relationships:
 a) Formal Incorporation
 b) Participants'/Users' Agreements
   a. Obligations and rights
   b. Liabilities and indemnities
   c. Intellectual property/data rights
   d. Technology standards
   e. Compliance with HIPAA
 c) Bylaws
 d) Protocols and Practices
 e) Vendor Agreements
   a. Operational and performance specifications
   b. Performance measures and rewards and penalties
   c. Key staff
   d. Audit rights and protocols
   e. Compliance with HIPAA and other regulations
   f. Compensation
   g. Intellectual property issues

POLICIES AND PROCEDURES
Privacy, Confidentiality, And Authorization/Consent
Policies must be developed that describe how the system will be used and the process for information sharing. Policies covering security, confidentiality, privacy, and related monitoring will ensure that only those with a medical need to know will have access and that patients will be able to access the information and track those who have accessed their records. All partners must have appropriate systems in place before having access to patient information. It is crucial that policies are compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA), other federal, and state law in regard to processes for sharing protected and sensitive information. Policies at the local and partners' levels must address data integrity, authentication practices for patients and providers, security in communications, levels of access, personnel training, audit and disclosure practices, retention of information, and so on. The rights and responsibilities of all partners will have to be clearly outlined.

Note: Regenstrief uses a Statement of Use in Privacy Policy, no separate release

Risk Assessment For Protection From Other Laws
It is unclear how RHIOs and physician practices will be impacted by a maze of other regulations. For example, there is the possibility that RHIOs will be granted exceptions to the Stark law so that physicians may be equipped to participate in information sharing.

IMPLEMENTATION PHASES

The implementation stages include all phases of implementation: planning, transition, full implementation.

OVERALL STRATEGY

The implementation approach and process is an iterative process that acknowledges the autonomy of participating local entities. The Planning year has provided the partners an opportunity to create champions and "experts" within each organization. The approach to the implementation process will continue to build upon the planning collaborative process. Regional consensus will set the regionwide priorities for implementation. Partners will use the regional priorities as a map for local priorities. The process will be iterative and self-informing.

PRIORITIES

Partners have identified priorities for information sharing. The criteria established were that the priorities have:

- High impact on patient safety and quality of care
- High return to organizations
- Quick wins (at least one), for immediate progress

The priorities for health information exchange are as follows:
- Regional West Medical Center Portal
- Master Patient Index
- Lab systems and integrated results management
- e-Prescribing/CPOE
- Electronic medical records
- Syndromic surveillance

RWMC Portal
A "quick win" that is a value-added functionality for all hospital partners will be activating the health information portal through Regional West Medical Center. The portal is not yet accessible to other participating hospitals. The activation will require development of access and use policies and procedures. The primary challenge to access will be in the provisions made for access to behavioral health information to ensure that all privacy and confidentiality laws are met.

Portal access, particularly for other entities' staff that are new to the concept of EHR, will provide an easy-to-use introduction to nature, type, and content possibilities. Access to the portal will enable read-only access to patient information. The portal is the first step in creating sharing, but is not a true "exchange" of information since it is one-way sharing. However, the significance of portal access to all providers cannot be understated. It will mark the first, wide scale sharing of patient data among partners. It will provide partners the very real opportunity to plan for and implement minimum hardware and software needs and will use the portal introduction as an early change management, readiness, and training.

Master Patient Index
A Master Patient Index is a crucial, but "invisible" element of sharing patient information. An index matches patient data from disparate sources (within and between entities). A good matching system gives providers the assurance they need that the patient they want information for is the same patient they are viewing information about from other providers.

RWMC uses a sophisticated Master Patient Index product (McKesson). It is currently working in collaboration with Horizons West Medical Group to pilot its suitability to match patient data coming from a non-McKesson system (NexGen). This pilot will provide important insights as to the suitability of the McKesson indexing system as use for a regionwide Master Patient Index. There are, of course, numerous other Master Patient Index products available, so other alternatives will be investigated if need be.

Integrated Results Management
Integrated results management systems enable providers to order and receive results back on such aspects of care as: lab results, radiology, PT, clinical results, accreditation data, clinical measures, etc. Partners have identified that lab results, specifically, are an overwhelming need. The Results Management system must be expedient and accommodate both written information as well as images.

E-Prescribing/Computerized Provider Order Entry
E-Prescribing/Computerized Provider Order Entry give providers the ability to electronically prescribe and follow-up on prescription activity. E-Prescribing is the term typically used when the prescription is being filled outside the provider's organization (e.g., by a local pharmacy) and Computerized Provider Order Entry is the term used when the prescription is being filled within the provider's organization (internal pharmacy). Partners have identified this ability as an important, timesaving, cost saving, and patient safety tool.

Electronic Medical Records
Electronic Medical Records contain a wide array of information about a patient's past care. In full, it is the complete record of the patient's history, diagnoses, medications, demographics, insurance status, and so on. Authorized access to an array of information about a patient will improve care and safety. Implementing access to information in Emergency Departments will be our first EMR priority since it builds upon our existing Trauma Network (a pilot for the state) and provides the potential for the first steps toward regional syndromic surveillance for public health. This is a direct connection to the $100,000 HRSA grant that is creating the Panhandle Medical Response System, including planning for mass event and forward movement of patients.

Comprehensive Syndromic Surveillance
De-identified information must be able to be "pulled from the system for complete public health syndromic surveillance.

IMPLEMENTATION PLANNING
At the point of implementation planning for each of the above priorities for health information exchange, priorities and timelines will be created to guide the process.

The timeline for each priority will include:
1) Determination of Process and Specifications
   a) Interdependencies
   b) Activities and deliverables
   c) Approval processes
   d) Staging Strategies

      i)   Phasing of records (e.g, encounter basis or some other system)
      ii) Staging of process (e.g., by function, by partner, by data)
2) Vendor Selection
3) Development
4) Training
5) Installation
6) Rollout timing

Local entities and the RHIO must work together to determine **staging strategies**. For example, how will patient information be moved from paper-based to electronic (e.g., convert as patient has encounter, chronological from most recent? Alphabetical) How will patients' old paper-based information be incorporated into the system? What kind of information will be incorporated first? It will be useful to evaluate staging strategies based on the experience of partners, and others across the nation, who have implemented electronic health records.

Migration Paths will be developed at the regional level and then at the local level. This process will create an overall plan and priorities for phasing of applications, technologies, and operations. **Logic models** will be created, again both at the regional and local levels, for each component of each phase of the migration path vision. Logic models are roadmaps that show how the program will work under certain environmental conditions to solve identified problems (Bickman, 1987). Logic Models provide logical linkages among program resources, activities, outputs, short-, intermediate-, and long-term outcomes, and various contextual and organizational factors.

Finally, a **Work Breakdown Structure** (WBS) will be mapped to create a project management plan. The WBS is a detailed listing of all tasks that must be accomplished to complete each activity that is needed to accomplish stated goals (i.e., project scheduling, duration, and progress). The WBS will be used to plan and monitor attainment of timelines, critical tasks, dependencies and resource allocation.

CHANGE MANAGEMENT

From the beginning, partners have recognized that the regional health information sharing is not simply doing all the same things on the computer that were once done on paper. Rather, the move to electronic sharing necessitates a fundamental redesign of organizational processes, workflows, and job responsibilities. There may be some entire realms of responsibility that will disappear. It is expected that as in all technology diffusions, there will be early adopters that will be immediately enthusiastic, the large bulk of persons who need to be convinced but will adopt, and the recalcitrant few who will never adopt. Although nationally many patients already believe that healthcare providers routinely share information, it is expected that personnel will have some resistance to adopting records sharing because they believe patients will be resistant. We expect that other concerns will include: suspicion of the confidentiality and accuracy of information, concern that personal responsibilities and workflows will be adversely affected, and the fear of new technologies.

The implementation approach should incorporate knowledge about diffusion and organizational/individual change levels in organizations. Thusly, it should include: a clearly articulated rationale and expected outcomes of the implementation (predisposing level of change), user-friendly interface (enabling level of change) social marketing techniques, education and training opportunities, support, and feedback (reinforcing level of change).

COMMUNICATIONS
Local Staff Equipped with Regionally-Developed Information
The regional organization will equip local entities with information about the health information initiative so that consistent information is strategically distributed to interested parties. The centralization in communications and promotions model has worked extremely well in the Panhandle's Community Health Connections project and will be replicated for this project.

Communication tools will likely include:
- Printed pieces
- PowerPoint-type presentations
- Visual diagram that walks "thru" how info flows compared to current
- Surveys and survey results
- Media releases and contacts

Communication target groups will include both staff at local entities, as well as, eventually the general population. Communications will emphasize how regional health records sharing will improve providers' ability to provide safe and quality care for patients. Indeed, successful information sharing practices around the country have indicated that the focus on patient in key to all aspects of communication

about sharing health information. It is expected, however, that staff serving different functions will have different interests in how information sharing will impact their work. Communications will be tailored to target groups.

Among entity staff, communication information must be developed early in the process so that staff may plan for coming changes. Staff must be given opportunities to dialogue and provide input to coming changes. It must be expected that a minority of staff will welcome the changes. Most staff will simply need repeated communications and clarification about the process in order to support the changes. Some staff will likely be hostile to changes.

Staff must be provided information about why health information is needed and invited to participate in the planning for change. For example, one important piece of information in the planning process will be understanding what staff wish they had time to do and be able to explain how health information exchange may impact that.

Communications to staff should also be sensitive to the fact that some staff may be concerned about their job vulnerability. In most cases, health information exchange has meant a reallocation of staff, not a significant reduction of staff. In other cases, staff "savings" have been achieved through attrition rather than elimination. It will be important for entities to communicate their commitment to staff and training opportunities available to them.

Physicians provide a special target group for communications. Peer physician champions may be an especially potent communication source to reach doctors. Panhandle doctors already using electronic health records and other doctors outside the region may be used as champions to assist physicians in seeing how colleagues are using electronic health information. Local meetings with physicians and clinic staff on their current frustrations may be helpful, particularly to acknowledge those frustrations and identify ways to ameliorate them in work plan redesign. Develop process for checking back on frustration (satisfaction levels).

Local staff will also likely carry the information to other communication channels, such as state and national associations, political leaders, press outlets, and others. It is vital that communications be coordinated through the regional organization.

LOCAL WORKFLOW REDESIGN
A key issue for implementing health information exchange will be how changes in practices, workflows, procedures, are managed. Integrating and standardizing practices between hospitals, clinics, and behavioral health providers, each with their own practices and norms, will be a challenge.

Electronic health records will fundamentally change workflow. We do not expect to simply computerize existing processes and practices. Instead, electronic health records provide the opportunity to introduce greater efficiencies into care systems so that more quality time is available for patient care. It is expected that the workflow redesign and technology training and support will require time-intensive commitment on the part of organizations and individuals. As the technology is introduced, it will inevitably take longer to accomplish tasks. But once the learning phase has passed, a well-designed system should enable providers to provide better care to more patients.

The regional organization will facilitate workflow design processes by developing and making available tools for use in local entities. Within the partners, a number of partners have successfully implemented electronic health records and may serve as excellent resources Resource are being sought to provide repeated, on-site workflow redesign consultation to all partners during implementation.

The workflow redesign must be a collaborative process in which all impacted staff have an opportunity to discuss and define current and future policies and practices. It will be important to engage staff in workflow conversations. Planners must identify how and when practice diverges from policy. The changed workflow will result in re-allocations of effort that must be planned for, and also revisited after implementation. During implementation, however, partners should plan for short-term staffing-up as the new ways of accessing information are being learned and tried.

TRAINING AND EDUCATION
Development and implementation of Electronic Health Records requires ongoing education and training across multiple levels in organizations. Small hospitals and clinics have limited capacity and resources to develop internal education and training programs. Further, the regional view for the development of health records requires standardized dispersal of education, training and information in order to maximize success. Not all currently employed potential users of Electronic Health Records have adequate competency to utilize systems. Skill sets for future employees, by position description have not been developed. Throughout the implementation process, standardized education, training and user capacity development through the provision regional courses and criteria must be provided.

Training and education for use of the health information will be offered through:
- Regional offerings
- Local entity trainings
- One-on-one trainings

The goal of the training and education will be to provide standardized education, training and user capacity development through the provision regional courses and criteria. During the next year, the objectives will be to:
- Provide change management workshops for all members of Regional and Local teams

- Maintain ongoing capacity development   through information and educational sessions which highlight the national and statewide developments and motivation for current and potential participants including: physicians, clinic staff, long term care, hospital staff, and others.
- Develop and provide user competency training in preparation for electronic health information exchange.

The Training and Education Logic Model is included in the Appendixes.

Regional Training and Education
The Rural Healthcare Cooperative Network has entered into a collaborative agreement with Western Nebraska Community College Center for Business and Industrial Training to develop a Training Academy for healthcare. The Academy supports the collaborative and individual members in planning and offering high quality education and training that enhances the current workforce and promotes upward mobility. Through the Academy, the regional organization will identify and coordinate training opportunities for staff. Regional education sessions will likely also be made available through other regional opportunities, such as conferences. Some trainings will use the "train the trainer" model to equip super-users at local entities. The Nebraska Telehealth Network provides a tool to deliver regional trainings to learners at their own facilities.

Local Entity Trainings
It is expected that the local providers will coordinate trainings in the context of regional opportunities. Local trainings will provide the opportunity for specialized, on-going assistance. Local entities will designate super-users to act as collegial, knowledgeable users of systems. Super-users will be supported by entity IT Support Staff and through regional trainings. Super-users will likely create a training and education resource, but in terms of being a resource and to identify needed trainings.

One-On-One Trainings
Given their time constraints and unique, key role in the use of electronic health information, it is expected that most physicians will be trained on the system through one-on-one training opportunities arranged at a time and location that is convenient for the physician. It is also expected that physicians may benefit from a shadow support person as they are learning the system that will be with them and available for debriefing about system tools following patient encounters. Physicians, particularly, do not have the time to wait for assistance, but will need support immediately.

OTHER POTENTIAL PARTNERS

The current planning process has been open and transparent. However, partners done little broad communication about the planning work to other potential partners. Among the organizations that the partners will want to communicate specific information (such as implications, timelines, etc.) with include:

- Physician Practices and Specialists – Panhandle and beyond
- Healthcare referral partners - Rapid City, Fort Collins, Reservation
- Payors – Blue Cross/Blue Shield of Nebraska, Mutual of Omaha, Medicare/Medicaid
- Other Panhandle healthcare entities - Nursing homes, pharmacies, radiologists

FINANCES AND FUNDING

Financial planning for electronic health information exchange has two components:
1) Defining and measuring the total cost of ownership and the resources needed for implementation and sustainability; and,
2) Identifying funding resources to support the implementation.

TOTAL COST OF OWNERSHIP
Identification of funding required for each phase of the planning and implementation process. The total cost of ownership equals the total cost of planning, implementation, and maintenance minus the total benefits of implementation.

> **Total Cost of Ownership = Planning, Implementation, And Maintenance – Benefits**

It is important that both the costs and the benefits be separately and precisely projected. Benefits of implementation may include: fewer accounts receivable days, reductions in duplicate billings, decrease in percentage denied, net patient revenue and cash ratio, increased collections, staff costs.

The two major components to estimating the total cost of ownership will be at the local entity level and at the regional organization level.

Entity Costs and Benefits
To assist local entities in projecting the total cost of ownership for participating in the health information exchange, an entity financial planning template is being developed. The template will be tailored for use both in clinic and hospital settings.

<u>Costs</u>
Costs included in the template will cover such items as:
- Connectivity and communications
- Routers & switches
- Hardware and other equipment and upgrades
- Annual maintenance agreements
- Depreciation
- Capital costs

- Software- purchase, licensing, support, upgrades
- IT Support
- Education and training costs
- Inputting information into electronic format/adapting current format into Panhandle "standards"
- Coordination and other staff time
- Legal fees
- Supplies
- Reduced income from fewer tests and medicines

Benefits
Benefits included in the template will cover such items as:
- Billing turnaround time
- Accounts Receivables days
- Number of duplicate billings
- Percentage billings denied
- Net patient revenue and cash ratio
- Collected versus charges
- FTE's per Relative Value Unit
- Aging of Accounts Receivables by payor class
- Actions as result of incorrect billing information (% that require follow up).
- Possibility that current IT systems and processes may be eliminated (e.g., cost of tests - RWMC AS/400)
- Paper record savings
  - Transcription costs
  - Compensation (staff time)
  - Office supplies
  - Space costs
  - Measure: internal staff time cost of outsourced, copying expense, and staff time to do copying.
  - Costs of time to move and find files.

Regional Cost
As a new organization, the RHIO's total cost of ownership template will be primarily based on costs. Ideally, the RHIO could also estimate the total cost of ownership to the Panhandle region, which would include such items as savings to patients.

Costs
The costs to the RHIO will be greatly influenced on future decisions about:
- Architecture Decisions
- Organizational Structure
- Economies of scale for training and shared fees
- Interface costs
- Portal usage
- Legal costs to structure and agreements

However, it is possible to delineate specific elements of the template. They will include:
- Connectivity and communications
- Routers & switches
- Hardware and other equipment and upgrades
- Annual maintenance agreements
- Training costs
- Depreciation
- Technical support
- Capital costs
- Software- purchase, licensing, support, upgrades
- Data storage
- IT Support
- Education and training costs
- Administration coordination and other staff time
- Legal fees
- Supplies

FUNDING

The financial plans (both local entity and RHIO) will delineate expected costs of implementing health information exchange in the Panhandle. It is expected that funding for the health information exchange will be a combination of local entity funds (to support ability to "connect" to the exchange) and other funding to support local entity and regional work. Funding will include:

1) "Internal to the Panhandle Healthcare System" resources (e.g., payers, laboratories, radiology practices, and pharmacy benefit managers, public health, education, bioterrrorism, or other organizations that will benefit from reductions in paper-based communications)
2) External to the Panhandle Healthcare System resources (e.g., state funds, grants, and so on)

Current Funding

Partners have committed over $1 million dollars per year to support the health information exchange implementation. During the planning process, partners have moved to talking about health information technology and the exchange as a cost of doing business, rather than as a separate project. Indeed, local entity senior staff have said over and over that nationally electronic health information is now occurring and that it will soon be considered as fundamental as plumbing and phone lines. Throughout the process, this collective work will build local capacity and reduce the total administrative and cost burdens and time compared to if the process would have been undertaken individually by each local entity.

The communications/connectivity for partners is currently underwritten through two, interrelated programs, both funding through the federal Universal Service Fund (USF).
1) The Universal Service Administrative Company (USAC) administers the USF , which provides communities across the country with affordable telecommunication services. Through the USAC, partners' T-1 costs are reduced to $267 per month. These USAC funds may be applied to more than one T-1 line as long as they are used for eligible purposes. At the federal level, there is currently an attempt in Congress that could significantly reduce or eliminate Universal Service Funds that are made available to states.
2) The Nebraska Public Service Commission has allocated a portion of the USF funds it receives to support rural healthcare communications:
   a) Up to two lines are supported in the retroactive year beginning July 1, 2003 to June 30, 2004, however the support was paid down to the point that the hospital had to pay $200 per month per line, beginning on July 1, 2004 and continuing forward. The funding pays for only one line but pays down to the point that the hospital cost is only $100 per month.
   b) Cost of the endpoint and network hub hospitals obtaining services from a Certified Carrier for their firewall and router needs are supported.
   c) The portion of any new line installation that is not covered by the federal (USAC) funding are covered.

It is the understanding of partners that the Public Service Commission support is guaranteed until June, 2006.

Possible Future Funding Sources
Internal and external funds will be explored with an emphasis on sustainability. Grant funds, financial or in-kind support from vendors, and/or financial contributions from participating organizations, payers (private insurers, Medicaid), hospitals, laboratories, radiology practices, and pharmacy benefit managers, or other organizations that will benefit from reductions in paper-based communications.

Because the regional health records system relates directly to Homeland Security, it is expected that funding may be made available from sources with a specific interest in "early detection of and rapid response to bioterrorism attacks, including the organization and execution of large-scale inoculation campaigns and ongoing monitoring, detection, and treatment of complications arising from exposure to biochemical agents or immunizations" (Tang, 2003, p. 2).

Finally, grants from private foundations and governmental sources will also be explored. A summary of recent, relevant grant opportunities is provided in the Appendixes.

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APPENDIXES

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Memorandum of Understanding

Between

Rural Health Care Cooperative Network

And

Panhandle Partnership for Health and Human Services

And

Panhandle Public Health District

</div>

WHEREAS Rural Healthcare Cooperative Network is a legally incorporated cooperative of hospitals serving the citizens of Banner, Box Butte, Cheyenne, Dawes, Deuel, Garden, Kimball, Morrill, Perkins, Scotts Bluff, Sheridan, and Sioux Counties in western Nebraska, and;

WHEREAS Rural Healthcare Cooperative Network has adopted the mission of *a compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time, and;*

WHEREAS Rural Healthcare Cooperative Network desires to develop a comprehensive technology plan which promotes patient safety, clinical quality, and customer services Through the development of Regional Patient Records, and;

WHEREAS Panhandle Partnership for Health and Human Services is an established, membership based, not for profit entity organized to promote collaboration in the development of accessible integrated health and human services in Banner, Box Butte, Cheyenne, Dawes, Deuel, Garden, Kimball, Morrill, Scotts Bluff, Sheridan and Sioux Counties in western Nebraska, and;

WHEREAS Panhandle Partnership for Health and Human Services has adopted the mission to *Create and sustain a caring, flexible, accountable and competent integrated health and human services system to achieve measurable outcomes for all citizens. The purpose of the Panhandle Partnership for Health and Human Services is to create, manage and sustain a unified information and referral system, identify resource needs, provide individual and systemic advocacy, develop service system standards, protocols, and common practices, develop a single management information system, determine and evaluate outcome measurements* , and;

WHEREAS Panhandle Partnership for Health and Human Services has invested in the development of an internet based, single software solution for human services client tracking, service provider system which enables secure sharing of information, referral,

intake and case management, including regional mental health and substance abuse provider software, and;

WHEREAS the Panhandle Public Health District has been established through resolutions of agreement between Banner, Box Butte, Cheyenne, Dawes, Garden, Kimball, Morrill, and Sheridan and Sioux counties in western Nebraska, and;

WHEREAS Nebraska LB 692 has mandated the Panhandle Public Health District to ensure the provision of the ten Essential Public Health Services including:
- Monitor health status to identify community health problems.
- Diagnose and investigate health problems and health hazards in the community.
- Inform, educate, and empower people about health hazards.
- Mobilize community partnerships to identify and solve health problems.
- Develop policy and plans that support individual and community health efforts.
- Enforce laws and regulations that protect health and insure safety.
- Link people to needed health services and assure the health care when otherwise unavailable.
- Assure a competent public health and personal care workforce.
- Evaluate effectiveness, accessibility, and quality of personal and population based health services.
- Research for new insights and innovative solutions to health problems. and;

WHEREAS Panhandle Public Health District requires population based data in order to perform the Ten Essential Public Health Services as mandated, and;

WHEREAS Rural Healthcare Cooperative Network, Panhandle Partnership for Health and Human Services and Panhandle Public Health District have a successful history of collaborative partnerships in developing cost effective services and resources which address the economic, social and health disparities and of this frontier area;

Rural Health Care Cooperative Network, Panhandle Partnership for Health and Human Services, and Panhandle Public Health District hereby enter into a Memorandum of Understanding for collaborative planning for the design of Regional Health Records as outlined in Agency for Healthcare Research and Quality (AHRQ) Health Information Technology Planning Grant application and agree to the roles and responsibilities as follows:

1. Rural Health Care Cooperative Network will act as the lead organization and will be responsible for maintaining the overall collaborative vision and intent within the RHCN and individual health systems, to develop a comprehensive plan for Regional Health Records including:
- Form and maintain a Regional Health Records Steering Group which includes all CEO's and representatives of PPHHS, and PPHD.

- Designation of in kind staff and resources within each local health system to participate on regional work teams.
- Commit $15,000 to over all project management to ensure completion according to work plan.
- Reach consensus on and ratify the final plan
- Develop local, state, and federal political will to address policy, duplication and funding barriers.
- Ensure linkage with current and future collaborative funding which may be related to HIT development, including emergency preparedness and state telehealth network, toward the stated mission of interoperable Regional Health Records.

2. _Panhandle Partnership for Health and Human Services_ will support the project through assuring participation of key members, including Region I Mental Health and Substance Abuse, in the planning process. In addition PPHHS will:
- Identify and bring forward service sector integration and access concerns and developments that may support or enhance the regional health records.
- Share documents and previous applicable work including data dictionary reviews HIPPA FERPA policies for community systems.
- Dedicate necessary System Manager time and resources as required for information.
- Work collaboratively to develop systems which reduce duplicative entry and enhance systems of care.
- Assure that current activities to develop and implement related records (e.g. Child Health First, Children's Outreach) are provided to the Regional Health Records Steering Group.
- Maintain linkage to the HMIS through the Continuum of Care for Housing and homelessness.
- Demonstrate support for the Regional Health Records project through provision of accurate information to PPHHS Board of Directors, member Regional Governing Boards (County Commissioners), safety net providers, membership at large and consumers.
- Assure a unified voice in establishing local, state, and federal political will for implementation
- Avoid applying for or competing for local and federal funding resources that may be required to complete the implementation of the Regional Health Records project.

3. _Panhandle Public Health District_ will designate the Director of Public Health to participate on the Regional Health Records Steering Committee. In addition the Public Health District will:
- Identify mandated public health software systems which require duplicative entry and may impact the vision of a Rural Health Record.
- Provide .25 availability of administrative support staff.

- Develop and maintain local political will for Regional Health Records through regular information to County Commissioners on the Public Health Board
- Dedication of time and resources of related projects including Emergency Response Coordinator, to ensure linkages to developing systems and any hereto unknown, state requirements.
- Actively work to ensure the development of required linkages to Public Health Information Network through identification of data elements for surveillance and monitoring.
- Assure a unified voice in establishing local, state and federal political will for implementation.

Rural Healthcare Cooperative Network, Panhandle Partnership for Health and Human Services, and Panhandle Public Health District further understand that the Rural Health Records Plan will include total cost of ownership for architecture, hardware, software, maintenance and upgrades, staff costs and availability, licensing, connectivity and communications, education and training, and meeting time and that upon development of the cost and benefit proposition for regional health records sharing, the partners will work collaboratively to identify the range of resources available for implementation.

Rural Healthcare Cooperative Network, Panhandle Partnership for Health and Human Services and Panhandle Public Health District further understand that in order to complete a comprehensive planning process, the University of Nebraska Public Policy Center will be full collaborative partner in planning, and will provide technical expertise and resources, in accordance with the Agency for Healthcare Research and Quality (AHRQ) Health Information Technology Planning Grant application.

In agreement thereof

Diana Sturm secretary for Todd Sorensen   _4-16-04_
Todd Sorensen, MD   Date
Rural Healthcare Cooperative Network, President

Jean Jensen   _4-15-04_
Jean Jensen   Date
Panhandle Partnership for Health and Human
Services, President

Carolyn Jones   _4-15-2004_
Carolyn Jones   Date
Panhandle Public Health District, President

LISTING OF PARTNER ORGANIZATIONS

Rural Healthcare Cooperative Network
2004 Membership

Box Butte General Hospital
2101 Box Butte Hospital
Alliance NE 69301
Clinics
Hemingford Clinic
Rural Health Clinic
812 Laramie
Hemingford NE 69348
Cow Country Health Clinic
Rural Health Clinic
111 N Main
Hyannis NE 69350

Chadron Community Hospital
821 Morehead
Chadron NE
Clinics
Legend Buttes Health Services
Rural Health Clinic
11 Paddock
Crawford NE 69339
Hay Springs Medical Clinic
Rural Health Clinic
232 N Main
Hay Springs NE 69347

Garden County Health Services
PO Box 320
Oshkosh NE 69145
Clinics
Garden County Health Services
Rural Health Clinic
1100 W 2nd
Oshkosh NE 69154
**Garden County Health Services –
Lewellen**
Rural Health Clinic-satellite
215 E Church
Lewellen NE 69147

Gordon Memorial Hospital
300 E. 8th Street
Gordon NE 69343
Clinics
Gordon Clinic
Rural Health Clinic
807 Ash
Gordon NE 69343
Rushville Medical Clinic
RHC – Satellite
309 W 3rd
Rushville NE

Kimball County Health Services
505 S. Burg
Kimball NE 69145
Clinics
Kimball Clinic
Rural Health Clinic
505 S Burg
Kimball NE 69145

Memorial Health Services
645 Osage Street
Sidney, NE 69162

Morrill County Community Hospital
PO Box 579
Bridgeport, NE 69336-0579
Clinics
Morrill County Medical Center
Rural Health Clinic
1313 S St
Bridgeport NE 69326
Chimney Rock Medical Center
Rural Health Clinic
320 Main St
Bayard NE 69334

Perkins County Health Services
PO Box 26
Grant NE 69140
Clinics
Perkins County Health Services Clinic
Rural Health Clinic
Grant NE 69140

Regional West Medical Center
4021 Avenue B
Scottsbluff NE 69361
Clinics
Mitchell Medical Center
Rural Health Clinic
1456 Center
Mitchell NE 69357

Panhandle Partnership for Health and Human Services
2004 Organizational Members

Aging Office of Western NE
Alzheimer's Association
Beverly Healthcare Sidney
Beverly Healthcare Scottsbluff
Box Butte County
Box Butte County Family Focus Coalition
Box Butte General Hospital
CAPstone
Caring Alliance People
Center for Conflict Resolution
Central Nebraska Goodwill Industries
Central Plains Center for Services
Chadron Community Hospital and Health Services
Chadron Native American Center
Chadron State College
Chadron State College - Social Work Dept.
Cheyenne County Commissioners
Cirrus House Inc.
City of Hay Springs
County of Scotts Bluff Housing Authority
Dawes Co. Family Preservation
DOVES
Educational Service Unit #13
Educational Service Unit #14
Family Rescue Services
Garden County Commissioner
Garden County Health Services
Gordon Memorial Health Services
Health & Human Services
Human Needs Network Sheridan County
Human Services, Inc.
Kids Plus, Inc.
Kimball Banner Co. Ministerial Assoc.
Kimball County Family Council

Kimball Health Services
League of Human Dignity
Lutheran Family Services
Memorial Health Center Sidney
Morrill County Community Hospital
NAF Multicultural Human Dvlp. Corp.
Nebraska Boys Ranch
Northfield Villa
Northwest Nebraska Community Action Council
Panhandle Community Services
Panhandle Independent Living Services
Panhandle Mental Health Center (includes four community mental health outpatient clinics. These are the only community based clinics in the area, and are located in Scottsbluff, Chadron, Alliance, and Sidney)
Panhandle Prevention Advocacy & Care Team (PACT)
Panhandle Substance Abuse Council
Region I Mental Health and Substance Abuse
Region 1 Office of Human Development
Regional West Medical Center
RWMC Home Care
Sidney Public Schools
SPEAK OUT
The Mentor Program/Youth as Resources
Univ. of NE College of Nursing - WND
Volunteers of America
Western Community Health Resources
Western Nebraska Community College
Western Nebraska Veterans Home
WIA Program

Panhandle Public Health District
2004 Organizational Members

Panhandle Public Health Department
PO Box 337 Hemingford, NE 69348

The Health District was formed through inter-local agreements of county governments and is governed by one Commissioner and one community representative from *each member* of the following Panhandle counties:

- Banner
- Box Butte
- Cheyenne
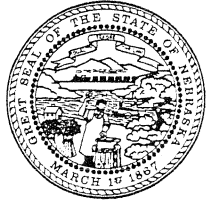- Dawes
- Garden
- Kimball
- Morrill
- Sheridan

Service Provider	Clinic	Type	Address
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV,	729 Morehead Chadron NE 69337
Western Community Health Resources	WCHR –Chadron Native American Center	WIC, Immunization, MCH FRH, HIV- Cardio and Diabetes Disease Management	502 W 2nd St. Chadron NE 69337
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV- Cardio and Diabetes Disease Mgmt.	201 S Main Rushville NE 69360
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV,	729 Morehead Chadron NE 69337
Western Community Health Resources	WCHR –Chadron Native American Center	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT- Cardio and Diabetes Disease Management	502 W 2nd St. Chadron NE 69337
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT- Cardio and Diabetes Disease Management	201 S Main Rushville NE 69360

Service Provider	Clinic	Type	Address
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT- Cardio and Diabetes Disease Management	619 Box Butte Avenue Alliance NE 69301
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT- Cardio and Diabetes Disease Management	300 E 8th St. Gordon NE 69343
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT-	11 Paddock Crawford NE 69339
Western Community Health Resources	Western Community Health Resources	WIC, Immunization, MCH FRH, HIV, CSFP, EPSDT-	808 Box Butte Ave. Hemingford, NE 69348
Panhandle Community Services	Panhandle Health Clinic	WIC, Immunizations, MCH, FRH, HIV	3350 10th Street Gering NE 69341

STATE OF NEBRASKA

April 7, 2004

Nancy Shank, Associate Director
University of Nebraska Public Policy Center
121 South 13th Street, Suite 303
Lincoln, NE 68588-0228

Mike Johanns
Governor

Dear Ms. Shank:

I am pleased to express my support for the collaborative proposal between University of
Nebraska Public Policy Center, Rural Healthcare Cooperative Network, Panhandle Public Health
District, and the Panhandle Partnership for Health and Human Services to create a sustainable
plan to implement an electronic health record system in Nebraska's rural Panhandle region. This
proposal will form a plan for shared health information technology infrastructure that will
substantially increase the provision of effective, efficient, high quality healthcare for many
Nebraskans.

Due to the remoteness of the Panhandle region, healthcare providers face unique challenges.
Rural primary care providers are the access point for an array of regional services including
trauma, specialty care and behavioral health. Yet, the lack of shared patient information creates
disconnectedness between the healthcare services people require, often resulting in duplicative
testing, increased costs, and extensive travel. It is clear that the current system is inadequate for
the future success of our rural hospitals in providing high quality cost effective patient care. This
proposal will build upon previous initiatives to eliminate the need for duplicate information.

Over the past eight years, collaborative relationships in the Panhandle have resulted in the
increased quality health and behavioral health services for area residents and provided models for
the state of Nebraska. Through prevention services such as Children's Outreach which provides
nursing home visits to 80% of all newborns, and integrated health and behavioral health services,
such as Local Crisis Response Teams and Homeward Bound, which reduce emergency protective
custody and committed care, area providers have demonstrated measurable innovations in
improved service provision. The continued ability to creatively address rural disparities and
provide quality patient care to sustain the rural health system requires the ability to securely
share patient information. I anticipate that this plan will serve as a model for other states
experiencing similar dilemmas in providing healthcare in rural areas.

I hope your proposal is given every consideration and look forward to hearing of its success.

Sincerely,

Mike Johanns
Governor

April 7, 2004

Nancy Shank, Associate Director
University of Nebraska Public Policy Center
121 South 13th Street, Suite 303
Lincoln, NE 68588-0228

Dear Ms. Shank:

The Nebraska Department of Health and Human Services supports the collaborative
proposal between University of Nebraska Public Policy Center, Rural Healthcare
Cooperative Network, Panhandle Partnership for Health and Human Services, and the
Panhandle Public Health District, to create a plan for the implementation of an electronic
health records system in the rural Panhandle region. Nebraska's Health and Human
Service System has been involved in various efforts to increase information sharing to
improve health and human services for Nebraskans. I believe that this proposal will
provide effective solutions to the problems created by duplicative entry and health
professional shortages in Nebraska's 11-county Panhandle region, thus improving
information sharing for patient care and Health People 2010 outcomes.

The Panhandle has a uniquely isolated rural population. Many of the Panhandle's
residents are financially and technologically distanced from the rest of the nation's
population. In addition, the area has experienced significant financial impact as the result
of four years of extreme drought. The small community rural health systems are
financially struggling to meet the needs of the patients, and many simply do not have the
resources to implement a system for sharing patient health information with other
hospitals in the region. Yet, if these hospitals are to endure, such a system is essential.
This collaborative proposal will fill this void between the current needs of patients and
hospitals in the Panhandle region and their limited resources.

We highly recommend your proposal and urge the Agency for Healthcare Research and
Quality to give it the utmost consideration.

Sincerely,

Nancy Montanez
Director
Department of Health and Human Services

April 19, 2004

Nancy Shank, Associate Director
University of Nebraska Public Policy Center
121 South 13th Street, Suite 303
Lincoln, NE 68588-0228

Dear Ms. Shank:

As director of the Office of Rural Health for Nebraska, I support the rural-focused efforts of the Rural Healthcare Cooperative Network, the Panhandle Public Health District, the Panhandle Partnership for Health and Human Services, and the University of Nebraska Public Policy Center to create a sustainable plan to implement an electronic health record system in Nebraska's Panhandle region. This proposal should improve the quality of care provided to rural Nebraskan's as well as increase its efficiency.

Rural areas face unique challenges when it comes to providing health care. An area of particular concern for me has been that of emergency medical services. The huge geographic distances that one must travel to access health care in Nebraska's Panhandle can be overwhelming under ideal situations. However, if a rural rescue squad is rushing to provide care to a victim of a car accident or tractor rollover, having information about the patient's medical history, via the local hospital, could be a big determinant in the treatment provided on site.

Geographic remoteness also provides hardships on patients if they need to travel to receive services. Time off work, inclement weather, and increased costs mean that patients cannot afford the waste of duplicative diagnostic tests, repeated requests for the same information, or last minute cancellation of appointments because crucial medical information has not been received.

Rural residents also lack access to many types of providers. Behavioral health care is one area that is in high demand in rural areas. For that reason, I am pleased to see that behavioral health care providers are specifically mentioned and included in this information-sharing proposal.

Nebraska's Panhandle offers many challenges in the provision of health – its Frontier status and designation as a health professional shortage/medically underserved area. Therefore, efforts to ensure access to quality health care services for patients in this area and to help the local hospitals remain financially sound, require creative solutions. Allowing for the sharing of patient information among healthcare providers in the 11-county region will assist in both endeavors. Such challenges make the Panhandle a distinctive laboratory for experimentation and a process such as that outlined in your grant proposal may be replicable to other rural parts of the country.

I fully support your proposal and anticipate the reviewing agency will also realize its value.

Sincerely,

Dennis Berens, Director
Nebraska Office of Rural Health

April 16, 2004

Nancy Shank, Associate Director
University of Nebraska Public Policy Center
121 South 13th Street
Suite 303
Lincoln, NE 68588-0228

Dear Ms. Shank:

The Office of Public Health, Nebraska Department of Health and Human Services, supports your proposal to create a plan for the implementation of an electronic health records system in the rural Panhandle region and is pleased that the Panhandle Public Health District is one of the key partners for this endeavor. Too often, public health is the forgotten partner when it comes to patient care and information sharing. As we have experienced over the last couple of years, the integration of primary care and public health systems is vital to the health, security and safety of the people served. The opportunity for increased information sharing can only improve the delivery of health and human services for Nebraskans.

The Nebraska Office of Public Health has been involved in various efforts to increase the state's responsiveness to emergency and bioterrorism concerns. Due to the large geographic area of Nebraska's 11-county Panhandle region, the ability to share patient information in a timely manner is critical when faced with life-threatening situations or to track and investigate possible occurrences such as SARS, West Nile, or other diseases that endanger the public's health. I believe that your proposal will provide an effective solution to the problems created by lack of interoperability among systems, duplicative entry and a lack of efficient information sharing.

This office has also worked closely with the state's Critical Access Hospitals (CAHs) by assisting the hospitals during their conversion and helping develop the network relationships that make the CAH system work effectively. This designation has been critical as the hospitals in this region are financially struggling to survive, and many simply do not have the resources to implement a system for sharing patient health information with other hospitals in the region. Yet, if these hospitals are to endure, such a system is essential. Your proposal will fill this void between the current needs of patients and hospitals in the Panhandle region and their limited resources, thus improving patient care and ensuring the sustainability of rural hospitals.

We highly recommend your proposal and urge the Agency for Healthcare Research and Quality to give it the utmost consideration.

Sincerely,

Dave Palm, Administrator
Office of Public Health
Department of Health and Human Services

Regional Health Records Planning Process

Leadership Group Structure
Roles and Responsibilities

The AHRQ planning grant for Regional Health Records provides western Nebraska hospitals and clinics with the unique opportunity to obtain information, access expertise, and participate in collaborative decisions regarding the possibilities for shared electronic health records. Structure of the planning process (Figure 1) reflects the RHCN Vision for *A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.*

Figure 1.
Planning Process Organizational Structure

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Local Electronic Records Teams
Hospital/clinic workgroups comprised of representatives to the Regional Leadership Teams for the purpose of information sharing, local determination, and development of expertise and functional relationships for implementation and sustainability. Local Team members would minimally include; IT person, clinical representative, administration, finance, providers, QA and HIPAA functions. In some instances an individual may perform more than one function.

Provider participation is essential to the success of this work. At the same time it is recognized that there are time and travel limitations for many providers. The Planning Implementation team seeks suggestions from the Steering Committee as to the most effective methods for informing and including providers on a regional basis

Regional Leadership Teams
In order to complete this work key information and decisions are required. The Planning Implementation team proposes the formation of a number of leadership groups composed of representatives from each hospital/clinic. This structure is based on the previously successful groups such as the IT Leadership Team.

The Regional Leadership Teams required for the planning process include: Steering, IT (existing), Clinical, Organizational, Training & Education (existing), Provider, and Finance. These regional groups will be given specific tasks and deliverables toward the completion of the regional plan. This work is however, inter-related between groups. The process is designed to assure information flow between groups.

To make effective use of time for travel and meetings and to promote the flow of information the Planning Implementation Team proposes monthly meetings of all groups which afford workgroup breakout sessions and opportunities to share information between groups. The use of the telehealth network video conferencing is proposed for any additional meetings which work groups may require.

Regional Electronic Health Records

STEERING COMMITTEE

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Steering Committee Composition
CEO's and Directors of health services in the western Nebraska.
Box Butte General Hospital- Dan Griess
Chadron Community Hospital- Harold Krueger
Garden County Health Services- Diana Stevens
Gordon Memorial Hospital- Mehdi Merred
Kimball County Health Services- Kim Woods
Memorial Health Center- Kent Aland
Morrill County Community Hospital- Julie Morrow
Regional West Medical Center- Todd Sorensen
Perkins County Health Services- Carol Kraus
Federally Qualified Health Clinic- John Steinhauer
Region I Panhandle Behavioral Health Services- John McVay
Panhandle Public Health District- Kim Engel
Panhandle Partnership for Health and Human Services- Board of Directors Representative

Role
Provide visionary leadership, oversight and direction in the completion of the Regional Health Records Planning process according to the timelines and framework of the AHRQ grant.

Functions
- Approve and provide direction to a consensus-based planning process and maintain oversight of progress
- Ensure linkages of the planning process with other collaborative initiatives within the Panhandle and the State of Nebraska.
- Charter workgroups to develop alternatives and recommendations and where required
- Act as a sort of workgroup for financial and higher level decisions

Linkages to Plan Deliverables: Key Leadership Determinations
- Approval of Plan

Time Commitment:
The Steering Committee will meet on a monthly basis in person or via video conferencing.

Regional Electronic Health Records

LOCAL ELECTRONIC RECORDS TEAMS

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Local Electronic Records Team Composition
Hospital/clinic workgroups comprised of representatives to the Regional Leadership Teams and would minimally include: IT person, clinical representative, administration, finance, providers, QA, and HIPAA functions. In some instances an individual may perform more than one function. The team may include the CEO who sits on the RHR Steering Committee.

Technical Assistance/ Planning Implementation Team Linkages
Locally-organized and staffed Team

Charge to Local Electronic Records Team
The Local Electronic Records Team is charged with project implementation on the day to day basis including but not limited to:
- Information sharing within the team about the work of each of the Regional Workgroups to coordinate Regional Workgroup planning
- Share information, obtain feedback, answer questions within the organization about the planning
- Develop expertise and functional relationships for implementation and sustainability
- Determine processes and planning aspects for regional health records planning within the organization
- Information sharing within the team about best practices and information from Regional Workgroups, planning and implementation of those practices in the local organization
- Serves as local information technology planning group

Linkages to Plan Deliverables: Key Leadership Determinations
Will be involved in the development of all aspects of the Plan through the Regional Workgroups and their CEO to the RHR Steering Committee.

Time Commitment:
The Local Electronic Records Team will meet monthly.

Reporting:
The Local Electronic Records Team will communicate through participation in the Regional Workgroups and through their CEO to the RHR Steering Committee.

Regional Electronic Health Records

PLANNING IMPLEMENTATION TEAM

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
University of Nebraska Public Policy Center- Nancy Shank, Planning Director
University of Nebraska Public Policy Center -Robyn Henderson, Rural Health Specialist
University of Nebraska Public Policy Center- Mark Weiss, Technology Consultant
Rural Healthcare Cooperative Network- Joan Frances
Rural Healthcare Cooperative Network -Bill Loring, IT Leadership Consultant
Rural Healthcare Cooperative Network – Susan Heider, Laura Looney, IT Leadership and State Linkages
Scientific Technologies Corporation- Paula Soper, Public Health Consultant
Scientific Technologies Corporation- Christi Dant, Regional Emergency Preparedness Planning Linkages

Charge to Planning Implementation Team
The Planning Implementation Team is charged with project implementation on the day to day basis including but not limited to:
- Ensuring that all project timelines and work plans are met.
- Serving as non-voting resources to the Steering Committee
- Provision of leadership and coordination of work groups to assure collaborative consensus and documentation of required components of the final plan including but not limited to: Benefits; Information Content and Access; Architecture and Design; Assets and Gaps; Risks, threats, and barriers; Policies; Total cost of ownership; Governance and Leadership; Implementation Phases; and Funding.
- Informing the Steering committee of any circumstances which may impact the project.
- Production of all documents and plan components for review

- Identification of additional resources and linkages.
- Ensuring coordination with initiatives that may impact the Regional Health Records planning project.

Time Commitment:
The Planning Implementation Team meets at least twice monthly.

Reporting:
The Planning Implementation Team reports to, and meets with, the Steering Committee on a monthly basis.

Regional Electronic Health Records

IT LEADERSHIP TEAM
Charter Addendum

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
The IT Leadership Team is comprised of the designated IT person from each hospital/provider and an IT consultant retained by the RHCN.

Technical Assistance/ Planning Implementation Team Linkages
University of Nebraska Public Policy Center- Mark Weiss, Technology Consultant
Rural Healthcare Cooperative Network- Bill Loring, IT Consultant

IT Leadership Team Research and Support
Regional West Medical Center- Laura Looney
Kimball County Health Services- Nicole Neilan

Charge to IT Leadership Team
- Provide leadership and recommendations in research and determinations regarding architecture, hardware, software, and user skill development, in the collaborative development of a Regional Electronic Health Record.
- Participate as a team member in local RHR workgroups for information sharing and collaborative decisions with hospital/clinic IT representatives, providers, CEO's.
- Work in collaboration with other regional planning teams.

Linkages to Plan Deliverables: Key Leadership Determinations
- Architecture and Design Specifications
    o Architectural structure – February, March 2005
    o Security/Auditing/Monitoring – March 2005
    o System interoperability – February 2005, March 2005
    o Availability – February, March 2005
    o Patient identification and matching (Master Patient Index) – April 2005
    o Needs at the network and the provider level – May 2005
- Assets and Gaps
    o Hardware - Computers, workstations, printers, other devices – December 2004, June 2005
    o Software – Operating systems, proprietary and non-proprietary products used for any aspect of records, versions – December 2004, June 2005
    o Connectivity – December 2004, June 2005
    o Human Resources and Expertise – For design, roll-out, and implementation among Information technology administration and execution and Network – June 2005
- Projected Risks, Threats, And Barriers - April 2005
    o Technological - Accidental acts, deliberate acts, or environmental threats
    o Capacity of partners
    o Interoperability of software and architectures
- Policies – June 2005
    o Network permissions and responsibilities
    o Establishment and monitoring of standards
    o Auditing rights for use and users
    o Agreements with vendors
    o Detailed operational and performance specifications for organizations and vendors
    o Performance measures and rewards or penalties
    o Intellectual property issues
    o Training
- Implementation Phases recommendations in all relevant aspects
    o Overall strategy and prioritization – May 2005
    o Types of strategies – March 2005
    o Review of timeline, interdependencies, activities & deliverables, and approval processes – June 2005

<u>Time Commitment</u>
At least one day per month for a one year period of time.

<u>Reporting</u>:
The IT Leadership Team reports to the Steering Committee through the IT consultant and Planning Implementation Team on a monthly basis.

Rural Healthcare Cooperative Network
Training and Education
Leadership Team Charter

REPORTS TO: RHCN Board of Directors

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

TEAM COMPOSITION:
The Training and Education Leadership team will be comprised of the designated training and education person from each hospital/health service.

ROLE:
Develop, implement, manage and sustain an area wide, health services collaborative training academy which promotes and enhances the training and education of persons employed in health and health related systems of care.

RESPONSIBLITIES:
- Development of an annual collaborative training plan which enhances local resources, promotes effective use of agency resources, encourages collaboration for conferences , workshops, education and training
- Advise in the development of the Associate Occupational Studies including the determination of modules to be offered.
- Establish policies and procedures as required.
- Develop and recommend to the RHCN Board of Directors an annual budget for the Training and Education Academy, including priorities for use of collaborative funds for additional modules, training and instructors.
- Maintain linkages and relationships with area colleges and universities.
- Maintain linkages and collaborative work with the AHEC.

Regional Electronic Health Records

CLINICAL LEADERSHIP TEAM

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
The Clinical Leadership Team is comprised of the designated persons from each hospital and Rural Health Clinic who have the knowledge of clinic and hospital systems, workflow, documentation practices and technology needs.

Technical Assistance/Planning Implementation Team Linkages
Panhandle Public Health Department - Kim Engel
Rural Healthcare Cooperative Network - Joan Frances

Charge to Clinical Leadership Team
- Provide leadership and recommendations in planning and determinations regarding clinic and hospital information and system needs for shared Regional Electronic Health Record.
- Assist in identifying at least one Provider RHR Champion within local clinics and hospitals.
- Promote and assure provider and physician participation at the local level toward regional collaborative consensus for Regional Health Records.
- Participate as a team member in local RHR workgroups for information sharing and collaborative decisions with hospital/clinic IT representatives, providers, CEO's.
- Develop products with feedback from physicians and other midlevel providers, and incorporate feedback from the Provider Leadership Team.
- Work in collaboration with other regional planning teams.

- Information sharing within the team about best practices and lessons learned, and planning and implementation of those practices on a panhandle wide scale.
- Serve as a user group for leadership and collaborative support.

Linkages to Plan Deliverables: Key Leadership Determinations
- Benefits
  o Clinical benefits are those that allow for improvements in care and delivery quality – January, February 2005
  o Prioritization of the key outcomes – February 2005
  o The measures and sources of data – January, February 2005
  o Identify baseline data for each measure – January, February 2005
- Information Content and Access
  o Type and amount – January, February 2005
  o Ownership of data – January, February 2005
  o Levels of access – February 2005
  o Standards and delimitations – March 2005
  o Functionality – February 2005
  o Workflow – May 2005
- Human Resources and Expertise – June 2005
  o For design, roll-out, and implementation among end users
- Projected, Risks, Threats, and Barriers
  o Clinical/Organizational – April 2005
  o User resistance – July 2005
- Policies
  o Identification of data exchange standards to enforce consistency – May 2005
  o Individual permissions and responsibilities – June 2005
  o Audit and monitoring processes - how additions to the record will be enabled and tracked, and how access will be monitored – July 2005
- Implementation Phases recommendations in all relevant aspects
  o Overall strategy and prioritization – May 2005
  o Types of strategies – March 2005
  o Review of timeline, interdependencies, activities & deliverables, and approval processes – June 2005

Regional Meeting Time Commitment:
Average of one day per month.

Reporting:
The Clinical Leadership Team reports to the Steering Committee through the Planning Implementation Team on a monthly basis

Regional Electronic Health Records

ORGANIZATIONAL LEADERSHIP TEAM

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
The Organizational Leadership Team is comprised of designated persons from each hospital/ Rural Health Clinic who have the knowledge of personnel, security and organizational policies and procedures.

Technical Assistance/Planning Implementation Team Linkages
University of Nebraska Public Policy Center – Nancy Shank

Charge to Organizational Leadership Team
- Provide leadership and recommendations in planning and determinations regarding clinic and hospital information and system needs for shared Regional Electronic Health Record.
- Participate as a team member in local RHR workgroups for information sharing and collaborative decisions with hospital/clinic IT representatives, providers, CEO's.
- Work in collaboration with other regional planning teams.
- Information sharing within the team about best practices and lessons learned, and planning and implementation of those practices on a panhandle wide scale.
- Serve as a user group for leadership and collaborative support.

Linkages to Plan Deliverables: Key Leadership Determinations
- Benefits
  - Structural (organizational) benefits are those that improve processes through streamlining or fundamental transformation. – January, February 2005
  - Prioritization of the key outcomes – February 2005
  - The measures and sources of data – January, February 2005
  - Identify baseline data for each measure – January, February 2005
- Assets and Gaps
  - Human Resources and Expertise – For design, roll-out, and implementation among end users – December 2004, June 2005
- Projected Risks, Threats, and Barriers
  - Procedural – June 2005
  - User Resistance – July 2005
- Policies – August 2005
  - Review existing data exchange standards – January 2005
  - Delineation of ownership/proprietary standards – March 2005
  - Organizational permissions and responsibilities – June 2005
  - Security processes and standards – July 2005
  - Privacy, confidentiality, and authorization/consent - the approval process for information sharing – July 2005
  - Risk assessment for protection from other laws – July 2005
- Governance and Leadership – July 2005
- Implementation Phases recommendations in all relevant aspects
  - Overall strategy and prioritization – May 2005
  - Types of strategies – March 2005
  - Review of timeline, interdependencies, activities & deliverables, and approval processes – June 2005

Regional Meeting Time Commitment:
Average of one day per month.

Reporting:
The IT Leadership Team reports to the Steering Committee through the IT consultant and Planning Implementation Team on a monthly basis

Regional Electronic Health Records

FINANCE LEADERSHIP TEAM

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
The Finance Leadership Team is comprised of   work groups related to the over all functions of finance. Subgroups include: Billing and Coding (hospital and clinic), Patient Financial Services, and Operations. Members may include those responsible for Billing and Coding (hospital and clinic), Business Offices, Chief Operating Officers, or CFO's who may carry all or a portion of these responsibilities.

Technical Assistance/ Planning Implementation Team Linkages
Rural Healthcare Cooperative Network - Joan Frances
University of Nebraska Public Policy Center - Nancy Shank

Charge to Finance Leadership Team
- Provide leadership and recommendations in planning and determinations regarding billing and coding systems and requirements for shared Regional Electronic Health Record.
- Participate as a team member in local RHR workgroups for information sharing and collaborative decisions with hospital/clinic IT representatives, providers, CEO's.
- Work in collaboration with other regional planning teams.
- Information sharing within the team about best practices and lessons learned, and planning and implementation of those practices on a panhandle wide scale.
- Serve as a user group for leadership and collaborative support.

Linkages to Plan Deliverables: Key Leadership Determinations
- Benefits
    - Financial (organizational) benefits are those that improve processes through streamlining or fundamental transformation. – January, February 2005
    - Prioritization of the key outcomes – February 2005
    - The measures and sources of data – January, February 2005
    - Identify baseline data for each measure – January, February 2005
- Assets and Gaps
    - Financial resources – June 2005
- Projected Risks, Threats, and Barriers
    - Financial – January 2005
- Total Cost of Ownership – July 2005
- Implementation Phases recommendations in all relevant aspects
    - Overall strategy and prioritization – May 2005
    - Types of strategies – March 2005
    - Review of timeline, interdependencies, activities & deliverables, and approval processes – June 2005
- Funding
    - Identification of available funding – January, June 2005
    - Internal and external resources – February, March, April 2005
    - Funding needed for implementation – July 2005

Time Commitment:
Average of one meeting per month.

Reporting:
The Finance Leadership Team reports to the Steering Committee through the Planning Implementation Team on a monthly basis

Regional Electronic Health Records

PROVIDER LEADERSHIP TEAM

RHCN Vision:
A sustainable system of healthcare for the Panhandle of Nebraska developed by collaboration and cooperation which respects the autonomy of each hospital.

Mission:
A compatible, shared, unified paperless system which has the capability to share patient information between hospitals and providers in real time.

Team Composition
Physicians and mid level providers in hospitals, Rural Health Clinics and private practice.

Technical Assistance/Planning Implementation Team Linkages
Rural Healthcare Cooperative Network - Joan Frances
University of Nebraska Public Policy Center - Nancy Shank

Linkages to Plan Deliverables: Key Leadership Determinations
Review and comment on aspects of the Plan, particularly in response to the work of the Clinical Workgroup.

Role:
Provide leadership direction in the development of regional electronic health records through participation and determinations at the local level and through regional provider information sessions.

Time Commitment:
Average of one meeting every 2-3 months.

Reporting:
The Provider Leadership Team reports to the Steering Committee through the Planning Implementation Team on an ad hoc basis.

Name of Individual Completing this Survey

Facility Name and Address
Type of Facility
Date

Do you have a Patient Accounting System? ☐ Yes ☐ No If yes, name Product, version, and how it's used.

Do you have a Scheduling Product? ☐ Yes ☐ No If yes, name Product, version, and how it's used.

Do you have a Health Record Viewing Product? ☐ Yes ☐ No If yes, name Product, version, information viewable and who uses it.

Do you have an Electronic Medical Record Product? ☐ Yes ☐ No If yes, name Product, version, and description.

Patient Identification: How do you ensure a patient's identification and how is identification maintained during a patient's visit?

Do you use standard code sets? If yes, select all that apply.
☐ ICD-9-CM   ☐ CPT (4 & 5)   ☐ ICD-10   ☐ SNOMED (II and III)
☐ APC   ☐ NDC   ☐ Other,

Check which services your facility provides and fill in number of encounters/procedures per fiscal year:

☐ Behavioral Health	☐ Heart, Cardiac	☐ Pharmacy
☐ Birth and Infant	☐ Home Health Care	☐ Radiology
☐ Blood Bank	☐ Immunizations	☐ Rehab, Inpatient
☐ Cancer, Oncology	☐ Intensive Care	☐ Retirement/
☐ Cardio-Pulmonary	☐ Internal Medicine	Assisted Living
☐ Phys. Therapy OP	☐ Occ. Therapy OP	☐ Speech Therapy OP
☐ Sleep Services	☐ Laboratory	☐ Surgical
☐ Diabetes	☐ Nutrition	☐ Transplantation
☐ Emergency	☐ Occupational Hlth	☐ Weight Mgmt,
☐ Endoscopy	☐ Orthopedics	Bariatrics
☐ Genetics	☐ Pediatrics	☐ Women's Health,

☐ Other?   Gynecology, OB

General Totals:
☐ Total Inpatient Visits   ☐ Total Outpatient Visits
☐ Total Clinic Office Visits

Number of beds?
Current Number of Persons Employed at this site?
How many of these employees are physicians (MD)?
Approximate FTE of persons employed at this site?
How many of these employees are primary care providers? (PA/NP/Other)
How many other professionals work with patients at your facility, employed by your company? (Therapists, Dieticians, etc)
How many Physicians/Other Primary Care Providers, not employed by your company, have privileges at the facility?
Number of other professionals that work with patients at your facility, not employed by your company? (Therapists, Dieticians, etc)

If any of your services have computerized documentation, fill out a line for each service in the following table. The numbers for FTEs, PC, etc. should represent the number of direct resources supporting that service.

Computerized Service	Name and Version of Product	Number Of FTEs	PC's	Laptops	Tablets	PDA	FAX

Computerized Service	Name and Version of Product	Number Of FTEs	PC's	Laptops	Tablets	PDA	FAX

Funding Opportunities:

Telehealth

Health Information Technology

In reverse-chronological order of deadline:

Agency for Healthcare Research and Quality (AHRQ)

Program	Health Services Research PA NUMBER: PA-00-111. CFDA number: 93.226.
Purpose	To enhance the quality, appropriateness, and effectiveness of health services, and access to such services, through the establishment of a broad base of scientific research and through the promotion of improvements in clinical and health systems practices, including the prevention of diseases and other health conditions.
Eligibility	Applications may be submitted by domestic and foreign, public and private nonprofit organizations including universities, clinics, units of State and local governments, firms, and foundations. For the purpose of this PA, AHRQ will make grants only to nonprofit organizations, however, for-profit organizations may participate in grant projects through consortium arrangements or as subcontractors. Organizations described in section 501(c)4 of the Internal Revenue Code that engage in lobbying are not eligible. AHRQ encourages women, members of racial and ethnic minority groups, and persons with disabilities to apply as Principal Investigators.
Deadline	On-going
Amount of Funding	

Application Process	Application kits are available at most institutional offices of sponsored research. They may also be obtained from the Division of Extramural Outreach and Information Resources, National Institutes of Health, 6701 Rockledge Drive, MSC 7910, Bethesda, MD 20892-7910, telephone (301) 435-0714, E-mail: grantsInfo@nih.gov. AHRQ applicants are encouraged to obtain application materials from the AHRQ Publications Clearinghouse.
Contacts	Program Website (Direct Contacts are included on website): http://grants.nih.gov/grants/guide/pa-files/PA-00-111.html

U.S. Health and Human Services, National Institutes of Health, National Library of Medicine

Program	NLM Knowledge Management & Applied Informatics Grants PA NUMBER: PAR-05-012
Purpose	NLM Translational Informatics grants are offered to help organizations use information technology to optimize the utility of clinical and research information.
Eligibility	You may submit (an) application(s) if your organization has any of the following characteristics: • Public or private institution, such as university, college, hospital, or laboratory • Units of State government • Units of local government • Eligible agency of the Federal government • Faith-based or community-based organization • Native American tribal organization • Domestic organizations Eligible organizations include schools of medicine, dentistry, nursing, allied health, pharmacy, public health and other organizations working

	toward the promotion of good health and the prevention and treatment of disease. Hospitals, clinics, schools and community health centers, libraries and public health facilities, units of state and local governments among are examples of other organizations that are encouraged to apply.
Deadline	Letter of Intent Receipt Date: Not required Application Receipt Date(s): October 1, February 1, June 1 Expiration Date: November 2, 2007
Amount of Funding	• NLM anticipates spending approximately $4 million per year to support this grant program. • NLM anticipates making 8 – 10 new awards in this program each year.
Application Process	Application materials, including special instructions and a link to the downloadable application form, are available on the NLM Extramural Programs Division web site at http://www.nlm.nih.gov/ep/.
Contacts	**Scientific/Research Contact**: Hua-Chuan Sim, M.D. 6705 Rockledge Drive, Suite 301, MSC 7968 Bethesda, MD 20892-7968 Telephone: (301) 496-4253 FAX: (301) 402-2952 Email: simh@mail.nih.gov **Peer Review Contact:** Dr. Arthur Petrosian Scientific Review Administrator 6705 Rockledge Drive, Suite 301, MSC 7968 Bethesda, MD 20892-7968 Bethesda, MD 20817 (for courier/express service) Telephone: (301) 594-4933 FAX: (301) 402-2952 Email: petrosia@mail.nih.gov

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Financial or Grant Management Contacts:
Dwight Mowery
Extramural Programs Division
National Library of Medicine
Rockledge 1, Suite 301
6705 Rockledge Drive
Bethesda, MD 20892
Telephone: (301) 496-4221
FAX: 301-402-2952
Email: moweryd@mail.nih.gov

Grant information
http://grants.nih.gov/grants/guide/pa-files/PAR-05-012.html#SectionIII

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US Health and Human Services, Office of Rural Health Policy

Program	Rural Health Network Development Grant Program (RHND)
	Catalog of Federal Domestic Assistance Number: 93.912
Purpose	This program is designed to support organizations that wish to further ongoing collaborative relationships among health care organizations to integrate systems of care administratively, clinically, financially and technologically. Unlike the Rural Health Outreach Program, the funds provided are not used for the direct delivery of services. The ultimate goal of the program is to build continually adapting, organic, open, self-perpetuating networks with business (network partner return) and social (community return) competencies that increase access and quality of rural health care and ultimately, the health status of rural residents. Networks must consist of at least three separately owned health care providers. Each member of the network must sign a memorandum of agreement or similar formal collaborative agreement.

Eligibility	To be eligible for an RHND Grant, the applicant organization must meet the following requirements: 1. The applicant organization must be a public or non-profit health care provider located in a rural area. To ascertain rural eligibility, please refer to http://ruralhealth.hrsa.gov/funding/eligibilitytestv2.asp and enter the applicant organization's State and County, or see the list enclosed in the application kit. Networks serving rural communities but whose applicant organization is not in a designated rural area will not be reviewed. 2. In addition to the 50 States, applicants can be located in the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Territories of the Virgin Islands, Guam, American Samoa, the Compact Free Association Jurisdictions of the Republic of the Marshall Islands, the Republic of Palau and the Federated States of Micronesia. 3. The network is composed of at least three separate, existing organizations; organizations that are jointly owned are not considered separate. If the Network is not a formally established entity itself that is 501(c)(3) incorporated, as is sometimes the case with newer networks, one of the Network members may apply on behalf of the Network. If the Network is incorporated as a 501(c)(3), the Network entity should be the applicant and must consist of at least three participating network members in order to be eligible. Please see the program web site for more details about eligibility for this grant program. As of Oct 1, 2003, a DUNS Number is required to apply for federal grants.
Deadline	September 26, 2005

Amount of Funding	Subject to the availability of appropriations, ORHP anticipates making eight new awards for the RHND Grant Program in FY 2006. Individual grant awards are limited to a maximum of $180,000 (direct and indirect costs) per year, or $540,000 over three years. Applicants may propose project periods up to a maximum of three years.
Application Process	Detailed application information is available on the program web site. You are required to notify your State Office of Rural Health (SORH) or other appropriate State government entity early in the application process to advise them of your intent to apply. The SORH can often provide technical assistance to applicants. A list of the SORHs is enclosed in the application kit.
Contacts	**For more information contact:** Erica Molliver Telephone: 301-443-1520 Fax: 301-443-2803 E-mail: emolliver@hrsa.gov Sheila Warren Telephone: 301-443-0246 Fax: 301-443-2803 E-mail: swarren@hrsa.gov Carrie Cochran Telephone: 301-443-4701 Fax: 301-443-2803 E-mail:ccochran@hrsa.gov Summaries of funding programs are provided by RAC for your convenience. Please contact the funder directly for the most complete and current information. Program Website: http://www.fedgrants.gov/Applicants/HHS/HRSA/GAC/HRSA-06-010/listing.html

Robert Wood Johnson Foundation

Program	InformationLinks: Connecting Public Health with Health Information Exchanges
Purpose	This program will provide grants to support the participation of state and local public health agencies in health information exchanges. The program will make funds available to public health agencies for activities in support of population-based public health services, as opposed to direct provision of health care (e.g., safety-net provider services). The program is designed as a one-time, short-term stimulus to catalyze and facilitate greater participation by public health agencies in health information exchanges.
Eligibility	State and local health departments and nonprofit organizations, such as public health institutes, specifically designated by a state or local health department to receive funds on their behalf, are eligible to apply.
Deadline	September 7, 2005
Amount of Funding	Approximately 20 Grants, $75,000.00-$100,000.00 per grant for a 12-month period.
Application Process	The application process can be found on the following website: http://www.informationlinks.org/Main-2381.html
Contacts	Tim Crowley Administrative Coordinator The Robert Wood Johnson Foundation Route 1 & College Road East Princeton, NJ 08543 Phone: (888) 635-7433 E-mail: informationlinks@rwjf.org Program Website: www.informationlinks.org

USDA Rural Utilities Service

Program	Community Connect Grant Program CFDA number: 10.863
Purpose	The purpose of the Community Connect Grant Program is to provide financial assistance in the form of grants to eligible applicants that will provide, on a "community-oriented connectivity" basis, broadband transmission service that fosters economic growth and delivers enhanced educational, health care, and public safety services. RUS will give priority to rural areas that it believes have the greatest need for broadband transmission services.
Eligibility	As of Oct 1, 2003, a DUNS Number is required to apply for federal grants. **1.** Only entities legally organized as one of the following are eligible for Community Connect Grant Program financial assistance: **a.** An incorporated organization, **b.** An Indian tribe or tribal organization, as defined in 25 U.S.C. 450b(b) and (c), **c.** A State or local unit of government, **d.** A cooperative, private corporation or limited liability company organized on a for-profit or not-for-profit basis. **2**. Individuals are not eligible for Community Connect Grant Program financial assistance directly. **3.** Applicants must have the legal capacity and authority to own and operate the broadband facilities as proposed in its application, to enter into contracts and to otherwise comply with applicable federal statutes and regulations.
Deadline	May 31, 2005
Amount of Funding	$8.9 million is available for grants. The minimum grant amount is $50,000. There is no maximum grant amount for FY 2005.

Application Process	The application guide, copies of necessary forms and samples, and the Community Connect Grant Program regulation are available from these sources: **1.** The Internet: http://www.usda.gov/rus/telecom/commconnect.htm , or http://www.grants.gov . **2.** The RUS, Advanced Services Division, for paper copies of these materials: (202) 690-4493.
Contacts	Orren E. Cameron III, Director, Advanced Services Division, Telecommunications, Rural Utilities Service, U.S. Department of Agriculture, telephone: (202) 690-4493, fax: (202) 720-1051. Summaries of funding programs are provided by RAC for your convenience. Please contact the funder directly for the most complete and current information.

US Health and Human Services, Office of Rural Health Policy

Program	Small Rural Hospital Improvement Program (SHIP) CFDA number: 93.301
Purpose	To help small communities do any or all of the following: 1) pay for costs related to the implementation of PPS, 2) comply with provisions of HIPAA and 3) reduce medical errors and support quality improvement.
Eligibility	To be eligible for these grants, a hospital must be: (1) small is defined as 49 available beds or less, as reported on the hospital's most recently filed Medicare Cost Report, (2) rural is defined as located outside a Metropolitan Statistical Area (MSA); or located in a rural census tract of a MSA as determined under the Goldsmith Modification or the Rural Urban Commuting Areas, and (3) hospital is defined as a non-Federal, short-term, general acute care facility. There is no requirement for matching funds with this program.
Deadline	March 14, 2005

Amount of Funding	Estimated Amount Of This Competition: $15,000,000
	Estimated Number of Awards to be made: 47 States, 1500 hospitals
	Estimated or average size of each award: $9,700 to each hospital
Application Process	The application process can be found on the following website:
	http://www.hrsa.gov/grants/preview/guidancerural/hrsa05004.htm
Contacts	- Jerry Coopey, Program Officer; 301-443-0835; jcoopey@hrsa.gov - Keith Midberry, MHSA Office: Office of Rural Health Policy Phone: 301-443-2669 Fax: 301-443-2803 Email: kmidberry@hrsa.gov - Program Website: http://ruralhealth.hrsa.gov/ship.htm

USDA Rural Utility Services

Program	Distance Learning and Telemedicine (DLT) grant
	CFDA number: 10.855
Purpose	To meet the educational and health care needs of rural America through the use of advanced telecommunications technologies.
Eligibility	To be eligible for a grant, your organization must:
	(1) Currently deliver or propose to deliver distance learning or telemedicine services.
	(2) Be legally organized as an incorporated organization or partnership; an Indian tribe or tribal organization; a state or local unit of government; a consortium; or other legal entity, including a private corporation organized on a for profit or not-for profit basis. You must also have the legal capacity to contract with RUS. Please see 7 CFR 1703.103(a)(1) & 1703.125(k) for specific legal definitions and citations.
	(3) Operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents of rural areas at rates calculated to ensure that the benefit of the

	financial assistance passes through to such entities or to residents of rural areas. **Note:** RUS electric or telecommunications borrowers are not eligible for grants, but are eligible for loans. See the *Loan and Combination Loan-Grant Application Guide* for more information.
Deadline	February 1, 2005
Amount of Funding	Minimum $50,000 Maximum $500,000
Application Process	The process can be found on the following website: http://www.usda.gov/rus/telecom/dlt/word_files/05dltgrantappguiderev.doc
Contacts	202-720-0413; dltinfo@usda.gov; Program Website: www.usda.gov/rus/telecom/dlt/dlt.htm

USDA Rural Utility Services and the Federal Communications Commission

Program	Rural Wireless Community VISION Program
Purpose	Accelerate access to advanced wireless telecommunications across rural America.
Eligibility	Open to any rural community in the United States and its territories.
Deadline	December 1, 2004
Amount of Funding	
Application Process	Community must submit a 2-5 page VISION essay describing the community's vision for wireless connectivity/services and how the community will benefit. Essay Guidelines.
Contacts	▪ FCC-WTB: Nancy Plon; 202-418-2899; WTBcommunityVISION@fcc.gov ▪ USDA-RUS: Roberta Purcell; 202-720-0955; bobbie.purcell@usda.gov ▪ Program Website http://wireless.fcc.gov/outreach/ruralvision/

Foundation for eHealth Initiative and HRSA Office for the Advancement of Telehealth (OAT)

Program	Telehealth Network Grant Program (THGP)
Purpose	The primary objective of the Telehealth Network Grant Program is to help communities build the human, technical, and financial capacity to develop sustainable telehealth programs and networks while expanding access to quality health services.
Eligibility	To be eligible to receive a grant under this authority, the applicant shall be a nonprofit entity that will provide services through a telehealth network. Each entity participating in the telehealth network may be a nonprofit or for-profit entity. Faith-based and community based organizations are eligible to apply. Services may be provided to rural or urban communities.
Deadline	April 7, 2003 - (NOTE: In fiscal year 2004, Congress did not appropriate sufficient funds for new grants under the Telehealth Network (THGP) or the Telehealth Resource Center Cooperative Agreement Programs (TRCCP). As a result, the Office for the Advancement of Telehealth is not soliciting NEW applications for these programs. No word on FY 2005 appropriations.)
Amount of Funding	$5 million will be available to support approximately 20 new awards. Individual grants of up to $250,000 (to be used for direct and indirect costs) per year for up to three years will be awarded.
Application Process	The application process can be found on the following website: http://telehealth.hrsa.gov/grants/teleguide.htm#3

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	   ▪ OAT website: http://telehealth.hrsa.gov/
	   ▪ Foundation for eHealth Initiative, Connecting Communities for Better Health Program website: http://ccbh.ehealthinitiative.org/default.mspx