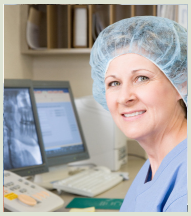
Center *for* Rural Health



Environmental Scan of Health Information Technology (HIT) Adoption amongst North Dakota Health Care Entities

Hospitals, Independent Rural Clinics, Community Health Centers, Clinical Laboratories, Pharmacies, Long Term Care, Local Public Health Units/Departments

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Grand Forks Public Health Department

North Dakota community members participating in focus groups

North Dakota Board of Pharmacy

North Dakota Health Care Review, Inc.

North Dakota Health Information Technology Advisory Committee

North Dakota Health Information Network Team

North Dakota Hospital Association

North Dakota Long Term Care Association

North Dakota Pharmacists Association

North Dakota State Association of City and County Health Officials

Regional Extension Assistance Center for HIT (REACH)

Stratis Health

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BACKGROUND

In 2008, the Center for Rural Health, on behalf of the ND HIT Steering Committee (currently known as the ND HIT Advisory Committee [HITAC]), surveyed hospitals, long-term care facilities and local public health units to assess: the level of adoption of electronic health records (EHR) and telehealth; and health information technology workforce. This study was funded by the Health Resources and Services Administration, Federal Office of Rural Health Policy, State Office of Rural Health grant program. In addition, the North Dakota Health Care Review, Inc. (ND's Medicare Quality Improvement Organization) surveyed, via telephone, private physician practices to determine the level of EHR adoption.

The HITAC is aware, anecdotally, that EHR adoption has accelerated since the survey was conducted in 2008; however current data is not available to confirm the specifics necessary to further develop the state HIE. Therefore, it was necessary to resurvey health care entities surveyed previously to assess the change in adoption and also survey other health care entities/providers not surveyed in 2008 (i.e. clinics - chiropractic, vision and dental, home health, pharmacies, etc.) which are important to the continuum of care for North Dakota residents. The information gathered will be used to inform and direct further development of the strategic and operational plan for the state HIE or ND Health Information Network (NDHIN).

Qualifications

The Center for Rural Health (CRH), established in 1980, is one of the nation's most experienced organizations committed to providing leadership in rural health. The Center's mission is to *connect resources and knowledge to strengthen the health of people in rural communities*. The Center serves as a resource to health care providers, health organizations, citizens, researchers, educators, and policymakers across the state of North Dakota and the nation. Activities are targeted toward identifying and researching rural health issues, analyzing health policy, strengthening local capabilities, developing community-based alternatives, and advocating for rural concerns. Although many specific activities constitute the agenda of the Center, four core areas serve as the focus: education and information dissemination, program development and community assistance, research and policy analysis. Besides state focused programs, the Center is also home to five national programs.

More specifically, the Center took the lead in conducting the HIT Environmental Scan project in 2008; has the ability to leverage the expertise and experience within the Center and possesses strong and positive partnerships throughout the state which together lend to their ability to successfully conduct this follow-up surveys and focus group discussions. In addition, the Center also provides outreach and education in ND for the Office of the National Coordinator for HIT funded Regional Extension Assistance Center for HIT (REACH) which serves North Dakota and Minnesota.

METHODOLOGY

Community Focus Groups

To gain input and insight from North Dakota consumers CRH staff conducted ten community focus groups to gain a perspective on their interest, awareness and concerns about the use of technology, most specifically electronic health records, the exchange of their personal health information. The HIE-Communication and Education Domain Work Group members, in collaboration with the Center for Rural Health project staff, developed the appropriate questions for the focus group participants. The CRH staff selected rural communities geographically dispersed around the state. CRH staff worked with representatives from the local economic development, job development authority office or health care system to: select and invite 6-8 local residents, representing the broad interests of the community and were willing to participate in the focus group; and manage the logistics of where and when to conduct the focus group. Input was solicited from (male and female) community members representing health care, local business, schools, clergy, economic development, homemakers, parents, young adults, and senior citizens. Each focus group was 1 hour in length. Participants were asked to provide contact information in order to share the final results of the project and not used or shared for any other purposes. No participants declined. Participants were also assured that all comments, suggestions, etc. would be confidential and the results would be reported only in aggregate. Two CRH staff traveled to each community and conducted the focus group discussion using the approved questions. One person administered the questions and facilitated the discussion the second person recorded the comments and suggestions using a laptop. Information was compiled upon completion of all focus groups.

Surveys

The survey instruments, used in the 2008 HIT environmental scan, were reviewed and modified with input and direction from the HIT survey team consisting of the ND HIT Director, HIT technical manager, Medicaid HIT Director and CRH project staff. All surveys were conducted using the web-based SurveyMonkey system. Once the survey was finalized it was submitted, along with additional information, to the University of North Dakota, Institutional Review Board for review and approval. The first priority was to collect information from the hospital systems, followed by independent laboratories, local public health departments or units, community health centers and clinics (independent). The online survey took approximately 20-30 minutes to complete. Respondents were also offered the option of receiving a printable version of the survey with the option of mailing it to the Center for Rural Health for data entry. Administrators (or their designee) were not financially compensated for their participation.

Hospitals – Notification was disseminated in advance of the survey distribution through an announcement in the weekly newsletter of the North Dakota Hospital Association which explained the reason/need for the data collection and encouraged participation. The hospital survey was, disseminated through email, directly from CRH project lead, to all ND hospitals (36) critical access hospital administers, (2) Indian Health Service hospitals and to the Chief Information Officer (CIO) of the six large hospitals systems. Administrators and CIOs (or their designee), were directed to the SurveyMonkey link in the email communication.

Clinical Laboratories – The laboratory survey tool included the required questions provided by the Office of the National Coordinator (ONC) of HIT in addition to information deemed appropriate and useful by the survey team. (Each hospital survey also included the ONC required laboratory related questions.) The explanation and survey link was distributed, via email, to the managers of the five independent laboratories in the state. Telephone and email contact was made to increase response rate.

Independent Rural Clinics and Community Health Centers (CHC) - The clinic/CHC survey tool was developed similarly as described above. Dissemination of the independent clinic surveys proved to be more challenging to disseminate because a clinic association does not exist in North Dakota and an up to date list of email addresses is not readily available. Surveys for the

community health centers, and their satellites, were disseminated with assistance from the Community Healthcare Association of the Dakotas, which serves North and South Dakota as the primary care association.

Pharmacies – The pharmacy survey tool included the suggested questions received from the ONC e-Prescribing Community of Practice in addition to information deemed appropriate and useful by the survey team. The explanation and survey link was first sent to the Executive Director of the ND Pharmacy Association as well as the Director of the ND Board of Pharmacy for review and revisions. Once the tool was finalized the explanation and survey link was distributed through the ND Pharmacy Association via email, to the pharmacies managers The Executive Director was notified of the response rate at which time the notice was resent to association members to encourage completion of the survey.

Long-term Care (LTC) Facilities -- A survey was being conducted of ND LTC facilities at the request of the ONC funded Regional Extension & Assistance Center for HIT (REACH), to understand the market/need for HIT support services in the LTC community. Therefore, it was decided to not overburden LTC facilities with two surveys and the results would be used from this survey. The survey tool used was a modification of a survey used in Minnesota (MN), by Stratis Health (MN's Medicare Quality Improvement Organization [QIO]). A REACH HIT consultant presented at the ND LTC Association regional meetings on EHR adoption; what services and resources were available, etc. The survey was disseminated electronically, following the regional meetings, to the members by the LTC Assoc.; data was collected and analyzed by the North Dakota Healthcare Review (ND's QIO and partner with REACH).

Local Public Health Unit/Department – The 2008 survey tool was reviewed and modified with input from the survey team, the ND State Association of City and County Health Officials (SACCHO), Executive Director and the ND Department of Health IT Director. The explanation and the survey link was disseminated to the (23) local public health units through the NDSACCHO. The SACCHO, Executive Director was notified, on a weekly basis, of the response rate at which time the notice was resent to association members to encourage completion of the survey. One public health department in the state is not a member or

SACCHO therefore the survey was sent, directly to a representative of that health department, by the CRH project lead.

Future Plans

The CRH will continue, through 2012, to work with the HIT Director and NDHIN staff to develop survey instruments to collect information on electronic health record adoption, awareness and interest in the state HIE, from remaining health care entities to include dentists, optometrists, chiropractors, home health agencies, mental health facilities and ambulance services, which are all part of the continuum of care.

The CRH HIE evaluation team will work with the HIT Director to re-survey (2013 and 2014) health care entities, using an abbreviated version of the survey tool, to assess the change in EHR adoption, progress toward attesting to meaningful use and utilization of NDHIN-Direct as well as the state HIE.

KEY FINDINGS – Community Focus Groups

Summary of Responses

The CRH staff selected nine communities (Bowman, Ellendale, Hettinger, Jamestown, Langdon, Tioga, Turtle Lake, Watford City, Williston) geographically dispersed around the state. A total of forty-five rural community members representing health care, local business, schools, clergy, economic development, homemakers, parents, young adults, and senior citizens. Prior to asking the focus group questions a brief overview, of the following, was provided to the participants: North Dakota Health Information Technology Advisory Committee (HITAC), state and federal efforts to advance the use of electronic health records and the development of statewide health information exchange. Clarification was also provided on the difference between the health information exchange (HIE) and health insurance exchange (HXE).

The first question presented to participants was *"What comes to mind when they hear the phrase health information exchange?"*

Discussion centered on the following four themes:

- Continuity of care
- Improved quality
- Improved efficiency
- Sharing of complete information between providers

Specific comments and suggestions:

- This will help to keep all of your health record in one location so that whoever is treating you has all of your info, not just bits and pieces (medical, prescription, allergies, etc.)
- Need to break the competitive issues and get the systems to interact. Some patients have trouble when they see a doctor at one health care facility and then they get other services at a non-affiliated facility and can't get their records.
- Having complete information on a patient is very important for treatment.
- I love this because it will be so much more convenient to have my doctor, and other doctors, have my records. Don't have to carry a paper file.

- In a rural setting, by the time a patient is transferred to a larger hospital, the record can be forwarded in a timely manner and could save a life.
- Patients think we already do this and that it is important.
- The good (saving lives) far out ways the bad.
- In public health it would immensely benefit their patients (ex. medication changes, allergies, etc.)
- Military has been doing this for a long time and 99% of those that have an EHR love it.

The top three concerns shared across all focus groups were related to security of their personal health information; challenges of change for providers and consumers; and restrictive nature of government (state and federal) regulations.

Specific comments and suggestions:

- Hope health information will be exchanged between providers – but will it be an exchange with big brother?
- By building the HIE, confidentiality can be assured because there is a way to see if someone goes into an electronic record when they aren't supposed to be in it; and penalties can be put in place for accessing records inappropriately.
- Needs to be a federal mandate that information must be exchanged or people and providers won't do it.

Next, participants were asked a similar question, *"What comes to mind when they hear the phrase electronic health record?"* Discussion, with regard to electronic health records, mirrored the discussion related to health information exchange.

The most common statements included:

- Can access health care services anywhere in the United States.
- Don't have to repeat my information multiple times when going to the doctor.
- Paperless/Digital
- Improved quality and efficiency
- Legible records (e.g., e-prescribing which can reduce medication errors).
- Financial benefits – duplication of services should be reduced

Specific comments and concerns:

- Security/who's accessing the record?
- Can the insurance companies access your record and base your premium on that?
- I'm not a fan of technology but when they perfect it and get the bugs out I will be in favor of it.
- The transition period will be difficult, but once established it will bring improvement.
- Providers get frustrated with spending so much time focused on the computer instead of spending time with patients.

Support for the Electronic Exchange of Health Information

Participants were asked *"If you were told that your medical records would be available electronically to your provider(s) that you gave permission to, anywhere you went for care (North Dakota and elsewhere) how supportive would you be of efforts to accomplish that?"* The majority (75%) of participants were very supportive or supportive (25%) and no participants indicated they would not be supportive of this.

The main comments focused again on concerns around security, hackers, computer failure and health information being 'wiped out' or lost. However, most remained supportive of the concept and recognized the many benefits which, for the most part, outweighed the risk.

Specific comments and suggestions:

- Wouldn't you want all doctors/providers to know what allergies you or your children have?
- It would be very nice for to have all of the information in one place.
- Patients with something to hide (drug seekers) would probably not be supportive of sharing their information.

Governance of the Statewide Health Information Exchange

Next, participants were asked *"If you were told that a statewide Health Information Exchange was a method through which health information necessary for medical treatment, payment and healthcare operations was exchanged throughout North Dakota and throughout the U.S. among*

provider(s) who patients had given permission to, who do you feel would best be able to safeguard your privacy and ensure all state and federal requirements were met?" The choices provided were: a state entity, a non-profit entity, a combined state/non-profit entity, a for-profit entity or none of these. The majority (68%) preferred an entity that is made up of a combination of state agency and non-profit structure; the few remaining responses were split between for profit entity, state entity, and non-profit entity and none of these.

Specific comments and suggestions:

- Someone with medical background should be responsible.
- Medical records 'home' should be your primary hospital.
- Why does it need to be someone other than your provider?
- Need to bridge – government, legislation, funding – don't drive the costs higher by creating more bureaucracy.
- Definitely want the state and federal government included in the oversight.
- Don't want some non-profits, such as insurance companies, in control.

For those indicating "none of these" the following statements were made:

- Local health care provider
- Whoever can provide the greatest security!
- Not the government.
- If it is a for-profit entity there should be oversight and a process so a person doesn't have to exchange their information if they don't want to; and the health information can't be sold.

Communication and Education about the Health Information Exchange

With regard to how participants would prefer to receive information about the statewide Health Information Exchange participants were asked *"What do you believe would be the best method(s) of communication to inform, educate and reach North Dakota residents?"* Participants indicated a wide variety of ways they prefer to receive information.

The following suggestions are listed in the order of preference:

1. From their provider and/or health care system
2. Media (introduce and explain the concept in the newspaper, evening news)
3. Community Forums
4. Brochures (mail from providers, BCBS or other payers, and/or employee human resource departments).

Specific comments of suggestions:

- Develop a comprehensive plan for communication.
- Upon implementation be prepared to answer questions.
- People understand the benefits, but are concerned about security.
- Until this impacts people directly they won't think or care about it.

Lastly, participants were provided a general description of the opt-in and opt-out options that HITAC was exploring for consumer consent to participate, or have their health information available, in the state Health Information Exchange. They were reminded that their personal (paper) health information is currently shared or exchanged between providers for purposes of treatment, payment, and operations and that additional policies and protections will be developed and implemented to ensure that only authorized users will be able to access to information within the exchange.

Given the explanation, using the definitions below, participants were asked "Would you, at this point, choose the option of opt-in or opt-out for North Dakota?" All but three participants, amongst all nine focus groups, indicated they would choose the opt-out option.

Additional comments and suggestions:

- consumer opinions will depend on how this is introduced and explained,
- the key is to provide a lot of education on this,
- People already think we are this is being done so they won't make the connection that they now need to consent,

- Opt-out - Better, but not preferred. Easiest to implement, and makes the information available for to any and all providers. How will health information be shared if you opt out? "I may be a little concerned about privacy, but I think this is the best option.",
- "It is important to trust that quality, safety comes with convenience.", and
- Opt-in – I feel it is a better way to go, but more complicated. Many people will think this is just another part of government intruding on me. Predict participation will be minimal because people will not make the move to do this.

Summary

Consumers who participated in all of the focus groups were, for the most part, in favor of being able to have their health records available electronically; thought it was beneficial to have their information exchanged amongst, approved, providers in the state HIE; and would choose the opt-in option. They recognized the benefits of quality, safety, and convenience for themselves as well as their children, elderly parents and their providers.

Comments and concerns related to privacy and security came as no surprise. Many of the concerns raised were based on misinformation or misperception which speaks volumes and justifies the need for extensive education and clarification on how health information is currently shared or exchanged between providers 'for purposes of treatment, payment, and operations' and how health information will be exchanged electronically using the same HIPAA standards. For example, when some participants heard the word 'payment' they immediately interpreted it as the insurance company can look at my record and change my policy. There were also a few participants who represented health care and they didn't completely understand 'treatment, payment, and operations' either. Therefore the assumption should not be made that all health professionals understand HIPAA completely and can explain to patients or consumers without additional education.

Although concerns were raised about privacy and security, this did not dominate most of the conversations and as stated previously most were in favor of the progress being made to have their health information available electronically.

KEY FINDINGS – Survey Results

HOSPITAL SURVEY RESULTS

Notable changes with hospitals from 2008 to 2012

EHR Adoption, Implementation and Use

- 20 hospitals indicated they have gone 'live' with a certified EHR,
- 17 of the 20 hospitals have gone 'live' with EHR between 2008 and 2012,
- 12 of the 17 hospitals anticipate they will go 'live' within the next year,
- the driver 'most significant' to EHR implementation different from 2008 – Medicare/Medicaid incentives and availability of loan funds, and
- the barriers to EHR implementation identified in 2012 - difficulty in justifying expense or return on investment; development of a sustainable business model; and difficulty changing workflow patterns.

HIT Infrastructure - Hardware, Software and Equipment

- the number of computers in the rural and urban hospitals with access to the internet has increased,
- overall access to high-speed/broadband internet remains high,
- increase of rural hospital respondents, by 20%, that indicated wireless internet is in place, and
- the number of facilities sharing data servers with another rural or tertiary increased.

Information Technology Workforce

- a decrease in number of rural facilities with no FTE designated to oversee the IT (13 in 2008) by nearly half (7) in 2012, and
- an increase in number of facilities that have adequate IT staff.

The hospital survey instrument used in 2008, was modified and distributed directly to the administrators of the 36 critical access hospitals (CAH) administrators, two Indian Health Services (IHS) hospitals and the Chief Information Officers (CIO) of the six large healthcare systems.

Responses 5 of the 6 large healthcare systems (83%) - urban healthcare systems
29 of the 36 CAHs; and 1 of 2 IHS hospitals (82%) - rural hospitals
2012 total response rate 79.5% 2008 total response rate 95.6%

28 (66.7%) were stand alone or independent facilities
17 (40.5%) were affiliated with other health care facilities:
16 (94.1%) with hospitals
12 (70.6%) with clinics
13 (76.5%) with long-term care facilities

The table below illustrates the range, average, and median number of FTEs for the rural and urban facilities. In the rural facilities, the range was 0 to 141 with an average of 10 and median of 2. Williston and Minot had the highest rural FTEs (81 and 141 respectively). All other facilities had 27 or fewer. Physician assistant FTEs ranged from 0 to 28, average of 3 and median of 1; and nurse practitioners ranged from 0 to 11 with an average of 2 and median of 1. Though there were enough facilities reporting in rural areas for an accurate description of their FTEs, two of the five urban facilities did not report values and thus an urban/rural comparison was not feasible.

Number of FTEs			
Provider Type		**Rural (n=34)**	**Urban (n=2)**
Physicians	*Range*	0 - 141	194 - 200
	Average	10.212	197
	Median	2	197
Physicians Assistants	*Range*	0 - 28	50 - 65
	Average	2.615	57.5
	Median	1	57.5
Nurse Practitioners	*Range*	0 - 11	30 - 65
	Average	1.983	47.5
	Median	1.07	47.5

Electronic Health Record (EHR) Adoption, Implementation and Use

The 2008 survey included a question asking if the facility currently used an electronic medical record (EMR) system, using the following definition *'an electronic representation of an individual patient's medical record. An EMR facilitates access of patient data by clinical staff at any given location; accurate and complete claims processing by insurance companies; prescriptions; scheduling; bidirectional viewing of laboratory information. The practice management system is the medial office functions which support and surround the EMR.'*

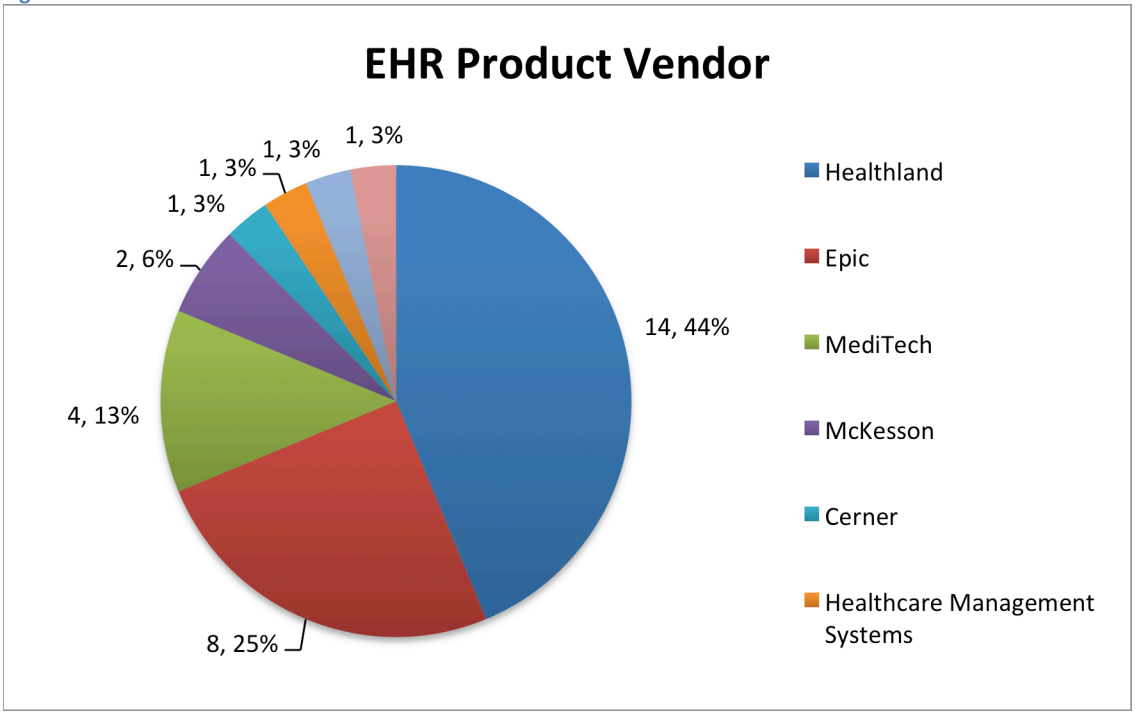
As HIT consultants from the ONC funded Regional Extension and Assistance Center for HIT (REACH) serving North Dakota and Minnesota began working with the facilities it was apparent the true adoption of an EMR was much lower than reported in 2008 and the understanding of what an EMR or EHR was widely varied.

In the 2012 survey, the question was updated to reflect the certification process so the question was reframed to ask if the facility currently had a *'certified' EHR? (i.e. 'certified' means deemed acceptable by ONC (Office of the National Coordinator of HIT) for Meaningful Use and included in the CHPL [Certified HIT Product List])*

	Urban		**Rural**	
2008	Yes (100%) 6	No (62.2%)	Yes (37.8%)	No (0%)
2012	Yes (40%) 2	No (40%) 2	Yes (45.2%) 19	No (26.1%) 11

Adoption has accelerated in North Dakota with twenty facilities indicating they have gone 'live' with a certified EHR between 2008 and 2012. Of those indicating they had not yet gone 'live' twelve anticipate they will within the next year. Currently the top three vendors (rural and urban) are Healthland (formerly Dairyland), Epic and Meditech as illustrated in the EHR vendor chart below. In 2008, the top five vendors were Healthland, Meditech, Cerner, GE Centricity and Tech Time. Epic was not implemented in ND facilities in 2008. A major shift has taken place with three of the six large facilities implementing Epic and a number of rural facilities opting to work with tertiary facilities, to utilize the IT support and also implement Epic, which has contributed to the decrease in Healthland users and an increase to Epic users.

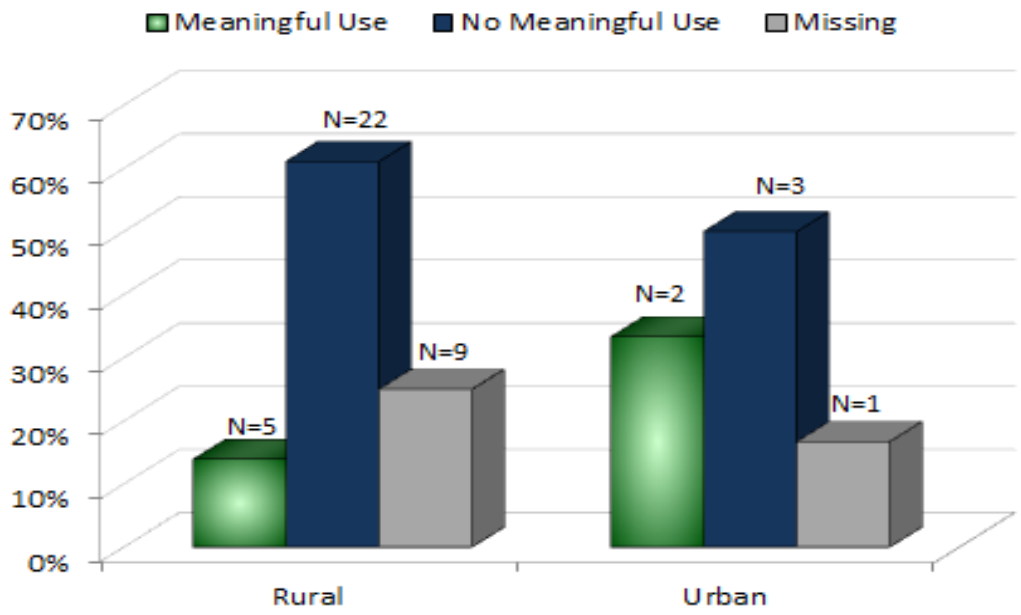
Figure 1 Electronic Health Record Vendor



The large and small hospitals continue to have active HIT steering or advisory committees in place with multidisciplinary representation. Strategic plans for HIT in the rural sites were either not developed at all or in the process of being developed in 2008 and now 70% of respondents have a plan in place. Clinical input is gained through a formal Clinical committee or Chief Medical Information Officer in the urban facilities and the rural facilities obtain clinical input through more informal processes. Also, the urban facilities have the staff available to conduct analysis of workflow and the rural facilities have not done as much of this, which is important to successfully implementing an EHR.

Attesting to Meaningful Use

Seven hospitals (17%) indicated they had attested to (Stage 1) Meaningful Use (MU).



A solid number of hospitals (16) indicated they plan to attest to meaningful use for Medicare incentives in 2012 followed by five more through 2014. The tables below illustrate projected number of facilities that intend to attest to MU for Medicare and Medicaid incentives in the next two years.

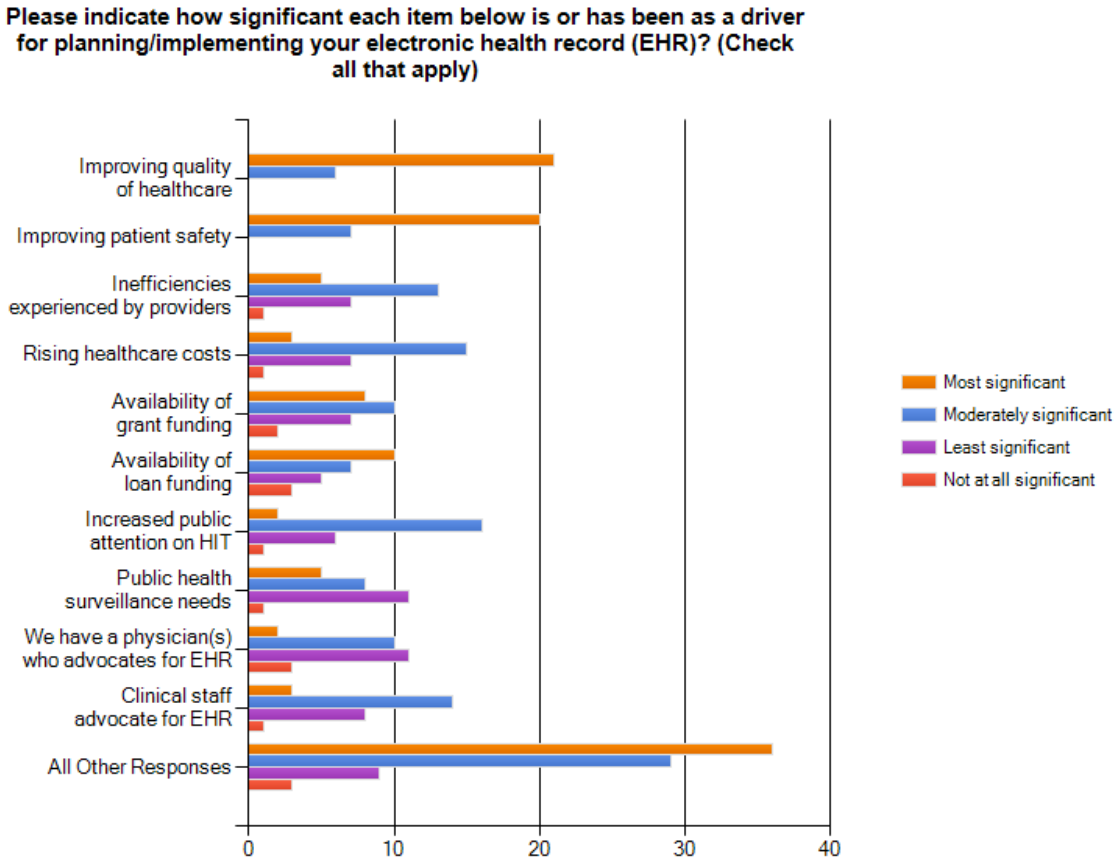
Projected date for attesting to Meaningful Use for Medicare incentives				
Year	**2011**	**2012**	**2013**	**2014**
# of Hospitals	2	16	2	3

Projected date for attesting to adopt, implement and upgrade for Medicaid incentives				
Year	**2011**	**2012**	**2013**	**2014**
# of Hospitals	4	2	3	2

Key Drivers for Implementing EHR

Respondents were asked to indicate what how significant a number of drivers were when implementing an electronic health record system in their hospital. Figure 1 illustrates the responses of the impact of a variety of drivers when planning and implementing electronic health record system in the hospitals.

Figure 1 - Drivers for planning/implementing EHR.

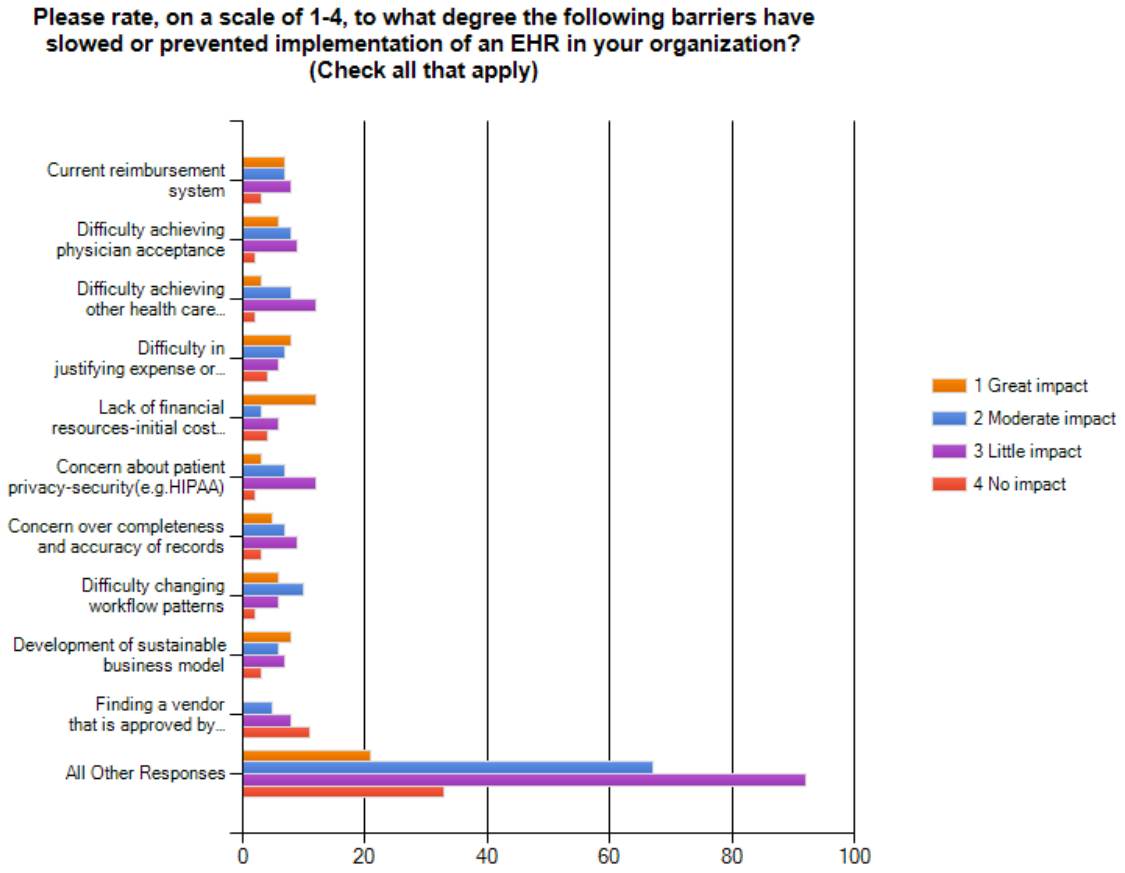


2008 Top five most significant drivers for implementing EHR	2012 Top five most significant drivers for implementing EHR
1. Improving quality of healthcare 2. Improving patient safety 3. Inefficiencies experienced by providers 4. Administrator advocate for EHR 5. Availability of grant funding	1. Improving Quality of healthcare 2. Medicare/Medicaid incentives 3. Improving patient safety 4. Administrator advocate for EHR 5. Availably of loan funding

Key Barriers to Implementing EHR

Respondents were also asked to indicate what the barriers slowed or prevented the implementation of an electronic health record system in their hospital.

Figure 2 - Barriers to EHR implementation.



2008 **Top five barriers to EHR implementation**	2012 **Top five barriers to EHR implementation**
1. Lack of financial resources, initial cost of IT investment 2. Lack of financial resources, ongoing cost of hardware/software 3. Current reimbursement system 4. Poor availability of well-trained staff 5. Obsolescence issues with hardware and software	1. Lack of financial resources, initial cost of IT investment 2. Lack of financial resources, ongoing cost of hardware/software 3. Development of sustainable business model 4. Difficulty in justifying expense or return on investment 5. Difficulty changing workflow patterns

When asked how clinical information is entered in to the EHR, approximately 42% indicated their providers enter clinical information by dictation however the use of point-and-click has increased from 28% in 2008 to 48% in 2012. Additionally, 'other' methods that providers enter data in the EHR were voice recognition and typing, which is an increase from 2008 to 2012.

The following questions were included to assess level of EHR and other related technology implemented.

Electronic Clinical Systems

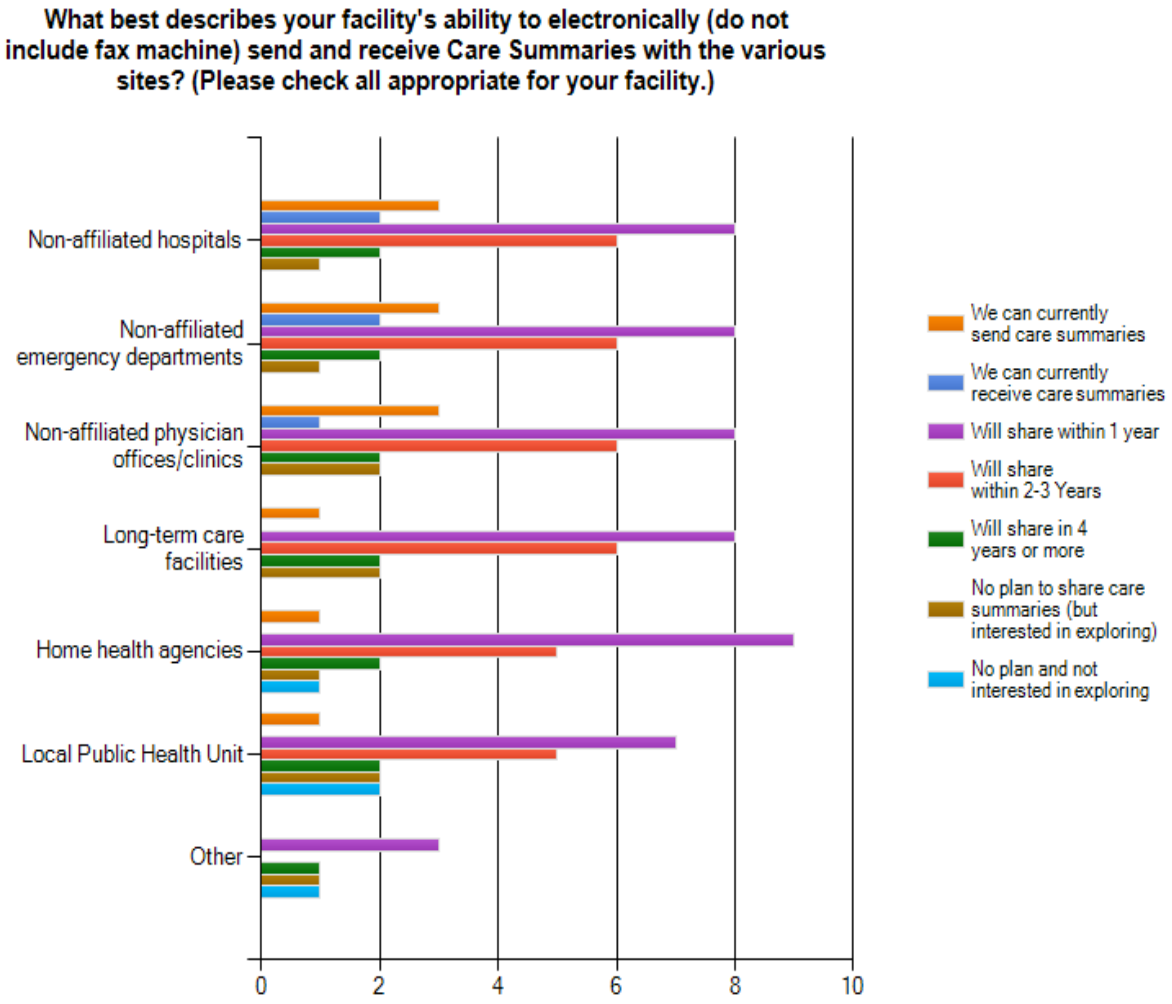
The changes in adoption of electronic clinical systems was again, most substantial amongst the rural facilities versus the urban.

Electronic Clinical Systems	Number of Rural Hospital Respondents	
	2008	**2012**
Computerized Provider Order Entry (CPOE)	3	15
Computed Radiography (CR)	18	23
Clinical Decision Support Systems (CDSS)	0	8
Clinical data repository of current data	5	13
'Closed loop' medication administration	1	11
Integrated Emergency Dept. system	2	6
Integrated Laboratory Information System (LIS)	15	14
Mining of historic data	2	8
Nursing and ancillary documentation	4	17
Patient portal/personal health record(PHR)	0	2
Picture Archiving and Communication System (PACS)	18	24
Pharmacy Information System	9	18
Physician documentation	6	17
Physician portal for remote access	3	9
Single sign-on	3	7
Electronic signature	4	14
Data capture from devices	5	8

Electronic Clinical Systems	Number of Urban Hospital Respondents	
	2008	2012
Computerized Provider Order Entry (CPOE)	1	3
Computed Radiography (CR)	6	4
Clinical Decision Support Systems (CDSS)	4	3
Clinical data repository of current data	6	4
'Closed loop' medication administration	4	4
Integrated Emergency Dept. system	2	4
Integrated Laboratory Information System (LIS)	6	4
Mining of historic data	5	4
Nursing and ancillary documentation	3	3
Patient portal/personal health record(PHR)	1	3
Picture Archiving and Communication System (PACS)	5	4
Pharmacy Information System	6	4
Physician documentation	3	3
Physician portal for remote access	5	2
Single sign-on	2	2
Electronic signature	6	3
Data capture from devices	3	3

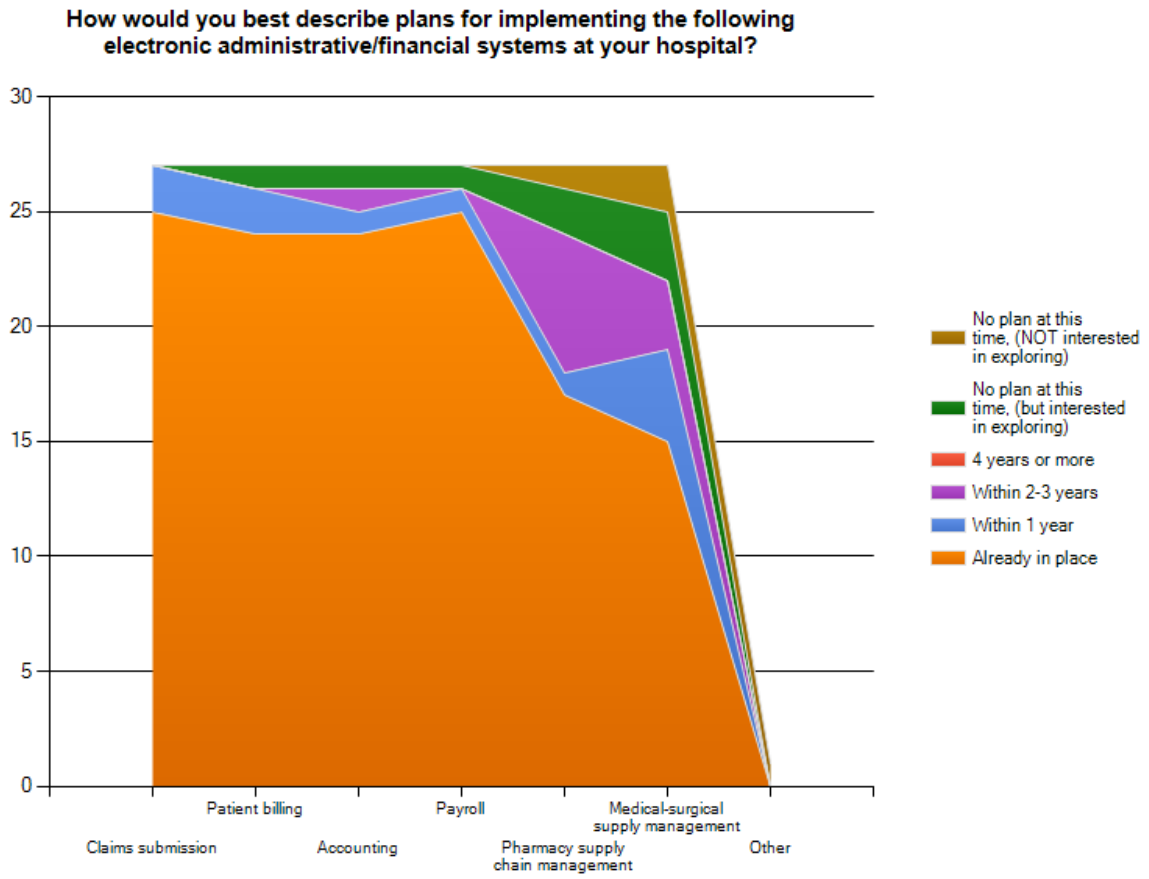
Ability to Share Health Information Electronically

Sharing of care summaries is one of the foundational requirements for Stage 1 Meaningful Use and it is expected that state HIEs support the rapid progress towards allowing the sharing of care summaries. The graph below illustrates that a few hospitals or health systems (5 - urban) are currently able to send and/or receive care summaries with non-affiliated hospitals, emergency departments and clinics and other entities but the majority of the remaining facilities (8 - rural) intend to share care summaries within one year and an additional 8 rural facilities within 2-4 years.



Electronic Administration and Financial Systems

The figure below illustrates a strong level of adoption of electronic administrative and financial systems by rural and urban facilities. In 2008, 100% of the urban hospital respondents indicated nearly all of the six systems were in place. Rural facilities have increased implementation of each of the functional systems since 2008 by 10-15%. In addition, the percent of rural respondents using electronic scheduling of procedures and claims scrubbing doubled.



HIT Infrastructure - Hardware, Software and Equipment

Over 97% of the respondents indicated the computers in their facility are networked; and 94% are client-to-server networks and 3% are peer to peer networks. This is a shift from 2008, 77% were client to server networks and 23% peer to peer networks.

In 2008 over 90% of the respondents(rural and urban) indicated high-speed/broadband access was already in place which provided a basic infrastructure for health information exchange and this remains the same, if not a slight increase. What has changed is the amount of wireless internet in place in the rural facilities; 83% of the hospital respondents in 2012 indicated wireless internet was already in place in their facility compared to 65% of the respondents in 2008.

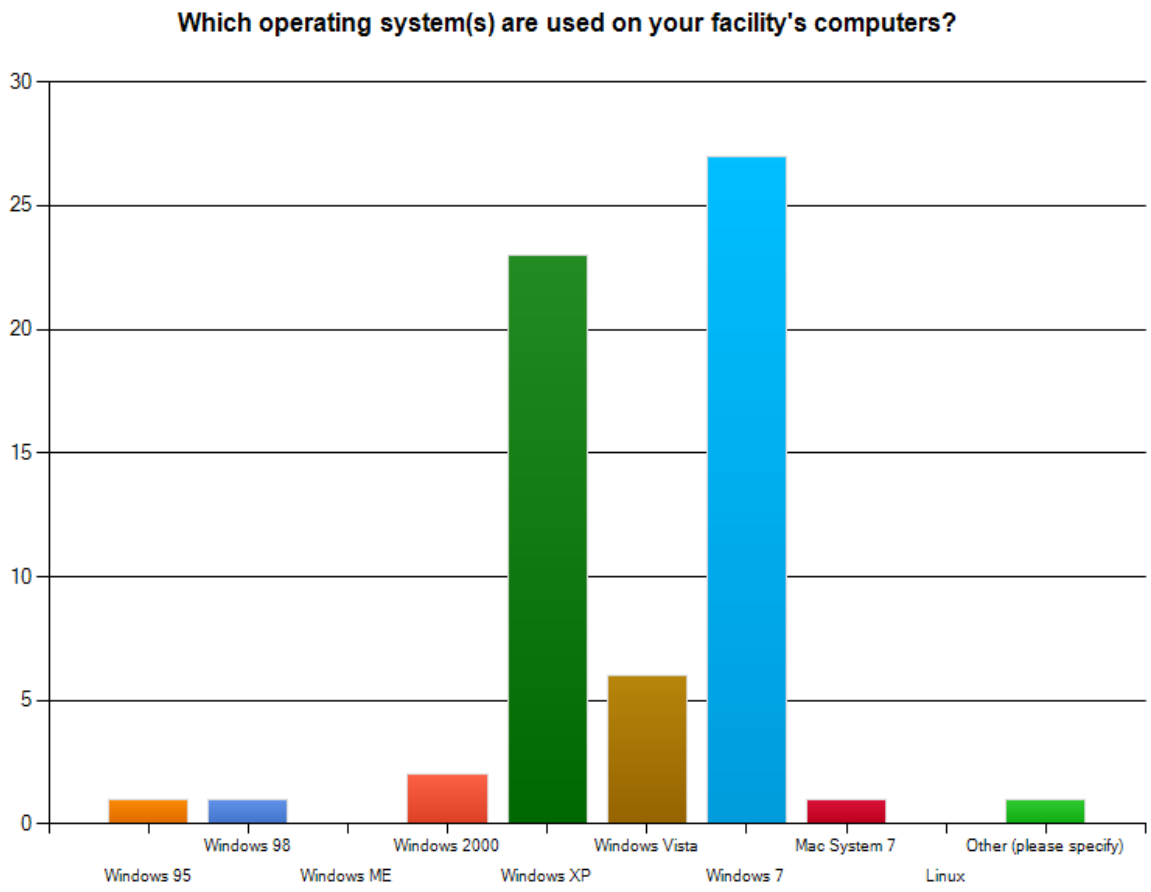
The results in the table below show an increase in the number of computers in the rural and urban facilities with access to the internet.

What percent of the computers in your hospital have internet access?				
	Rural		Urban	
	2008	2012	2008	2012
0-25%	0%	0%	0%	0%
26-50%	2.7%	3.8%	0%	0%
51-75%	2.7%	7.7%	16.7%	0%
76-99%	48.6%	15.4%	33.3%	50%
100%	45.9%	73%	50%	50%

For the facilities with high speed/broadband internet access already in place the upload and download capacity (Mbps) ranged from 3-75 (Mbps).

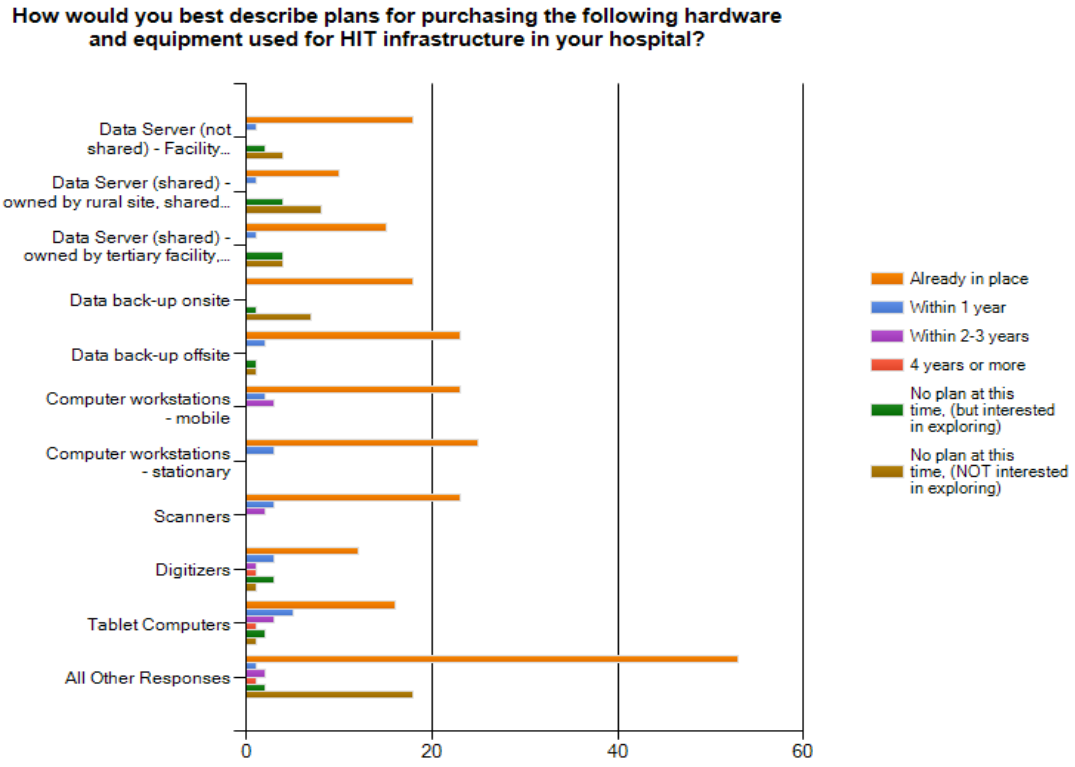
Figure 3, below, illustrates the various operating systems used in the hospitals, with Windows XP and Windows 7 being the most prevalent; only one system indicated they have software as a service(SASS). Just over half of the rural facilities and 75% of the urban facilities had completed HIPAA required risk assessments for each computer in their network

Figure 3 – Computer operating systems.



In 2008 urban facilities were well ahead of the rural facilities and it is no different in 2012.

Figure 4 - Plans for purchasing hardware/equipment.



However, a number of HIT infrastructure changes have taken place in the rural hospitals. For example, respondents indicated an increase in mobile computer workstations versus stationary workstations and the use of tablet computers; an increase of data back-up off site and collaboration illustrated by an increase, by nearly double, of facilities sharing ownership of data servers with another rural site or a tertiary facility.

Bar Coding

Bar codes enable quick, accurate data entry. Having accurate data available enables staff to make decisions based on valid information. The most compelling advantages of bar coding and automatic data collection are:

- *Accuracy:* Bar coding increases accuracy by reducing the likelihood of human errors from manual entry.

- *Ease of use:* Bar codes are easy to use as long as the appropriate hardware and software components are in place to maximize the process of automatic data collection.
- *Timely feedback:* Bar coding promotes timely feedback of data captured in real time, enabling decisions to be made from current information.

- *Improved productivity:* Bar codes improve productivity in that many manual activities and tasks become automated, enabling resources to be utilized in other ways to increase efficiencies.

Bar code technology can be translated into three primary functions: tracking, inventory management, and validation.

Urban facilities indicated they were using bar coding 100% and (42.3%) rural are currently using bar coding or are budgeting for implementation of bar coding in the next 1-3 years. This is an increase in use, especially in the tracking and administration of pharmaceuticals, since 2008.

How is bar coding being used?	**Rural**		**Urban**	
	2008	**2012**	**2008**	**2012**
Pharmaceutical tracking and administration	30%	78.6%	83%	100%
Blood Bank	40%	14.3%	33%	75%
Patient Identification bracelets	50%	64.3%	100%	100%
Supply chain management	50%	57.1%	68%	75%

Health IT Workforce

In 2008, one of the top three barriers that had the most impact on implementation of an EHR was the lack of well-trained health IT staff. Responses in 2012 indicated a slight increase in the percent of facilities with a dedicated IT person which corresponded with a decrease in the

percent of facilities who shared an IT person. The number of facilities with no FTE designated for overseeing IT decreased by nearly half from 13 in 2008 to 7. Fewer facilities, 20 (48%), in 2012 than 2008 planned to increase their IT staff and a number of them 11 (26%) indicated they currently have adequate staff. Also, networks of rural hospitals are now more likely to share IT staff than tertiaries or ancillaries.

Recognizing the need for trained IT staff and health professionals with IT related skills, ONC initiated the Community College Consortia and University based health information technology programs. Therefore, it was deemed necessary to query which EHR-related skills and/or roles are in the greatest need within the organization to include adding new staff or developing the current staff (IT/IS and or health professionals). The greatest need common to both rural and urban respondents was skills to design, maintain and customize the EHR for use in their facility; second for rural hospitals was skills for conducting workflow analysis and redesign and for urban hospitals it was the need to manage and process the data, information and knowledge (e.g., informatics nurse or clinician).

The results relating to current IT workforce, training and education needs will be shared with Lake Region State College (LRSC), which was a participant in the ONC funded Community College Consortia. Beyond the ONC funding, LRSC continues to offer health IT certificate program along with customized health IT training through TrainND program (http://www.lrsc.edu/workforce/) which is a statewide training initiative administered through four ND community colleges to ensure businesses can access needed training to attain optimal performance for their employees. Health IT certificates are available in the following four areas:

Technical Software Support - Workers in this role will support and maintain the technology deployed in clinical and public health settings.

Health IT Trainers - Workers in this role design and deliver training programs, using adult learning principles to employees in clinical and public health settings.

Clinician/Practitioner Consultants - This role requires the background and experience of a licensed clinical professional or a public health professional. Consultants will assist in reorganizing the work of a provider to maximize the benefits gained through EHR adoption.

Workflow Redesign Specialists - Workers in this role analyze and assist in reorganization of the workflow of a provider to take full advantage of the features of Health IT. Students need not be licensed clinical professionals

CLINICAL LABORATORY SURVEY RESULTS

The data pertaining to clinical laboratory is very limited as only 3 of the 5 urban facilites completed the questions in this section and a number of the rural facilities did not answer the questions. Respondents were asked a series of questions with regard to test results sent or received electronically from ambulatory providers during calendar year 2011(January 1, 2011 – December 31, 2011).

Four urban and twenty four rural respondants indicated laboratory's organizational affiliation ownership was with a hospital or health system. Respondents were asked to estimate the total of ALL billable tests their laboratory received.

	Number of Rural Respondents	Number of Urban Respondents
Fewer than 100,000 billable tests	21	0
100,000-499,999 billable tests	2	1
500,000 billable tests	0	0
1,000,000 or more billable tests	0	3
Skipped question	12	1

The table below illustrates a limited number of rural hospitals which have an electronic interface in place with an independent laboratory and the major barrier to 'structured' electronic laboratory reporting is lack of healthcare providers with e-laboratory abilities for the urban respondents; and cost for rural respondents.

	Number of Rural Respondents			**Number of Urban Respondents**		
	Yes	No	Don't know	Yes	No	Don't know
Independent Laboratory	11	10	1	4		
Reference Laboratory						
Skipped question	14			1		

Next, hospitals were asked if the laboratory sent lab results to ambulatory providers outside their organization electronically in a structured format for the calendar year as mentioned above.

The following definitions were provided:
Electronically – any computerized exchange typically transmitted over the internet or through a network, using HIT such as EHRs and direct access via a lab portal (Not to include fax machines).
Structured format – documentation of results using computer readable formats with predefined vocabulary that creates fixed fields within a record or file.

	Number of Rural Respondents	**Number of Urban Respondents**
Yes	2	3
No	20	1
Don't know	2	0
Skipped question	12	1

The following table represents the responses estimating the proportion of final lab results sent electronically using structured format to EHRs and web portals.

Number of Rural Respondents	0%	1-24%	25-49%	50-74%	75-99%	100%	Don't know
Electronic delivery to EHR	4	2					2
Available on web portal	5						2
Other	3	1					1
Skipped the question	24						
Number of Urban Respondents	**0%**	**1-24%**	**25-49%**	**50-74%**	**75-99%**	**100%**	**Don't know**
Electronic delivery to EHR		1				1	
Available on web portal					1	1	
Other							1
Skipped the question	3						

Respondents were next asked to estimate the proportion of test results their laboratory sent to ambulatory providers outside their organization following LOINC standards. The following definition was provided: LOINC (Logical Observation Identifiers Names and Codes) is a terminology used to provide consistent naming of datasets that includes standard codes for lab test names; for example, "Test name: Salmonella Stool Culture LOINC Code: 20955-1"

Four rural respondents indicated 1-24% of their lab test results sent to ambulatory providers outside their oganization follow LOINC standards the remaining rural responses indicated they 'didn't know' or skipped the question completeley and three of the five urban respondents said they follow LOINC standards for 100% of there test results.

Respondents were queried if their laboratory had implemented the LRI guide for lab results content and format. The following explanation was provided: The LRI is the implementation guide developed by the Office of the National Coordinator (ONC's) Standards and Interoperability Framework lab results interface (LRI) initiative http://www.siframework.org/initiatives_wiki.html Neither rural or urban facilities indicated they have implemented the LRI guide (two urban respondents skipped the questions).

The table below illustrates the number of rural and urban respondents indicated which Health Level 7 (HL7) message standards are currently used by their organization to send lab results to

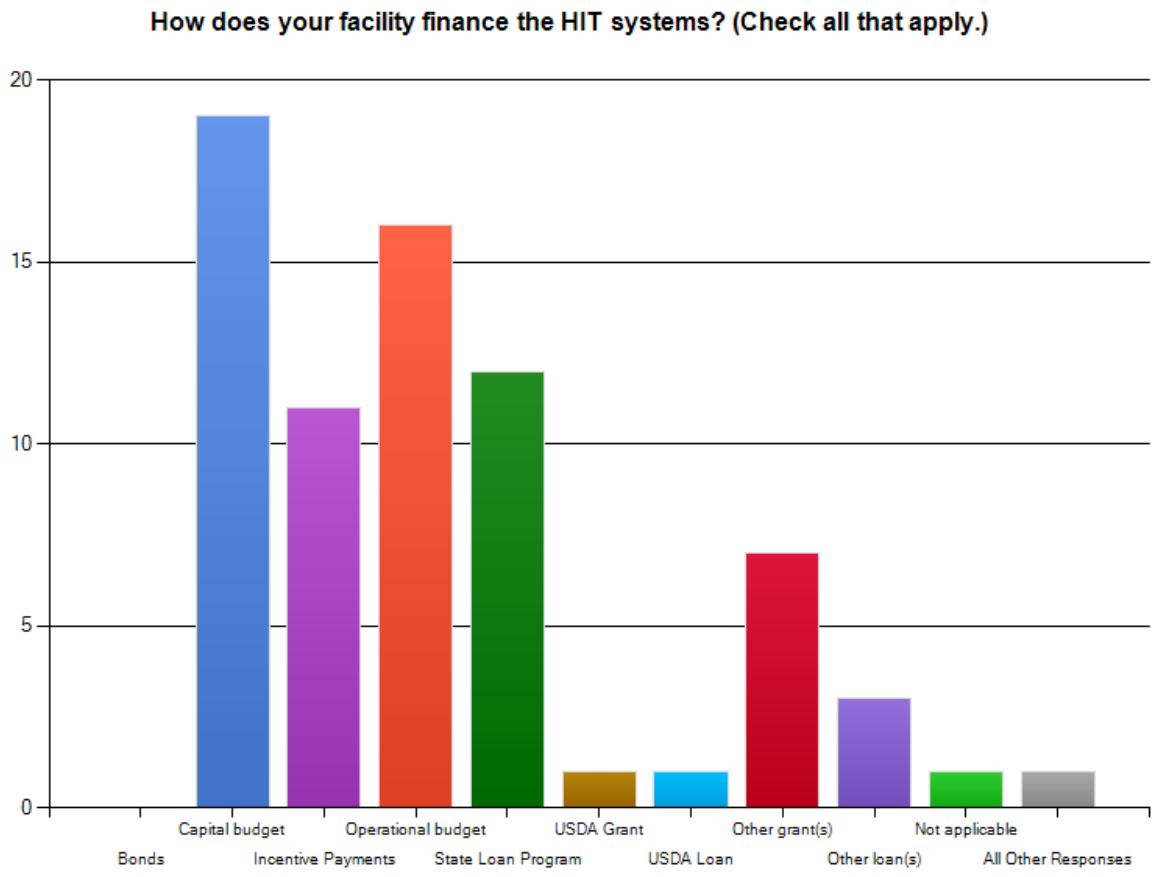
ambulatory care providers. HL7 is a messaging standard that can be used to send lab results to an EHR.

	Number of Rural Respondents			Number of Urban Respondents		
	Yes	No	Don't know	Yes	No	Don't know
HL7 2.3.1	4	4	11	4		
HL7 2.5.1	4	4	13	2	1	1
Other			8			
Skipped the question	15			1		

Financing

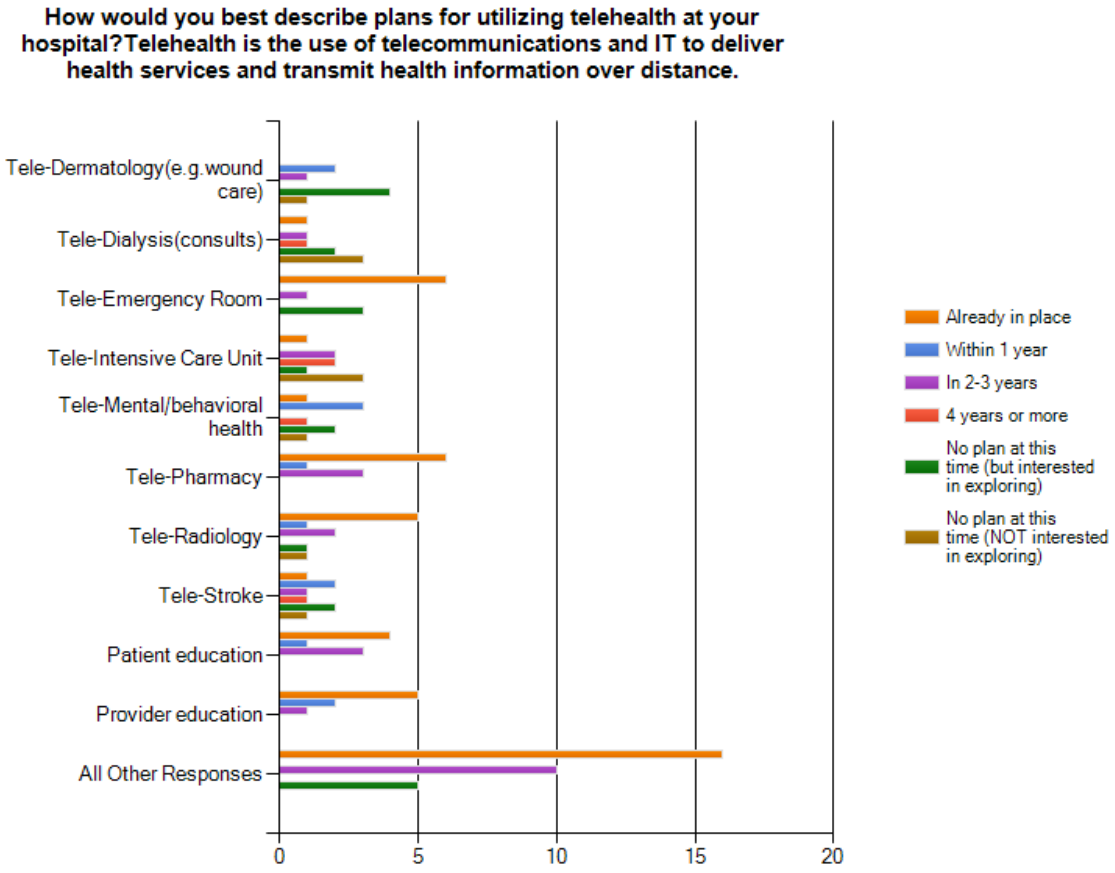
In 2008, rural hospital respondents (21%) indicated their current operating budget for HIT was less than 1% and 45% said it was 1-2% of their overall operating revenue and most projected spending on HIT would increase substantially. In 2012, the majority said their current operating budget for HIT is between 1-3% of their overall operating revenue and project only a slight increase in 2-5 years. A number of rural respondents acknowledged the state loans as a source of funding for their HIT purchases which wasn't in existence in 2008.

The majority of the urban respondents, in 2008, indicated 2-3% of their overall operating revenue budgeted for HIT and projected only a slight increase and in 2012 indicated only a slight increase in the upcoming years.



Telehealth Utilization

The use of telehealth remains fairly consistent with the 2008 survey results. The areas of highest use remains telepharmacy, teleradiology; patient and provider education; patient to provider, provider to provider consultation; and videoconferencing for meetings. The most noteworthy change since 2008 is in the area of tele-emergency room. The 2008 survey results indicated substantial interest in exploring this area of telehealth. To date, 17 of the 36 critical access hospitals in North Dakota are using e-Emergency through Avera Health Systems in South Dakota supported, in part, by Leona and Harry Helmsley Charitable Trust and BCBSND Rural HIT grant program.



CLINIC SURVEY RESULTS

In 2008, clinics were not surveyed electronically. The North Dakota Health Care Review (NDHCR), ND's Medicare Quality Improvement Organization (QIO), conducted a telephone survey of clinics which had at least 40 percent of their full-time physicians engaged in primary care (i.e., general practice, family practice, internal medicine or geriatrics). Ninety-nine clinics met this criterion of approximately 300 primary and specialty care clinics in ND. Only five clinics were using an EHR at the time; one was a larger multi-specialty independent practice, one was an independent practice and the remaining three were affiliated with critical access hospitals. Two rural clinics, affiliated with a critical access hospitals (CAHs), had implemented EHR (not including the clinics affiliated with one of the six large health systems) as a result of a 2007 HRSA, Office of Rural Health Policy, CAH HIT Network grant which supported EHR implementation.

In 2012, the intent was to survey independent clinics knowing that the rural and urban hospital/health systems represent over 55% of the primary care and specialty clinics in the state. Obtaining a list with current, or any, email addresses for these independent clinics proved to be very difficult. Therefore, the survey was initiated using a list obtained through the Center for Rural Health for rural health clinics and the Community HealthCare Association of the Dakotas. Unfortunately, the response was minimal. Results are presented below.

The CRH will continue the effort to obtain a more complete list with accurate email addresses. At which time, the survey will be redistributed to increase the response rate amongst independent non-affiliated clinics to assess their level of EHR adoption.

Responses Three of the four Community Health Centers (CHC) s that responded to the survey represent nine of the 11 ND sites.
One independent rural health clinics (RHC) completed the survey.

Electronic Health Record (EHR) Adoption, Implementation and Use

All respondents have a certified EHR and went live in 2011. The CHCs all have Success EHS system and the RHC implemented Greenway Tech. Health information is entered in to the EHR by providers, for the most part using point and click method and typing second.

All respondents anticipate being able to send health information and care summaries to non-affiliated hospitals, clinics and emergency rooms, long-term care facilities and public health units, etc. within one year.

Drivers for planning and implementing EHR - The top four most significant drivers were: improving quality and safety, availably of grant funding and Medicare/Medicaid incentives.

Barriers to EHR implementation – Only one facility indicated achieving physician acceptance had great impact as a barrier. Remaining barriers such as: change of workflow patterns, developing a sustainable business plan, justifying return on investment, and lack of data recovery/disaster planning were listed but had little impact.

Meaningful Use - All clinics have eligible providers who have attested to meaningful use; one attested for Medicare incentives in 2011 and the others will in 2012; all respondents are eligible to attest to adopt, implement and upgrade for Medicaid incentives two have already done so (2011) and the remaining two will attest in 2012.

Health IT Workforce

Two of three CHCs and the one RHC have a person designated to oversee IT. The following skills were the top three listed: ability to conduct reports from the EHR, conduct workflow analysis and redesign and trainers on how to use the EHR.

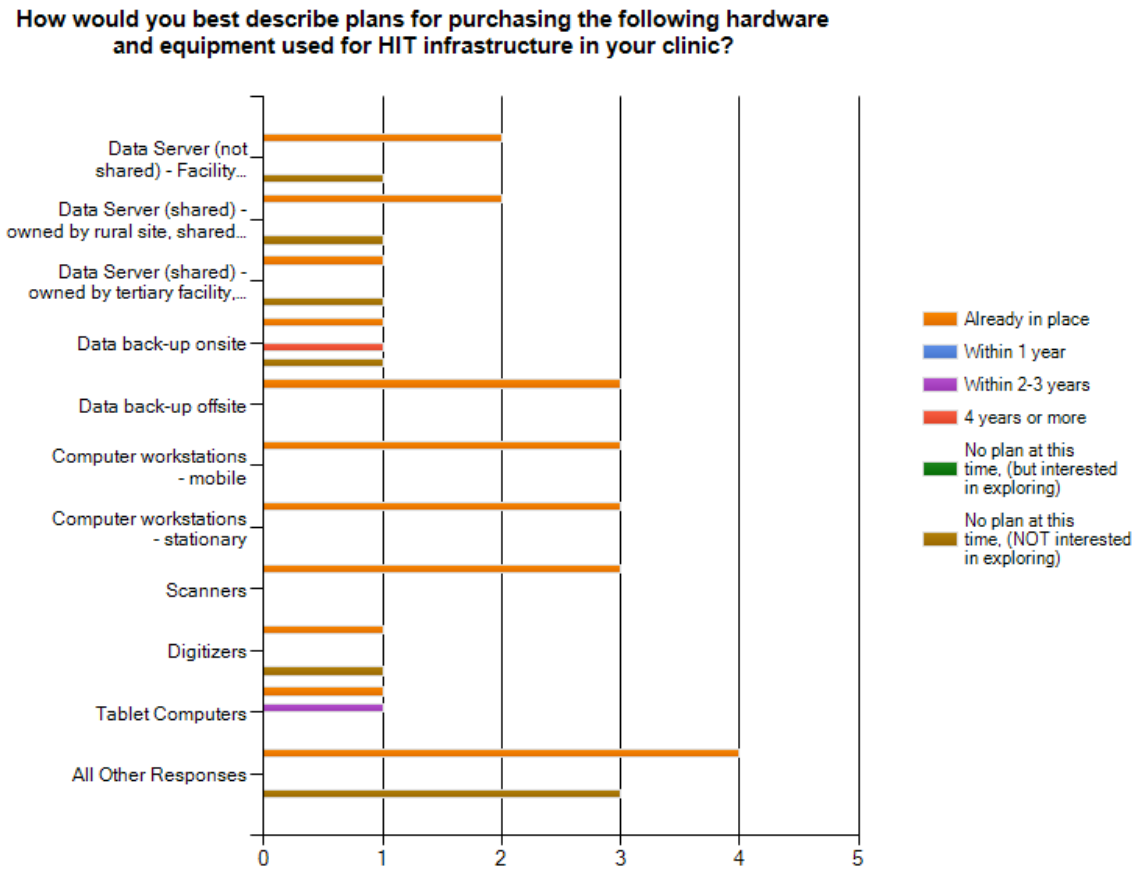
IT Infrastructure – Hardware, Software and Equipment

- computers in all the facilities were networked; three client to server and one peer to peer network,

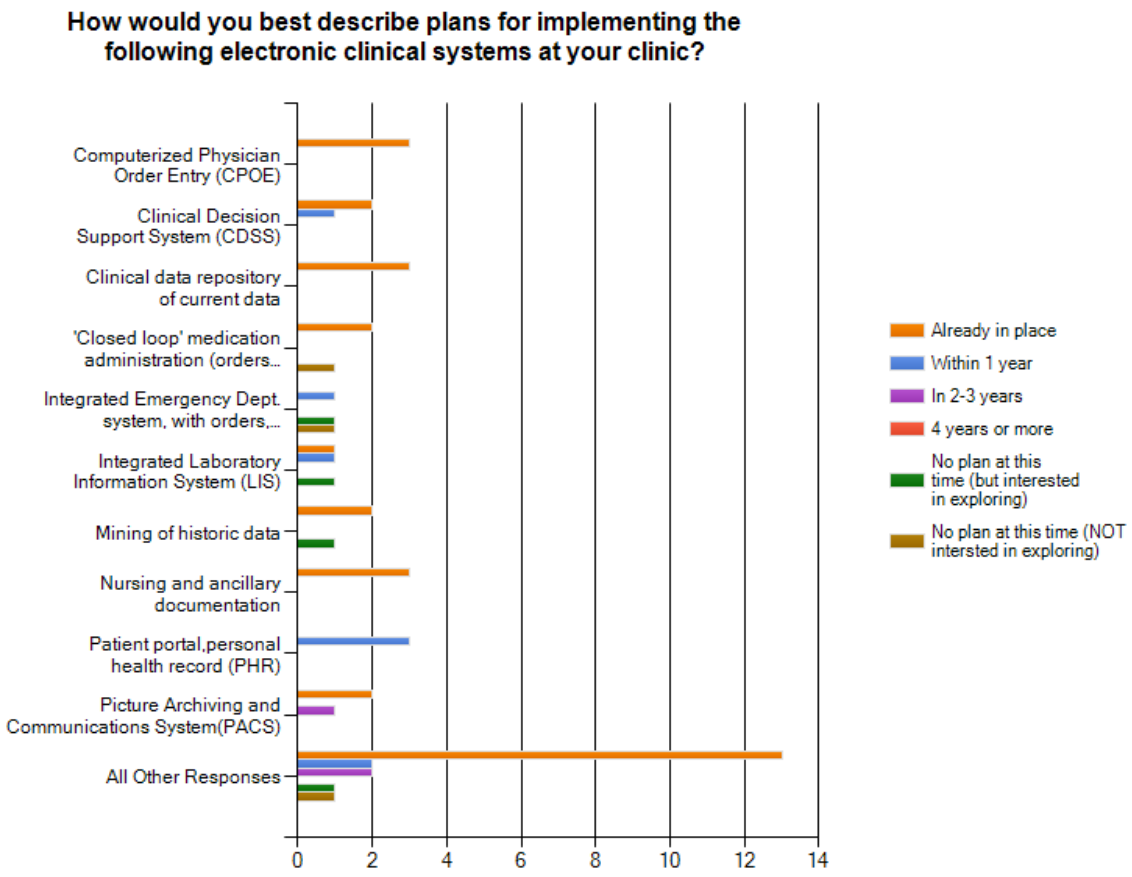
- upload Capacity was 2-5 (Mbps) and download Capacity 11.82-20 (Mbps),

- electronic administrative and financial systems as well as patient management processes are already in place, and

- much of the necessary hardware and equipment is already in place for a solid HIT infrastructure.



Electronic clinical systems already in place: CPOE, PACS, clinical data repository, physician, nursing, and ancillary documentation; and electronic signature.



Clinical Laboratory Use

Only one facility responded to the questions in this section.

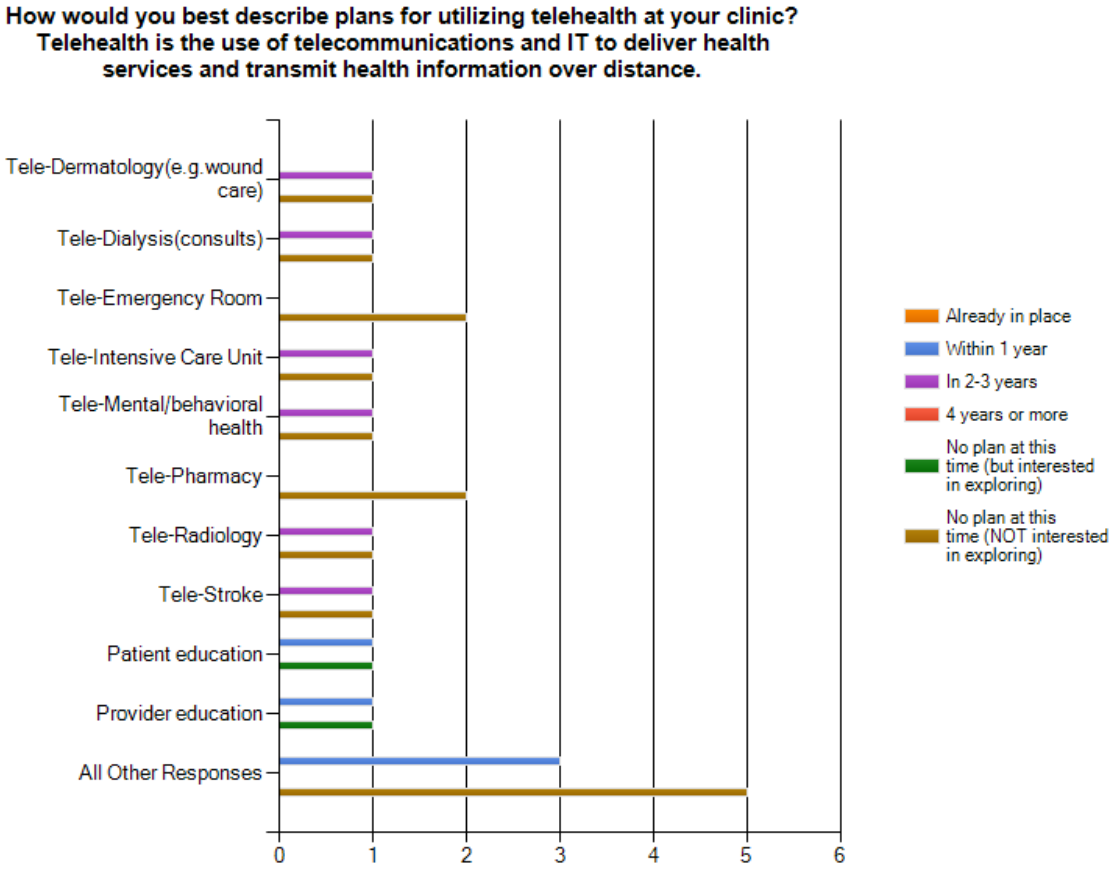
Financing

The number one answer to financing the HIT systems was through the Medicare and Medicaid incentive payments; second operational budget then grants and state loans. One facility has already taken advantage of the state loan program and two additional facility expressed interest in exploring the loan program.

The current operating budget for HIT ranged from less than 1% of overall operating revenue to 4-6% and most indicated the budget would remain the same in the next 2-5 years.

Telehealth Utilization

Most of the respondents indicated they anticipate using telehealth or videoconferencing in the next year for provider and patient education and advance in 2-3 years with more clinical use of telehealth.



PHARMACY SURVEY RESULTS

The number of responses was unfortunately very low; however, the intention is to revise the survey tool and redistribute with the assistance and support of the ND Board of Pharmacy and the ND Pharmacists Association.

Responses 17 responses were received (9 rural and 8 urban)

Pharmacies responding represented:

16 pharmacists and 12 pharmacy technicians

15 independent pharmacies and 2 other

Note: A recent report made available from Surescripts, an e-prescription network which connects prescribers in all 50 states, indicated a substantial increase in e-prescribing activity for North Dakota. In the 2011 report, ND was ranked 49th and the recently released 2012 report ND moved to 18th.

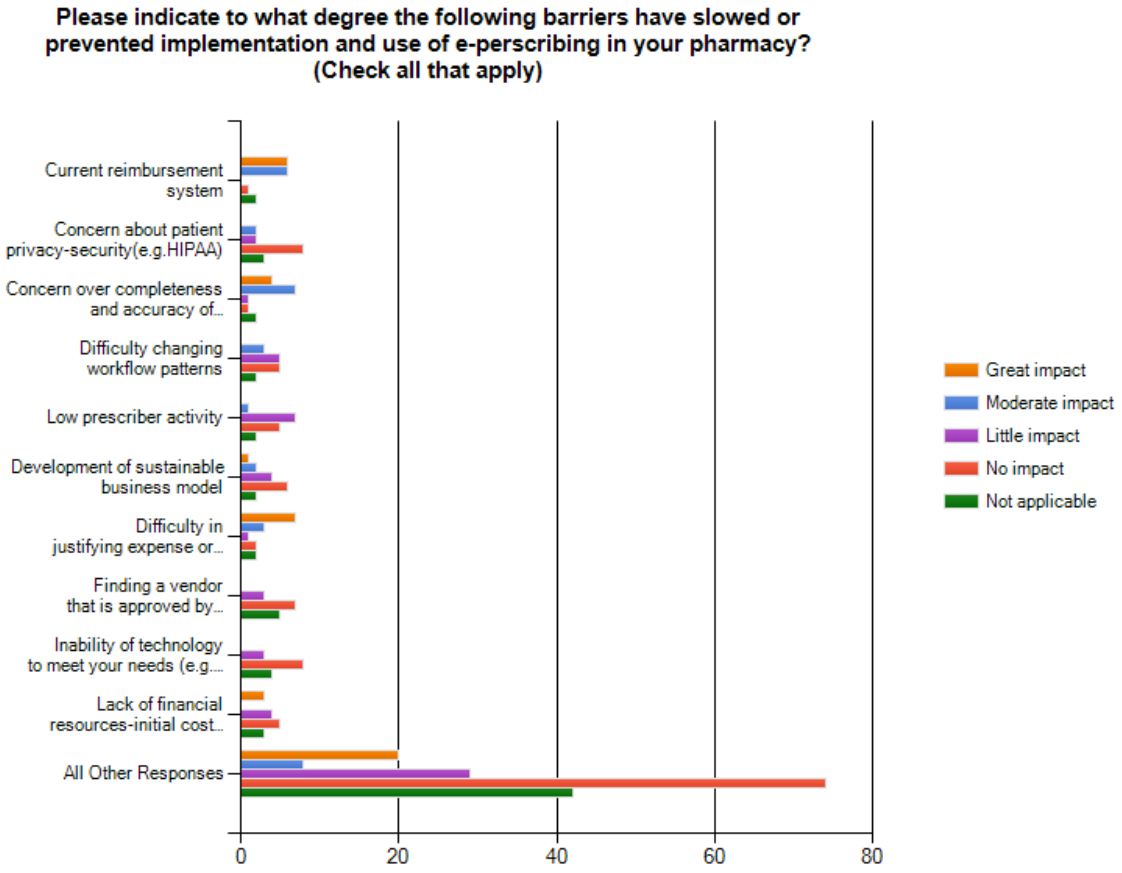
In order to gauge the level of understanding of electronic-prescribing the following definition was provided "The transmission, using electronic media, of prescription or prescription-related information between a prescriber, dispenser, pharmacy benefit manager, or health plan, either directly or through an intermediary, including an e-prescribing network. E-prescribing includes, but is not limited to, two-way transmissions between the point of care and the dispenser."
The majority of respondents indicated a solid level of understanding of e-prescribing as indicated in the table below.

Level of understanding of e-prescribing	Number of Respondents
Know some e-prescribing terms and concepts	1
Familiar with broad e-prescribing concepts	4
Solid level of understanding	10
Deep understanding/subject matter expert	2

Fifteen of the 17 respondents indicated that e-prescribing was currently implemented and in use; one will implement in six months and only one indicated they have no plan to enable

e-prescribing. They indicated a wide range (16%-99%) of prescriber adoption of e-prescribing in their pharmacy service area.

The figure below illustrates the barriers that slowed or prevented implementation and use of e-prescribing.



Number one barrier identified that had the greatest impact on slowing or preventing the implementation and/or use of e-prescribing was prescription transaction fees; and second was difficulty justifying expense or return on investment. Two additional barriers, current reimbursement system and concern over completeness and accuracy of (medication) records had only moderate impact; and low prescriber activity had little or no impact.

The majority of respondents utilize electronic transactions for new prescriptions, secondly for renewal prescriptions and pay transaction fees ranging from .20 cents to.34 cents with the most common being .20 and .25 cents. Most respondents indicated they use Surescripts with 101-300

as the average dispensing volume per day.

Top three ways of receiving or requesting prescriptions and related information.			
Pharmacy receives new prescriptions from prescribers	Phone	Fax	Paper
Pharmacy receives renewals from prescribers	Phone	Fax	e-prescribing system
Pharmacy requests renewals from prescribers	Fax	e-prescribing system	
Pharmacy receives requests from patients	Phone	Voicemail	Website or e-ordering system
Pharmacy receives requests for medication history	Phone	Voicemail	Fax
Pharmacy send results for medication history	Fax	Paper	Phone
Pharmacy communicates with providers to reconcile prescriptions	Phone	Fax	e-prescribing system

Sharing of Care Summaries

Only one pharmacy indicated they could send and receive Care Summaries to long-term care facilities. The majority of the remaining respondents indicated they had no plan to do this but were interested in exploring.

Health IT Workforce

The majority of respondents indicated they did not have a dedicated individual to oversee information technology (IT); were not interested in sharing an IT staff person; and did not intend to expand IT staff due to not having the resources to do so; or second, would not be implementing technologies that would warrant additional staff.

HIT Infrastructure – Hardware, Software and Equipment

The majority indicated their computers were networked (client to server or peer to peer); and most had internet access; had data back-up onsite; and had completed the annual HIPAA required risk assessment for each computer on their network.

Financing

The current operating budget for HIT varied from less than 1% to 6% and most were unsure how much their projected (HIT) budget might change in the next 2 to 5 years. However, five respondents indicated they would be interested in exploring the state loan program.

LONG-TERM CARE SURVEY RESULTS

As mentioned in the methodology, the survey tool used was a modification of a survey developed by Stratis Health (MN's Medicare Quality Improvement Organization [QIO]). The survey was disseminated electronically, following the regional meetings, to the members by the LTC Assoc.; data was collected and analyzed by the North Dakota Healthcare Review (ND's QIO and partner with REACH). This survey tool was similar, however it did not include all of the same questions from the ND HIT Environmental scan surveys of LTC in 2008; therefore, some information was not available for comparison in 2012.

The following definition was included: *Electronic health record is a real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision-making. This does not include excel, access, or similar tools. An EHR system may interface with the Minimum Data Set (MDS) software but MDS software alone does not constitute an EHR system.*

Description of an EHR in a licensed nursing homes and certified boarding care homes EHR systems may include functionalities and activities such as medication administration record, assessment, care planning, documentation of clinical notes , diagnosis lists, progress notes, orders, and decision support tools an may support electronic exchange of health information.

Responses

28 of 58 assisted living facilities
34 of 64 basic care facilities
53 of 84 nursing facilities

Electronic Health Record (EHR) Adoption, Implementation and Use

In the 2008 survey, 100% of the respondents did not have an EHR in place; however, many facilities indicated interest in exploring software/technology for clinical notes, care planning, decision support tools, e-prescribing and exchanging health information. Survey results in 2012

show a notable change from 2008 to 2012 in EHR implementation.

Which statement best describes your facility's current EHR system?	Assisted Living		Basic Care		Nursing Facility	
We do not have an EHR system	12	44.44%	16	48.48%	6	11.32%
We have an EHR system implemented and in all of our facility	7	25.93%	3	9.09%	22	41.51%
We have selected or begun implementing an EHR system but are not yet using the system	4	14.81%	10	30.30%	11	20.75%
We are assessing and/or planning for the adoption of an EHR system but have not selected and are not using a system	2	7.41%	2	6.06%	8	15.09%
We have an EHR system implemented and in use for some of units of our facility	2	7.41%	2	6.06%	6	11.32%

The table below illustrates respondents' plans regarding an EHR system within the next 18 months.

	Assisted Living		Basic Care		Nursing Facility	
Increase the functionalities/capability/use of the EHR	7	21.21%	7	17.50%	21	30.00%
Select and implement an initial EHR system (e.g. first EHR system for facility).	4	12.12%	6	15.00%	14	20.00%
Develop capacity of EHR system to electronically exchange health information with another system (exchange readiness).	2	6.06%	4	10.00%	13	18.57%
Assess and plan for EHR system	6	18.18%	6	15.00%	7	10.00%
No plans to adopt or use an EHR system	6	18.18%	8	20.00%	2	2.86%
No major changes planned to current EHR system	4	12.12%	1	2.50%	6	8.57%
Electronically exchanging health information with another system (interoperability).	1	3.03%	2	5.00%	5	7.14%
Do not know	2	6.06%	5	12.50%	1	1.43%
Select and implement a new EHR system (e.g. change to a different vendor or system).	1	3.03%	1	2.50%	1	1.43%

The tables below include the various EHR functionalities that the LTC facilities are either currently using through an EHR or plan to use within the next 18 months. Uncertainty exists with regard to using EHR for Computerized Provider Entry Order Provider (CPOE); diagnostics such as viewing laboratory and radiology results; public health reporting for reportable diseases and immunizations, and e-prescribing.

Current or planned use of EHR functionalities	Assisted Living	Basic Care	Nursing Facility
Vital signs (e.g., blood sugar, O2 levels)			
Plan to use through EHR in next 18 months	6	12	22
Currently Using through EHR	8	5	27
Resident list/census			
Currently Using through EHR	12	10	37
Plan to use through EHR in next 18 months	5	7	11
Medication administration record (eMAR)			
Plan to use through EHR in next 18 months	8	12	24
Currently Using through EHR	9	5	24
Care plan			
Currently Using through EHR	10	9	35
Plan to use through EHR in next 18 months	7	9	15
Clinical notes			
Plan to use through EHR in next 18 months	9	12	24
Currently Using through EHR	6	4	22
Diagnosis or condition list			
Currently Using through EHR	9	6	32
Plan to use through EHR in next 18 months	8	11	19
Assessments other than MDS			
Plan to use through EHR in next 18 months	6	11	25
Currently Using through EHR	6	4	24
Allergy list			
Currently Using through EHR	8	5	28
Plan to use through EHR in next 18 months	8	12	20
Resident demographics			
Currently Using through EHR	12	10	37
Plan to use through EHR in next 18 months	5	8	12
Activities of Daily Living (ADLs)/ Point of Care (POC)			
Plan to use through EHR in next 18 months	7	12	23
Currently Using through EHR	6	5	26
Therapy/treatment plan			
Currently Using through EHR	10	7	22
Plan to use through EHR in next 18 months	5	10	21

Current or planned use of EHR functionalities (continued)	Assisted Living	Basic Care	Nursing Facility
Medical history and physical			
Plan to use through EHR in next 18 months	8	12	32
Currently Using through EHR	4	3	14
Advance directives			
Plan to use through EHR in next 18 months	5	7	22
Currently Using through EHR	7	5	16
Electronic documentation of MDS assessment/CAAs			
Currently Using through EHR	9	10	36
Plan to use through EHR in next 18 months	2	5	16
Medication reconciliation			
Plan to use through EHR in next 18 months	5	9	21
Do not know	7	9	13
Nursing Orders			
Currently Using through EHR	8	5	24
Plan to use through EHR in next 18 months	6	9	20
Medications			
Currently Using through EHR	10	7	23
Plan to use through EHR in next 18 months	5	9	20
Physician Orders			
Currently Using through EHR	10	6	23
Plan to use through EHR in next 18 months	4	7	20
Computerized Provider Entry Order Provider (CPOE)			
Do not know	8	8	13
Plan to use through EHR in next 18 months	2	4	14
Results Viewing Laboratory reports			
Plan to use through EHR in next 18 months	5	9	22
Do not know	8	7	10
Radiology reports			
Plan to use through EHR in next 18 months	6	9	20
Do not know	8	8	12
Public health reporting			
Do not know	9	12	21
Plan to use through EHR in next 18 months	4	5	15
e-Prescribing			
Do not know	10	12	18
Plan to use through EHR in next 18 months	5	6	18

The number one challenge, amongst all three types of LTC facilities, that affect EHR adoption, implementation and upgrades, was cost or financial resources which is consistent with 2008.

Facilities were asked about the ability to electronically send or receive information to or from a variety of partners (e.g. other LTC, clinics, behavioral health, hospice, hospitals etc.). The majority of responses implied they didn't know or the facility was not electronically sending or receiving information and there were no plans to be in the next 18 months.

Health IT Workforce

Second to cost, the LTC facilities indicated having internal staff without EHR related knowledge and technical resources; and not having information technology staff with knowledge as the biggest challenges that affected the EHR adoption, implementation and upgrades. The top three EHR related skills most needed was: people to train on how to use EHR; people to design, maintain and customize the EHR; and a person to lead the implementation.

What EHR Related skills and/or roles are in the greatest need in your organization?	**Assisted Living**		**Basic Care**		**Nursing Facility**	
People to train staff on how to use the EHR	15	24.19%	16	23.88%	28	25.93%
People to help design, maintain and customize an EHR for use in your facility.	14	22.58%	12	17.91%	24	22.22%
A person to lead the implementation of an EHR	13	20.97%	16	23.88%	19	17.59%
People to manage and process the data, information, and knowledge (e.g. informatics nurse or clinician).	7	11.29%	7	10.45%	15	13.89%
People to get the EHR ready for use (e.g. entering order, patient information, etc.)	7	11.29%	7	10.45%	13	12.04%
People to develop and write reports from an EHR	3	4.84%	6	8.96%	6	5.56%
Other	3	4.84%	3	4.48%	3	2.78%

HIT Infrastructure – Hardware, Software and Equipment

Questions were not included, in the NDHCR survey, querying availability of hardware and other equipment related to IT infrastructure.

Financing

Facilities were asked how they currently or intend to fund the costs affiliated with implementing an EHR. The majority in their capital budget, with an unsure; however, interest was expressed in the State HIT loan program.

Funding	Assisted Living		Basic Care		Nursing Facility	
Capital budget	10	33.33%	12	35.29%	29	47.54%
Unsure at this time	14	46.67%	14	41.18%	10	16.39%
State loan program	2	6.67%	3	8.82%	10	16.39%
USDA grant	2	6.67%	2	5.88%	3	4.92%
USDA loan	1	3.33%	2	5.88%	3	4.92%
Other grants	1	3.33%	1	2.94%	4	6.56%
Other loans		0.00%		0.00%	2	3.28%

Telehealth Utilization

A small number of respondents, from all three LTC facilities (nursing first, next basic care and last assisted living) use telehealth for patient and provider education, tele-dermatology and telemental/behavioral health. However, a substantial number of facilities showed they were not currently using tele-dermatology (wound care); education provider but were interested in exploring telemental/behavioral health, tele-dermatology (wound care); patient/staff and provider education provider and other clinical services. It appears the interest in exploring telehealth has increased from the 2008 survey results.

LOCAL PUBLIC HEALTH UNIT/DEPARTMENT SURVEY RESULTS

Responses 19 of 28 single/multi-county public health departments/units responded

Representing:

13 rural public health units

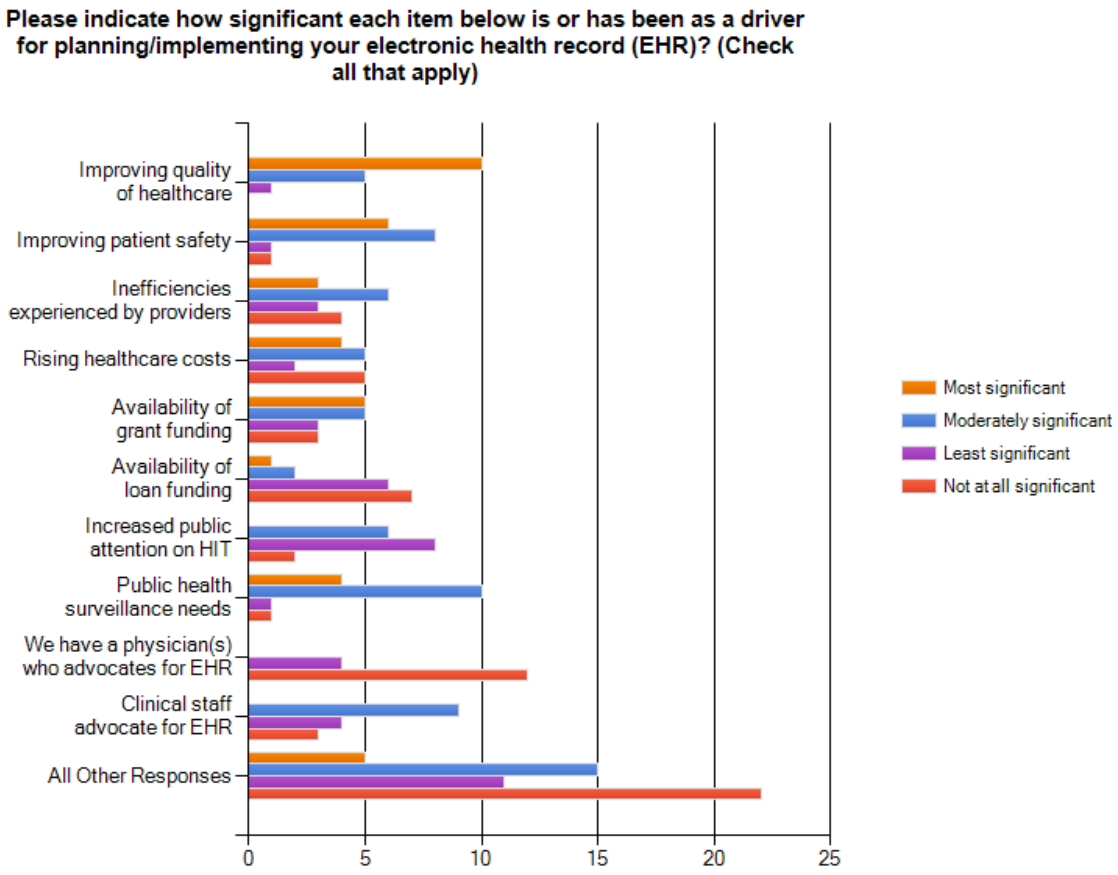
4 urban (Fargo, Grand Forks, Bismarck and Mandan)

139 nurses; 24 dietitians; 3 physicians and 73 other employees

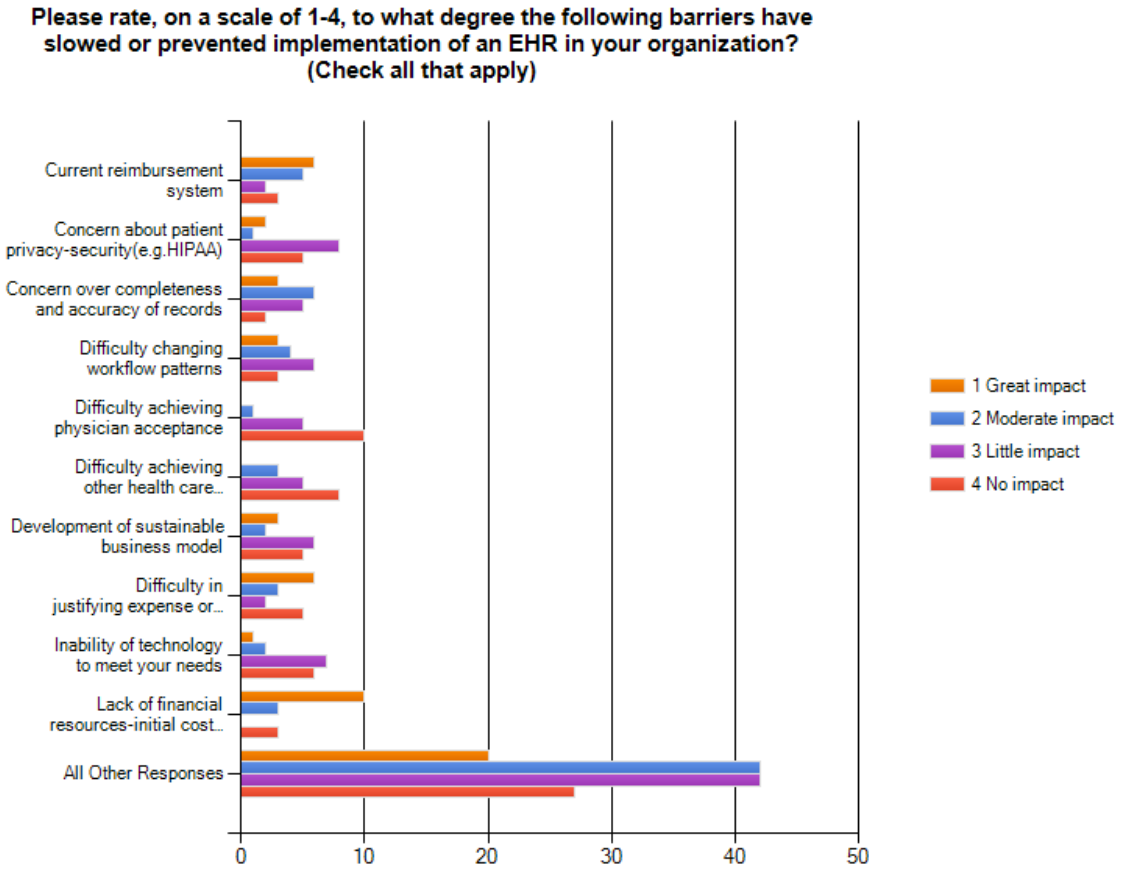
Electronic Health Record (EHR) Adoption, Implementation and Use

Seven respondents indicated an EHR was in place or will be implemented in 2012. Remaining respondents are in the process of implementing most 2012 -2013. At this point there is no "certified" EHR for public health. The most common vendor being used in ND public health units/departments is Champ Software and their Nightingale Notes product. A North Dakota Champ Users Group has been established to share information and documentation best practices among health departments. Some health departments continue to use a variety of other "program specific" software products that are not integrated into a more comprehensive EHR. These include, but are not limited to, CaST for the Women's Way Program, Ahlers for Family Planning and the North Dakota Immunization Information System (NDIIS) maintained by Blue Cross and Blue Shield of North Dakota. A variety of different software products are used by public health departments for third party reimbursement and client billing. Over half have electronic accounting and payroll in place and anticipate electronic claims submission and patient billing within one year. Streamlining all processes into fewer software applications is a goal for public health in North Dakota.

The most significant driver for planning/implementing the EHR in public health was improving quality of care and the availability of grant funding; and moderately significant drivers were public health surveillance needs, improving safety; and clinical staff and/or administrator advocating for EHR.



The barriers, having the greatest impact on slowing or preventing EHR implementation was the lack of financial resources for both the initial investment and ongoing costs of hardware and software current reimbursement system remain the same as in 2008.



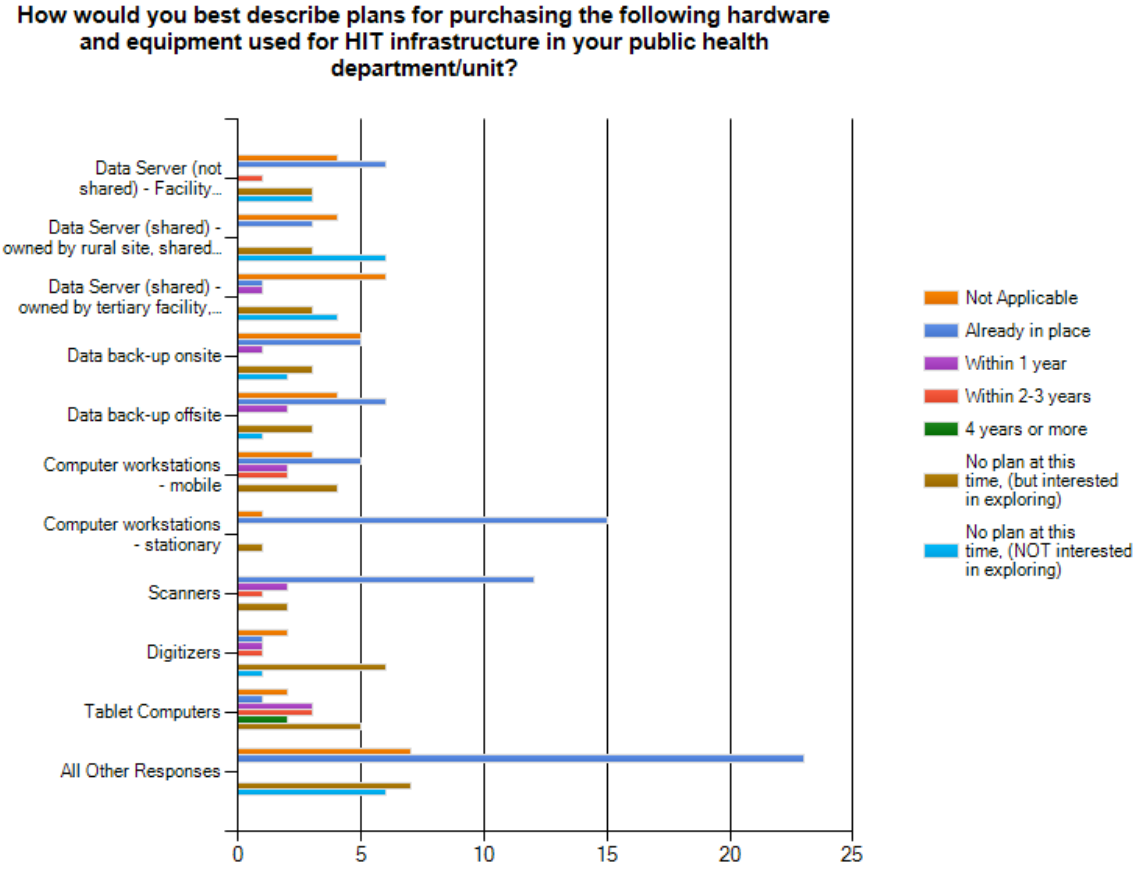
Health IT Workforce

The majority (79%) did not have an individual designated to oversee the IT systems in their facility and 60% indicated interest in sharing the services of an IT manager. The majority indicated the number of IT staff will stay the same over the next five years as they don't have the resources to expand or plan to outsource certain functions. The greatest need for EHR-related skills was in the area of design, maintenance and customization of the EHR and for trainers on how to use the EHR. All respondents indicated they had never conducted an assessment of computer skills of administrative or clinical staff; and 60% expressed interest in technical assistance in conducting work flow analysis.

HIT Infrastructure – Hardware, Software and Equipment

Computers within all public health facilities responding have internet access and are networked either (64.7%) peer to network or (35.3%) peer to peer; and are using Windows XP or Windows 7. Over sixty percent have not completed the required annual HIPAA risk assessment for each

computer in their network. The figure below illustrates hardware equipment already in place and areas interested in exploring in such as digitizers and tablets.



Financing

The majority of units/departments fund HIT systems through grants and operational budget; and three received funding support through a mill levy or local funding. Six resondents expressed interest in the ND State HIT loan program. Most current operating budgets for IT was less than 1-3% and responses varied with regard to projected spending for HIT between remaining the same, a slight increase or didn't know at this time.

Telehealth Utilzation

The greatest use was videoconferencing for meetings. A few expressed interest in exploring the use of telehealth for patient and provider education; and patient to provider or provider to provider consultations.